PROSPECTING SOCIAL RESPONSIBILITY: IDENTIFYING GAIN AND

LOSS FRAMES IN CSR REPORTS OF PETROLEUM COMPANIES

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PhD

The Hong Kong Polytechnic University

2022

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Prospecting Social Responsibility: Identifying Gain and Loss Frames in CSR

Reports of Petroleum Companies

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A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

August 2021

CERTIFICATE OF ORIGINALITY

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Chen Jieyu

Abstract

This thesis focuses on the environmental sections in American and Chinese Corporate Social Responsibility (CSR) reports produced by petroleum companies to uncover how source domains are used to advance companies' messaging and legitimize their performance on environmental issues. I focus on how WAR, JOURNEY, and BUILDING source domains in particular as previous studies have suggested they could be potentially useful for justifying the environmental practice of corporations (e.g., Ahrens et al., 2021; Jaworska, 2018; Milne et al., 2006). My corpus is based on CSR reports published by American and Chinese petroleum companies listed in the *Fortune 500* because these companies are key players in the petroleum industry in their respective countries as determined by revenue.

The thesis consists of four main studies. The first three studies examine the keywords used in each of the three source domains, the different preferences for gain and loss frames between the two countries, and the motivation for using these frames. The fourth study then compares and contrasts similarities and differences in the findings between the American and Chinese CSR reports.

The results show that both Chinese and American petroleum companies used the source domain of JOURNEY most frequently in their CSR reports. This source domain was used more often as gain frames to show how petroleum companies generate benefits for stakeholders. Chinese petroleum companies preferred the BUILDING source domain the most as infrastructure projects are high on the agenda in China. The source domain of WAR was used the least often in both corpora and involved gain frames as often as loss frames. This source domain focused on methods used to address climate change rather than emphasizing the sense of urgency or an antagonistic relationship.

In conclusion, this thesis integrated analyses used within Conceptual Metaphor Theory and applied them to Prospect Theory in order to provide insight into the similarities and differences

of WAR, JOURNEY, and BUILDING source domains legitimizing frames. Most importantly, the findings demonstrated how petroleum companies strategically reconcile various interests of different stakeholders via these legitimation strategies.

Acknowledgements

First and foremost, I would like to thank my supervisor, Prof. Kathleen Ahrens, for her patient guidance, consistent encouragement and helpful advice she has provided throughout my PhD Program. She provided me with systematic training as a future scholar and laid a solid foundation for my academic career. I learned from her how to conduct research in a rigorous manner, which is a treasure for my future research life. Dr. Dennis Tay offered me enormous help in learning statistical methods and programming. Whenever I approached him with research problems, he always helped me find solutions patiently and effectively. Prof. Chu-Ren Huang played a critical role in my thesis writing by giving me valuable advice when I was grappling with research contributions. His advice helped me to stay on the right track at a crucial point in my PhD program. I had been struggling for a long period of time in my PhD Program. Without support, understanding and patience from them, this thesis would have never been accomplished.

I would also like to thank the technicians and secretaries of the English department for helping me solve all the technical issues. Special thanks should be given to Dr. Hing Wah Amos for giving me technical support in my data collection and processing and Ms. Plosa Kwan for helping me with sorting out all the documents. Also, I would like to thank many teachers, colleagues and friends in this department for their advice, cooperation and companionship. Whenever I felt stressed and disheartened, they helped me to find my confidence back with encouraging and warm words. I especially thank people from the research group of Professor Ahrens, including Dr. Menghan Jiang, Ms. Zhuoan Chen, Dr. Huiheng Zeng, Dr. Yin Zhong, Dr. Xie Pan, Dr. Marija Todorova, Dr. Steven Wong, Dr. Mark Nartey and Ms. Serina Cheung. They gave me valuable comments on my research and offered me assistance with my thesis writing.

I must express deep gratitude to my parents, my husband and my daughter for giving me

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constant support and continuous encouragement. I could not have finished my PhD program without their understanding, support and sacrifice. I'm also grateful that my faith gave me power, peace and wisdom in my darkest days. Faith is being sure of what we hope for and certain of what we do not see. My faith helped me to see hope when there seemed to be no hope.

I encountered unimaginable challenges during this PhD program. But I also received unimaginable strength and support from my supervisors, colleagues, friends, family and faith. All the memories during the past three years will become priceless treasures for my future life.

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1. Introduction

Corporate Social Responsibility (CSR) reports are used by corporations to promote their brand and highlight their benefits to stockholders and society. In this thesis, I will focus on the environmental impact statements in these CSR reports to uncover how source domains are used to advance petroleum companies' messaging about the environment to their stakeholders and the general public.

This chapter begins by outlining the research objective of my thesis and then summarizes previous studies on how source domains are used for legitimization purposes. As the strategy of legitimization has been studied from many disciplinary perspectives, various terms have been developed to refer to this strategy. "Legitimization" and "legitimation" are used as nominal expressions; "legitimize" and "legitimate" are employed as verbal expressions. To avoid confusion, this thesis exclusively uses "legitimization" as a nominal expression of this strategy and "legitimize" as the verbal expression of this strategy. Various methods of identifying source domains that can be used for legitimization are subsequently proposed. In this process, I pointed out the practical, methodological, and theoretical gaps in previous research and proposed a specific research question to address each gap. At the end of the chapter, I demonstrate the organization of this study and indicate the potential practical, methodological, and theoretical contributions.

1.1 Previous studies of CSR reports

Of all types of corporate discourses, Corporate Social Responsibility (CSR) reports have been serving as an interesting discourse for studying how corporations legitimize their environmental performance. The purpose of reporting CSR is to provide all types of

stakeholders with information regarding a company's social impacts. It is linguistically intriguing to examine the legitimization strategy in CSR report because corporations enjoy greater discretion in reporting their CSR (Fuoli, 2018), and the audience of CSR reports are more diversified than annual reports (Filimon, 2009; Fuoli, 2018).

The environmental sections of the CSR report, in particular, can provide ideal data for studying legitimization. As the public expects the active participation of corporations in dealing with environmental issues, a growing number of companies began to place environmental issues high on the agenda (Halderen et al., 2016; O'Connor & Gronewold, 2013). Elaborating on environmental issues in CSR reports is thus vital in acquiring legitimacy (Bullis & Ie, 2007; Jose & Lee, 2007).

Some scholars found that CSR disclosure is multimodal (O'Halloran, 2009), and a variety of semiotic resources are utilized in CSR reports, among which language and image are primary ones (Rajandran & Fauziah, 2014a, 2014b). Figure 1.1 demonstrates a snapshot of a page in the CSR report published by *ExxonMobil* in 2015 and a snapshot of a page in the CSR report published by *Petro China* in 2017.

Figure 1. 1 Multimodality in CSR Reports

Figure 1.1 shows that a CSR report often contains various semiotic resources. Written language and image are the principal resources. In my thesis, however, I focus only on the language used in CSR reports. My future study will examine CSR reports from a multimodal perspective.

How language is used in CSR reports has been studied widely in many different academic fields: the field of social and environmental accounting (e.g., Deegan, 2002; Deegan & Gordon, 1996; Hrasky, 2012; Milne & Patten, 2002; O'Donovan, 2002; Patten, 1991, 1992), the fields of management, organization, and communication (e.g. Erkama & Vaara, 2010; Green, 2004; Ihlen, 2009b; Suddaby & Greenwood, 2005) and the linguistic field (e.g., Bhatia, 2012, 2013; Bondi, 2016; Breeze, 2012; Fuoli, 2018; Fuoli & Paradis, 2014; Hart, 2014; Sun et al., 2018).

Despite extensive scholarly attention to the language used in CSR reports, source domains used in CSR reports remain to be under-explored. Milne et al., (2006) and Jaworska (2018) studied source domains in CSR reports and found that companies favour WAR and JOURNEY

source domains to justify their environmental or sustainability businesses. Nevertheless, their studies focused only on a handful of linguistic metaphors and fell short of providing an insight into how source domains justify environmental practices at a conceptual level in CSR reports. Sun et al. (2018) compared the metaphor usages in Chinese and American CSR reports and suggested that the conceptual metaphors specific to the genre of CSR reports are BUSINESS ARE OBJECTS, BUSINESS IS WAR, BUSINESS IS A JOURNEY, and BUSINESS COMPETITION IS COMPETITIVE GAMES/SPORTS. Sun et al. (2018) found that the source domains of OBJECT, WAR, JOURNEY and GAMES/SPORTS can help build positive corporate images. However, they identified source domains by first conducting a keyness analysis to extract the target domain keywords that demonstrate the main concerns of the genre of CSR reports. Source domains were identified in the concordances of these target domain keywords. This identification method may not allow a comprehensive view of how a variety of issues are metaphorically conceptualized in CSR reports.

1.2 Source domains used in the CSR reports of petroleum companies

My thesis aims to investigate how source domains are used strategically to legitimize the environmental business of petroleum companies. Previous studies indicate that increasing concerns about corporations' carbon footprint and associated issues will result in a potential legitimacy gap (Babcock, 2009; Molla, 2009; Specter, 2008; Unerman, 2008). This legitimacy gap has motivated the usage of legitimization strategies. The environmental section of CSR reports produced by petroleum companies is expected to harness a wide range of legitimization strategies because petroleum companies face a legitimacy gap in terms of their environmental practices. My thesis focuses on how WAR, JOURNEY, and BUILDING source domains are used to legitimize the environmental practices of petroleum companies. Milne et al. (2006) and

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Jaworska (2018) found that the WAR and JOURNEY source domains are favored by companies to justify their environmental or sustainability businesses. Several studies suggest that the BUILDING source domain has the potential to positively construct an event or an agent by calling for patience from the audience (Ahrens et al., 2021; Charteris-Black, 2005, 2004, 2016; Lu & Ahrens, 2008).

The results of these studies indicate that the WAR, JOURNEY, and BUILDING source domains are useful for legitimizing the environmental business of petroleum companies. Nevertheless, no previous studies have conducted comprehensive research to investigate how these source domains are used as legitimization strategies in the context of the environmental sections of business discourse produced by petroleum companies. Milne et al. (2006) and Jaworska (2018) only examined a handful of linguistic metaphors from the source domains of JOURNEY and WAR. Previous studies of the BUILDING source domain primarily focused on political discourse (Ahrens et al., 2021; Charteris-Black, 2005, 2004, 2016; Lu & Ahrens, 2008). Therefore, I will address the following research question in my thesis: "What keywords are used in the source domains of WAR/JOURNEY/BUILDING in Chinese and American CSR reports and what are their frequencies of occurrences?"

1.3 Problems in identifying source domains used for legitimization

Source domains can potentially be useful in achieving a legitimization purpose because they have been proven to be effective in persuasive discourse (Charteris-Black, 2005; Chilton & Ilyin, 1993; Goatly, 2007; Kövecses, 2010; Thornborrow, 1993; Van Teeffelen, 1994). Charteris-Black (2011) indicated that source domains could be used to create legitimization because they can contribute to *logos*, *pathos*, and *ethos* by transferring "positive or negative

associations of various source words to a metaphor target" (Charteris-Black, 2011, p. 13). His work paves the way for establishing connections between source domains and legitimization because this work highlights that source domains can serve a legitimization function by implicitly influencing the audience's beliefs, attitudes, and values. However, Charteris-Black's work (2011) did not provide specific procedures to operationalize his criteria in source domain analyses. For instance, Charteris-Black argues that source domains contribute to *ethos* by "self-presenting as a judge of ethical issues" (Charteris-Black, 2011, p. 320). He did not specify how to determine whether a source domain fits this criterion.

Gain and loss frames, I argue, will provide new insight into the connection between source domains and legitimization. The gain and loss frames have been extensively studied in health communication to examine how communicators shape public opinions of a particular health risk (e.g., pandemic, screening tests, and treatment), thereby influencing them to take a recommended action. The notion of gain and loss frames stems from Prospect Theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981), which argues that people would be averse to risks when they perceive potential gains and reflect on risks when they recognize potential losses. The gain frames promote the benefits of adopting a particular action, while loss frames emphasize the losses of alternative action (e.g., Cho & Boster, 2008; Gallagher & Updegraff, 2012; Rothman et al., 2006; Rothman & Salovey, 1997). Gain and loss frames can be employed as legitimization strategies because potential gains can be viewed as ethical, while potential losses can be regarded as unethical, depending upon how the *ethos* is established. The gain and loss frame can be effective for justifying the sustainable environmental practices of petroleum companies as gaining having *ethos* and thus legitimized. Additionally, I will present clear criteria for determining if conceptual metaphors are being used as gain or loss frames.

1.4 Source domains used as gain and loss frames in CSR reports

Source domains can be utilized as a framing device because they highlight particular aspects of a concept by mapping certain elements in source domains onto corresponding elements in target domains. A variety of previous studies have investigated how source domains are used to frame climate change in different types of discourse (e.g., Atanasova & Koteyko, 2017a, 2017b; Romaine, 1996; Shaw & Nerlich, 2015). However, little research has been conducted to explore how source domains can be used as gain and loss frames. The concepts of gain and loss frames derive from Prospect Theory (Tversky & Kahneman, 1981), which holds that people have a bias towards risks and thus an alternative action framed in terms of its related costs (loss frame) or benefits (gain frame) will influence people's perception towards risks differently, even though the two frames describe similar situations (Tversky & Kahneman, 1981). In my thesis, I explore how gain-framed and loss-framed source domains are utilized to shape people's perception of the risks involved in petroleum companies' social responsibility practices in terms of environmental protection.

To delve into how source domains are used as gain and loss frames, I will answer the research question: "Are there different preferences in gain and loss frames in Chinese and American CSR reports?" Fuoli (2018) observed that, in CSR reports, companies tend to emphasize objectives and ambitions for the future. Therefore, it will be interesting to explore if the gain and loss frames in my data are more future-oriented or past-oriented. Given this, the first sub-research question under the second research question is, "Do these gain/loss frames more often frame a goal in the past, present, or future?" In addition, it would be potentially interesting to look at the issues associated with gain/loss frames as well as corporate/environmental/mixed interests. Environmental issues in CSR reporting tend to change as time goes by because companies have to attend to newly-emerged economic, social

and environmental events under pressure from stakeholders, activists or media (Pollach, 2018). To better understand which issues are addressed in CSR reports produced by petroleum companies, I intend to answer the second sub-question under the second research question: "Which topics are the goals of gain and loss frames more often associated with?"

1.5 Gain and loss frames motivated by corporate interests and environmental interests

The gain and loss frames in my data differ slightly from previous studies on gain and loss frames in that they can be motivated by different types of interests due to companies' various stakeholders. Bhatia (2012) categorized stakeholders into the following four major groups: "1) organizational stakeholders (such as employees, customers, shareholders, and suppliers); 2) community stakeholders (such as local residents and special interests groups); 3) regulatory stakeholders (such as municipalities, regulatory systems); 4) media stakeholders" (p. 222).

For organizational stakeholders, their primary interests focus on the pursuit of corporate interests. For community stakeholders, regulatory stakeholders, and media stakeholders, their primary interests tend to be the pursuit of social and environmental interests. These two different interests have the potential to motivate different perceptions of risks. Specifically, organizational stakeholders perceive losses in corporate interests as risks, while community, regulatory, and media stakeholders perceive losses in environmental and social interests as risks.

As petroleum companies inherently impact the environment, the above-mentioned two types of interests tend to be contradictory. The pursuit of corporate interests might undermine the pursuit of social and environmental interests and *vice versa*. In this vein, the perceptions of gains and losses may also be different and competing for different stakeholders. What is

considered a gain for organizational stakeholders may be considered a loss for community stakeholders, regulatory stakeholders, and media stakeholders. Similarly, gains for community stakeholders, regulatory stakeholders, and media stakeholders may be losses for organizational stakeholders.

In light of the different types of interests, it will be interesting to see which risk perceptions the petroleum companies primarily attend to when they report their environmental business and how they reconcile these competing perceptions. To address this issue, I will answer the third research question: "Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?"

1.6 Organization of the study

My thesis consists of eight chapters. The content of the first three chapters is as follows:

In order to provide a theoretical background of this thesis, Chapter 2 reviews existing literature mainly from three perspectives: Conceptual Metaphor studies, legitimization strategies studies, and source domains used as legitimization strategies. To begin, Chapter 2 reviews the studies of source domains as a persuasive tool in previous studies. This chapter then reviews the studies of legitimization in the environmental sections of CSR reports, especially those generated by petroleum companies. Finally, this chapter reviews previous literature on source domains used as legitimization strategies and explains the possibility of using source domains as gain and loss frames to legitimize the environmental business of petroleum companies.

Chapter 3 elaborates on the methodological steps and research design of my thesis. In this chapter, I will elaborate on the analysis procedures used to investigate the usages of source

domains in my thesis. Specifically, I propose the criteria for gain- and loss-framed source domains and the methodologies to identify these source domains in my data. Chapter 3 also describes the corpora that are used for source domain analysis in my thesis, which includes CSR reports published by four Chinese petroleum companies and CSR reports generated by six American petroleum companies. All of these petroleum companies are on the *Fortune 500 list* released in 2020.

Chapters 4 to 6 address the following overarching research questions and four sub-research questions:

- **RQ1: What keywords are used in the source domains of WAR /JOURNEY /BUILDING in Chinese and American CSR reports and their frequencies of occurrences?**

- **Overarching RQ2: Are there different preferences in gain and loss frames in Chinese and American CSR reports?**

RQ2a: **Do these gain/loss frames more often frame a goal in the past, present, or future?**

RQ2b: **Which topics are the goals of gain and loss frames more often associated with?**

- **Overarching RQ3: Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?**

RQ3a: **Do these corporate and environmental frames more often frame interests in the past, present, or future?**

RQ3b: **Which topics are the goals of these corporate and environmental interests more often associated with?**

Chapters 4, 5, and 6 investigate the usages of WAR, JOURNEY and BUILDING source domains as gain and loss frames in CSR reports. Chapter 4 investigates how the WAR source

domain is used as gain and loss frames; Chapter 5 explores how the JOURNEY source domain is used as gain and loss frames; Chapter 6 examines how the BUILDING source domain is used as gain and loss frames.

Chapter 7 conducts a comparative study to explore the differences and similarities in the three source domains used as gain and loss frames. This chapter answers the following research questions:

●**RQ1: Are there similarities and differences in preferences in the source domains of WAR, JOURNEY and BUILDING in Chinese and American CSR reports?**

● **RQ2: Are there similarities and differences in frequent keywords within the source domains of WAR, JOURNEY and BUILDING in Chinese and American CSR reports?**

● **RQ3: Are there similarities and differences in preferences for gain and loss frames in Chinese and American CSR reports?**

Chapter 8 summarizes the major findings in chapters 4 to 7, indicates the limitations of this study, and suggests directions for future research.

1.6.1 Methodological contributions

This study aims to provide definitions and criteria to analyze the gain- and loss-framed source domains used in the environmental sections of CSR reports. Previous studies indicate that gain frames promote the benefits of adopting a particular action, while loss frames emphasize the losses of alternative action (e.g., Cho & Boster, 2008; Gallagher & Updegraff, 2012; Rothman et al., 2006; Rothman & Salovey, 1997). Since gain and loss frames in environmental sections of CSR reports differ slightly from previous studies on gain and loss frames, they are motivated by different types of interests due to companies' various stakeholders. In light of this, my identification of gain and loss frames has two steps. The first step is to identify gain and loss

frames based on whether a frame related to a source domain involves gaining benefits or reducing losses:

a. If the goal is perceived as gaining benefits, then it is a gain frame.

b. If the goal is perceived as reducing losses, then it is a loss frame.

The second step is to determine if the frame is motivated by corporate or environmental interests:

a. If the goal of the frame is perceived as creating corporate benefits, such as generating more profits, creating a safe workplace, improving product quality, or enhancing the corporate influence, then the frame is motivated by corporate interests.

b. If the goal of the frame is perceived as creating environmental benefits, such as improving the environmental conditions or preventing environmental impacts, then the frame is motivated by environmental interests.

c. If the goal of the frame is perceived as creating both corporate benefits as well as environmental benefits, then the frame is motivated by a mix of corporate interests and environmental interests.

If the goal of the frame is perceived as creating neither corporate benefits nor environmental benefits, then the frame is motivated by neither corporate interests nor environmental interests.

1.6.2 Theoretical contributions

No studies on source domains have integrated the Conceptual Metaphor Theory with the Prospect Theory to investigate how source domains can be used as gain and loss frames. This study aims to examine how source domains can be used as gain and loss frames for

legitimization purposes. In addition, few previous studies have compared the source domains of WAR, JOURNEY and BUILDING in business discourse. This study will shed light on the similarities and differences of using these three source domains in business discourse.

1.6.3 Practical contributions

Few previous studies have conducted systematic research about how corporations address different or even competing interests of various stakeholders in business discourse. This study will cope with the gap by exploring how corporations reconcile different interests of stakeholders in the environmental sections in CSR reports.

2. Literature Review

This section reviews previous research in five areas: conceptual metaphor studies, legitimization strategy research, gain and loss frames, identification of source domains used for legitimization, and the purpose of this study. By reviewing previous research, theoretical, practical, and methodological gaps were identified, and my research questions were created accordingly. Section 2.1 reviews the previous literature on conceptual metaphor studies to provide a theoretical background for my study. Section 2.2 reviews previous literature on how legitimation strategies are used to justify the environmental business. Section 2.3 reviews the previous studies on gain and loss frames. Section 2.4 reviews previous studies on source domains used for legitimization purposes. Section 2.5 summarizes the purpose of the study of my thesis and indicates which research questions will be addressed in Chapter 4 to Chapter 7. At the end of this chapter, the organization of my thesis is introduced.

2.1 Conceptual metaphor studies

In my thesis, I will conduct my analysis under the theoretical framework of Conceptual Metaphor Theory (CMT) (Lakoff & Johnson, 1980). This theory expands metaphor research by regarding metaphor as conceptually grounded. CMT defines metaphor as "conceptual" because metaphor establishes connections systematically between concepts that seem to be unrelated (Lakoff & Johnson, 1980).

One field where the theory of conceptual metaphor is widely applied is the analysis of argumentative discourse. This type of discourse is heavily metaphorical because conceptual metaphors are pivotal in serving a persuasive function (e.g., Charteris-Black, 2005; Chilton & Ilyin, 1993; Goatly, 2007; Kövecses, 2010; Thornborrow, 1993; Van Teeffelen, 1994).

Highlighting certain aspects of reality by selecting a concrete source domain to conceptualize an abstract concept, source domains can reshape reality and sway people's perceptions. Some conventional metaphors are viewed as the facts, with their metaphorical identity largely unnoticed (Kornprobst, 2008). As a result, source domains can establish a particular social and political order by setting up a coherent world while excluding others (Kornprobst, 2008). Metaphor analysis can indicate how choices of source domains construct a belief system and achieve a persuasive function.

Despite the extensive acknowledgement of the utility of source domains as a persuasive tool in previous literature, how source domains can be used for legitimization is still under-researched. My study extends previous CMT by exploring how source domains can be used as legitimization strategies.

2.2 Source domains used for legitimization

Legitimacy is an important concept in institutional theory. Weber (1978, 1991) introduced the concept of legitimacy into sociological research and thus into organization studies. What legitimacy emphasizes is the congruence between organizational activities and social values. Richardson and Dowling (1986) defined legitimation as "social processes by which this quality of congruence is established or defended" (p. 9). However, "legitimacy" remained a vaguely-defined term used in a limited scope until Suchman (1995) gave this term a clearer definition and made legitimacy an inclusive concept. He defined legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574).

Legitimacy is fundamental for an organization's existence as this is a precondition for securing continuous support from society (Pfeffer & Salancik, 1978; Talcott, 1960; Weber, 1978). A legitimacy gap emerges when an organization's performance fails to meet society's expectations (Sethi, 1977), and the corporation's social contract is therefore breached (Hrasky, 2012). This is when legitimization is needed, as it addresses the legitimacy gap by building a perception that corporate behaviors are consistent with social norms (O'Donovan, 2002; Sethi, 1979).

2.2.1 Legitimation strategies in environmental sections of CSR reports

Legitimacy theory has emerged as a prominent theoretical framework for interpreting organizations' social disclosure practices (Bebbington et al., 2008; Campbell et al., 2003; Deegan, 2002; Gray et al., 1995). According to this theory, the purpose of generating social and environmental disclosures is to influence how the general public perceives their organizations, whereby their activities and interests are legitimized (Deegan, 2014). In recent years, companies have been pressured by a growing number of environmental laws and increasing scrutiny from stakeholders on these companies' environmental impacts. The way corporations cope with environmental issues is increasingly regarded as an essential aspect of corporate legitimacy (Hrasky, 2012).

With increased social awareness of climate change, corporations have been confronted with mounting pressure to maintain an environmentally-friendly business model. Many companies began to realize that reporting environmental issues can promote positive images and create more business (Hansen & Machin, 2008; Ongkrutraksa, 2007). However, an environmentally-friendly business model might be at odds with economic profits. A legitimacy

gap will arise if a company causes damage to the environment in its pursuit of profitability. Due to this conflict, it will be interesting to investigate how companies manage to maintain environmental legitimacy while remaining profitable.

Of all types of corporate discourses, Corporate Social Responsibility (CSR) reports serve as an intriguing discourse for exploring how corporations legitimize their environmental performance. The concept of corporate social responsibility refers to responsibilities regarding diverse groups of stakeholders as well as social and ethical issues. The purpose of reporting CSR is to offer all stakeholders information regarding a corporation's social impacts. Various labels are used to refer to this type of document. Based on Bhatia's (2012, 2013) studies on CSR reports, the business reports entitled *corporate social responsibility*, *corporate citizenship*, and *sustainability reports* were collected as my data. The covers of CSR reports labelled as *corporate responsibility report*, *corporate citizenship report,* and *sustainability report* are demonstrated in Figure 2.1:

Figure 2. 1 Covers of Corporate Responsibility Report, Corporate Citizenship Report and Sustainability Report

(Corporate Responsibility Report)　　　(Corporate Citizenship Report)　　　(Sustainability Report)

Unlike mandatory annual reports with a well-established template, CSR reports are voluntary and mostly hinge on the content and template that the company decides to use. Despite advances in standardization of reporting, as a result of the wide adoption of international reporting guidelines such as the *Global Reporting Initiative*, corporations still enjoy great discretion when reporting their CSR (Fuoli, 2018). Due to this freedom, companies can exploit various means for reality construction and, therefore, CSR reports can provide clues regarding how companies legitimize their business operations compared to other corporate documents.

Furthermore, CSR reporting covers a broad scope of topics that can address various public concerns over ethical practices. Therefore, there are high expectations among the public that companies report their CSR with greater transparency and accountability. In order to meet these public expectations while maintaining the fundamental business model, companies are tempted to exploit an array of strategies to legitimize their business.

The final reason for choosing CSR reports as our data is that environmental issues are prominent in CSR reports. The dominant initiative for reporting CSR is the global reporting initiative (GRI) (Waddock & White, 2007), which features the three bottom lines known as the three Ps: "People, Planet and Profit." In accordance with this bottom line, GRI consists of three major categories that dictate what companies need to report on: social, environmental, and economic issues. Among these three aspects, environmental issues have recently gained prominence in CSR reports.

Compelling evidence reported by IPCC that climate change is human-induced raises public awareness about possible environmental impacts generated by corporations. As the public expects an active engagement of corporations in dealing with environmental problems, an increasing number of companies have begun to place environmental issues high on the agenda

(Halderen et al., 2016; O'Connor & Gronewold, 2013). Since the fundamental goal of reporting corporate responsibility is to promote legitimacy by addressing public concerns of social problems (Herlin & Solitander, 2017; O'Connor & Gronewold, 2013; Palazzo & Scherer, 2006), elaborating on environmental issues in CSR reports is vital in acquiring legitimacy (Bullis & Ie, 2007; Jose & Lee, 2007). Therefore, environmental sections in CSR reports can serve as a suitable repository for investigating how companies use legitimation strategies to address legitimacy gaps.

Each CSR report is comprised of a variety of sections covering different aspects of a corporation's business. At least one section in every CSR report is associated with environmental issues. I categorized these sections generally as "environmental sections" and collected them as my data. Figure 2.2 demonstrates the environmental sections of the CSR report published by *ExxonMobil* in 2016.

Figure 2. 2 Environmental Sections of CSR Reports

Figure 2.2 demonstrates all the sections of the CSR report published by *ExxonMobil* in 2016. Two chapters in this CSR report are related to the environmental practices of *ExxonMobil*: "Chapter 2: Managing climate change risks" and "Chapter 3: Environmental performance." These two chapters are thus categorized as the environmental sections in this CSR report.

2.2.2 Legitimation strategies of the petroleum industry

CSR reports of "carbon-intensive" or "environmentally sensitive" industries, particularly the petroleum industry, have attracted extensive scholarly attention (e.g., Bhatia, 2012, 2013; Ihlen, 2009a; Jaworska, 2018; Livesey, 2002; O'Connor & Gronewold, 2013). Environmental sections of CSR reports produced by the petroleum industry are suitable data for analyzing legitimation strategies. Legitimization strategies are essential for the petroleum industry because it faces a wider gap in environmental issues than other industries.

Previous studies indicate that mounting concerns about corporations' carbon footprint and related issues are likely to invoke a potential legitimacy gap (Babcock, 2009; Molla, 2009; Specter, 2008; Unerman, 2008). This gap necessitates the deployment of legitimation strategies (Ihlen, 2009a; McDonnell & Bartlett, 2009). Bansal and Kistruck (2006) noted that companies with "visible environmental impacts" are under more intense scrutiny from stakeholders and tend to emphasize environmental sustainability.

Of all industries, the petroleum industry is especially active in reporting its CSR because this industry is widely viewed as one of the major contributors to environmental degradation (Jaworska, 2018). The core business of the petroleum industry —the burning of petroleum—is considered the major source of greenhouse gases. To maintain the legitimacy of this industry,

77% of the petroleum industry voluntarily releases CSR reports as a response to public concerns over environmental issues (O'Connor & Gronewold, 2013).

Enthusiasm for reporting environmental issues does not necessarily mean the petroleum industry is fully committed to coping with climate change. Tackling climate change poses a tough challenge to the petroleum industry because its core business involves generating gas and petroleum. The burning of gases and petroleum produces carbon dioxide, widely viewed as the primary culprit in global warming. In order to tackle climate change comprehensively, a fundamental shift in the petroleum industry's business model is required, which is a price it cannot afford. Justifying legitimacy and maintaining a business model is a dilemma staring this industry in the face.

Often times petroleum companies are reluctant to make actual changes in their business model (Cadez & Czerny, 2016; Ihlen, 2009a; Jaworska, 2018; Kolk & Pinkse, 2004). One easy way out is to promote technology- and market-based solutions. Many scholars have noticed that carbon-intensive sectors seem to hail the technology- and market-based solutions to climate change as a win-win strategy (Dunn, 2014; Ihlen, 2009b; Kolk & Pinkse, 2004; Tang & Yeoh, 2007). Some petroleum companies might try to redefine the concept of sustainability and construct weak sustainability (Livesey, 2002; Milne et al., 2006). When it comes to the issues of alternative energy sources, petroleum companies justify the depletion of petroleum and gas by emphasizing energy necessity and energy demands (Ihlen, 2009b). Despite extensive scholarly attention to legitimation strategies used by the petroleum industry, only a small number of studies have investigated how petroleum companies legitimize their environmental business with language. Fuoli & Hart (2018) noted that the actions of organizations are rarely observable to non-members. This relative unobservability of corporate behaviors means that stakeholders' impressions of a company are often dictated by discourse (Fuoli & Hart, 2018).

2.2.3 Linguistic strategies used as a legitimation strategy

Research in the social and environmental accounting literature tends to look at how disclosures are used to achieve the legitimacy of environmental and social behaviors of companies (e.g., Deegan, 2002; Deegan & Gordon, 1996; Hrasky, 2012; Milne & Patten, 2002; O'Donovan, 2002; Patten, 1991, 1992). However, they pay primary attention to the information content of social disclosures by adopting content analysis to study legitimacy strategies in the disclosures. Hrasky (2012) compared the legitimation strategies deployed in the footprint-related disclosure of carbon-intensive between less carbon-intensive industries. His study adopts a content analysis approach, which is to identify the main themes via data coding. The analysis unit in this research is *sentence*. A range of coding categories was extrapolated inductively from the data to describe the nature of the disclosures. He found that carbon-intensive sectors seem to favor moral legitimation strategies, whereas less carbon-intensive sectors use more symbolic disclosure. This research demonstrates the distinctiveness of the legitimization strategies used by carbon-intensive sectors in environment-related discourse. Content analysis, nevertheless, is a reductionist approach towards legitimization and can only demonstrate the extent to which corporations attend to environmental issues and topics they use. A discursive perspective could provide a deeper insight into legitimation strategies employed by CSR reports.

Many legitimacy scholars in the fields of management, organization, and communication focused on how Aristotelian topoi as a strategy of argumentation and/or Aristotelian modes of persuasion are used to legitimize organizational practices (Erkama & Vaara, 2010; Green, 2004; Ihlen, 2009a; Suddaby & Greenwood, 2005). Rhetorical analyses are useful for legitimization studies because rhetoric is the art of persuasion, and legitimization can be regarded as a process of making persuasive arguments to justify organizational practices (Dunn, 2014; Green, 2004; Green et al., 2009; Suddaby & Greenwood, 2005). Erkama and Vaara (2010) drew from the

New Rhetoric theory to investigate rhetorical legitimization strategies in business discourse documentary materials regarding the shutdown negotiations (Green, 2004; Perelman & Olbrechts-Tyteca, 1969; Suddaby & Greenwood, 2005; Vaara et al., 2006). These materials include minutes of meetings, emails, and reports about restructuring, press releases, newspaper articles, T.V. news, etc. Erkama and Vaara (2010) distinguished five types of rhetorical legitimization strategies and dynamics used in different types of arguments. These strategies include three classical dynamics of *logos*, *pathos*, and *ethos*, and two newly-developed dynamics: "*autopoiesis*," and "*cosmos*." However, Erkama and Vaara (2010) classified rhetorical strategies based more on specific themes in the discourse rather than language in use.

The perception of legitimization as a persuasion or argumentation process accords with the understanding of legitimization from a linguistic perspective. Researchers in the linguistic research field also consider legitimization to be a process of providing reasons or justifications for actions that might invite or have received criticisms from others (Breeze, 2012; Charteris-Black, 2016; Van Leeuwen, 2007). The framework of legitimization proposed by Van Leeuwen (2007) has been widely adopted to analyze how every system of authority establishes and cultivates the belief in its legitimacy. Van Leeuwen (2007) proposed the identification methods of four categories of legitimization: 1) authorization, 2) moral evaluation, 3) rationalization, and 4) mythopoesis. Van Leeuwen's (2007) framework was extensively applied in political discourse studies (e.g., Amer, 2009; Baker et al., 2013; Hansson, 2015; Oddo, 2011; Reyes, 2011). Nevertheless, Van Leeuwen's (2007) legitimization types are demarcated based on types of legitimate authority rather than types of linguistic devices, which provides little insight into which particular linguistic tools are effective for legitimization.

Apart from studies on legitimization in political discourse, a multitude of studies within Critical Discourse Analysis (CDA) has investigated how companies use discursive strategies to build a positive brand or image in business discourse, whereby legitimizing their corporate

activities (Bondi, 2016; Breeze, 2012; Brei & Böhm, 2014; Fuoli, 2012, 2018; Fuoli & Paradis, 2014; Hart, 2014; Koller, 2007, 2008a, 2009; Lischinsky, 2011; Lischinsky & Sjölander, 2014; Merkl-Davies & Koller, 2012; Skulstad, 2008). Breeze (2012) investigated how legitimation strategies are used in the messages to shareholders in annual reports produced by six leading American and European petroleum companies in 2010. Breeze (2012) observed that to address the legitimacy gap after an oil-leaking disaster, the chairperson first explains the rescue operation and a promise to avoid risks and then elaborates on how *B.P.* will shoulder financial responsibilities in the Gulf of Mexico. In general, petroleum companies portray their actions of petroleum corporations as necessary and valuable. For instance, according to the law of economics, all demands have to be met by supply, which justifies all the activities of the petroleum companies. Breeze's (2012) work sheds light on how petroleum companies legitimize their business that inherently involves environmental risks. However, this study falls short of providing a systematic view of what types of linguistic strategies petroleum companies use to achieve the legitimacy of their environmental business.

Other linguistic scholars have found that stance expressions play an instrumental role in legitimizing corporate behaviors in CSR reports (Bondi, 2016; Fuoli, 2012; Fuoli & Paradis, 2014; Hart, 2014). Fuoli (2012) investigates the stance expressions used in CSR reports of *B.P.* and *Ikea* to investigate how these linguistic means are used to construct positive corporate identities and legitimize corporate activities. Hart (2014) examined how different forms of the stance-taking act in the CSR reports are deployed for a legitimization purpose. Bondi (2016) delved into the markers of futurity in CSR reports and demonstrated how modal verbs and other makers highlight a company's attention and determination to be ethical. Fuoli and Paradis (2014) explored the functions of stance in the discursive repair of trust after a crisis. A few studies have conducted in-depth research into how source domains can be used as legitimization devices in CSR reports.

2.2.4 Source domains used as legitimization strategies

Source domains can potentially be useful in achieving a legitimization purpose because they have been proven to be effective in persuasive discourse (Charteris-Black, 2005; Chilton & Ilyin, 1993; Goatly, 2007; Kövecses, 2010; Thornborrow, 1993; Van Teeffelen, 1994). Charteris-Black (2011) claimed that source domains could be used to create legitimization because source domains can contribute to *logos*, *pathos*, and *ethos* by transferring "positive or negative associations of various source words to a metaphor target" (p.13).

Charteris-Black's (2011) work paves the way for connecting source domains with legitimization as he points out source domains can implicitly influence the audience's beliefs, attitudes, and values, in which way politicians are construed as ethical, and their *ethos* is established. Charteris-Black (2011) claimed that source domains establish the *ethos* of politicians by self-representing them "as the judges of ethical issues" (p. 320). Gain and loss frames, I argue, will provide new insight into the connection between source domains and legitimization, especially for legitimizing the environmental business of petroleum companies.

2.3 Gain- and loss-framed source domains as legitimization strategies

2.3.1   Brief introduction of gain and loss frames

The framing technique has been proven to be effective in influencing how people think and reason about climate issues. For instance, Feinberg and Willer (2013) noted that conservatives would be more likely to express their support for environmental protection if the issue is framed

as the moral consciousness of purity. Hardisty et al. (2010) found that Independents and Republicans would advocate for a carbon tax as likely as Democrats if the tax is framed as an *offset* cost instead of a *tax*. Gain and loss frames, two frames extensively studied in health communication, have received scarce attention in communication about climate change. These two frames are arguably useful for legitimizing petroleum companies' environmental business because this business involves potential risks.

The gain and loss frames have been extensively studied in health communication to examine how communicators shape public opinions of a particular health risk (e.g., Cho & Boster, 2008; Cho & Choi, 2010; Gallagher & Updegraff, 2012; Kim, 2012; Quick & Bates, 2010) and thereby persuade them into a recommended action. The concepts of gain and loss frames derive from the Prospect Theory (Tversky & Kahneman, 1981), which holds that people have a bias towards risks and thus an alternative action framed as regards its related costs (loss frame) or benefits (gain frame) will influence people's perception towards risks differently, even though the two frames describe similar situations (Tversky & Kahneman, 1981). For instance, to promote the behavior of doing exercises regularly, a gain frame formulates the communication in the form that "exercising regularly can help you lose weight" (Gallagher & Updegraff, 2012, p. 101). A loss frame might be "not exercising regularly can make you gain weight" (Gallagher & Updegraff, 2012, p. 101).

The effects of gain and loss frames have also been studied in the field of environmental communication (Davis, 1995; Newman et al., 2012). Researchers have suggested that negative framing is more effective than positive framing in motivating participation in environmentally-responsible behaviours.

Gain and loss frames in environmental CSR communication remain under-researched. One exception is Bortree et al. (2013)'s study, which investigated how organizations framed

corporate environmental responsibility in the context of corporate environmental advertising in an environment-centred magazine from 1979 to 2008. The study found that organizations put more focus on their contribution to environmental solutions (gain frame) rather than on preventing environmental problems (loss frame). Oh & Ki (2019) conducted experiments to examine how the tone of voice, framing, and type of online media influence how the general public perceive an organization in corporate social responsibility communication. The study argued that gain-framed messages positively affect perceived social practice in CSR communication more than loss-framed messages. However, these two studies did not look at how gain and loss frames can be used for legitimization purposes.

The gain and loss frame can be effective for justifying the environmental business of petroleum companies because the petroleum companies' behaviors involve potential environmental and financial risks. Preventative actions in addressing environmental risks might generate financial risks. Gain and loss frames can be employed as legitimization strategies because persuading people to accept the risks involved in the environmental business can maintain the continued existence of petroleum companies. The way to achieve this objective is to describe corporate activities of increasing gains (gain frame) or decreasing losses (loss frame) as ethical.

2.3.2 Source domains as gain and loss frames

Source domains can be used as a framing device because they highlight particular aspects of the concept by mapping certain elements in source domains onto corresponding elements in target domains. A number of studies have observed that source domains can be an effective framing device to influence the perception of a variety of issues, such as crime, climate change,

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health issues, and emotional experiences, etc. (Deignan et al., 2019; Flusberg et al., 2017; Hauser & Schwarz, 2015; Matlock et al., 2017; Robins & Mayer, 2000; Scherer et al., 2015; Thibodeau et al., 2017; Thibodeau & Boroditsky, 2011, 2013). For example, Thibodeau and Boroditsky (2011, 2013) noted that metaphorically framing crime as a *beast* that preys on a city can elicit more support for enforcement-oriented solutions to crimes. Flusberg et al. (2017) reviewed existing literature on metaphorical framing and summarized that source domains could impact public perceptions because they can influence reasoning about a target domain as well as arouse emotions that can affect reasoning about risks. Little research, however, has been conducted to explore how gain- and loss-framed source domains can be used to influence people's perception of corporations' environmental business of dealing with climate issues.

2.4 Gain and loss frames motivated by different types of interests

The gain and loss frames in the CSR reports of petroleum companies differ slightly from the gain and loss frames in previous studies as they are likely to be motivated by multiple interests due to companies' various stakeholders. Different stakeholders tend to have different and even competing anticipations and requirements (Freeman, 2010; Friedman & Miles, 2006). Fuoli (2018) and Filimon (2009) observed that unlike the annual report, which primarily addresses shareholders and investors, the corporate social responsibility report is directed at a more diverse or heterogeneous audience of stakeholders, including customers, employees, and regular citizens. Adverse stakeholder reactions such as protests, product boycotts, more strict regulations, and reduced access to financial resources negatively influence a company's profits and delegitimize its existence. To this end, in CSR reports, companies have to understand and satisfy different stakeholders' expectations to stay legitimate.

Bhatia (2012) categorized stakeholders into four major groups: organizational stakeholders, community stakeholders, regulatory stakeholders, and media stakeholders. For organizational stakeholders, their primary interests are the pursuit of corporate interests. Nevertheless, Deegan et al. (2000) noted that business today is under close public scrutiny and stakeholders expect "that corporations and industries accept accountability for the social and environmental implications of their operations" (p. 101). Given this, for community stakeholders, regulatory stakeholders, and media stakeholders, their primary interests are the pursuit of social and environmental interests. These two different interests will potentially motivate different perceptions of risks. Organizational stakeholders perceive losses in corporate interests as risks, while community, regulatory, and media stakeholders perceive losses in environmental and social interests as risks.

As petroleum companies' business inherently involves environmental impacts, tensions between the above-mentioned interests have the potential to be high. The pursuit of corporate interests might undermine the pursuit of social and environmental interests and *vice versa*. In this vein, the perceptions of gains and losses are also different and competing among different stakeholders. The gains for organizational stakeholders can be losses for community stakeholders, regulatory stakeholders, and media stakeholders. Similarly, the gains for community stakeholders, regulatory stakeholders, and media stakeholders can be losses for organizational stakeholders.

In light of the different types of interests, it will be interesting to see which interests the petroleum companies primarily attend to when they report their environmental business and how they reconcile them. By reconciling different types of interests, the risks involved in petroleum companies' business can be well accepted by different groups of stakeholders, and the business of petroleum companies is thus legitimized. This inclination can be reflected in the motivations behind gain and loss frames. If the petroleum companies use gain and loss

frames motivated more by corporate interests, they pay more attention to the goal of organizational stakeholders. On the other hand, if the petroleum companies use gain and loss frames motivated more by environmental interests, they pay more attention to the goal of community, regulatory, and media stakeholders.

2.5 Purpose of the study

Environmental sections of CSR reports generated by petroleum industries are selected as the data for this because it is hypothesized that petroleum companies need to use legitimization strategies to address gaps arising from environmental issues. The American and Chinese companies are both from the petroleum industry, so their legitimation strategies should have much common ground considering that they face similar environmental business dilemmas. The petroleum companies in these two countries are major contributors to environmental impacts. It will be insightful to investigate how petroleum companies in these two countries justify their environmental business.

All the petroleum companies in this study are on the 2020 Fortune 500 list. These companies are key players in their respective sectors by size and revenue. Stakeholders expect higher accountability and transparency in their CSR reports. In light of this, these companies will be intentional in the way they discursively construct the environmental issues in their CSR reports. Attitudes demonstrated in their CSR reports should be a close reflection of their authentic attitudes on social issues.

The differences in legitimation strategies of Chinese and American oil companies, if any, are presumably generated by different socio-cultural contexts in the two countries. China features the world's largest population and a rapidly growing economy, which are two driving

forces behind the country's energy demand and the subsequent need to secure energy resources. China has become the world's largest net importer of petroleum since 2013 (U.S. Energy Information Administration, 2018). Apart from that, worsening air quality has motivated the Chinese government to shift away from a dependency on coal and oil (Ji et al., 2018). The development of natural gas, the cleanest fossil fuel, is considered a key solution to the challenges of energy development and to the goal of adjusting energy dependency. Given this, natural gas development in China has accelerated over the past decade (Ji et al., 2018).

Regarding social contexts, most major Chinese oil companies are state-owned. A state-owned enterprise (SOE) is a legal entity controlled by the state "through full, majority, or significant minority ownership" (PwC, 2016, p.8). Although SOEs are supposed to focus on public policy objectives (Shleifer & Vishny, 1997), they differ from non-profit organizations. SOEs undertake commercial activities on behalf of governments.

The energy gap in the U.S. is not as wide as in China. According to the U.S. Energy Information Administration, annual energy imports in the U.S. have decreased, and energy exports have increased from 2005 onwards (U.S. Energy Information Administration, 2020). U.S. energy exports surpassed energy imports in 2019 (U.S. Energy Information Administration, 2020). Most American oil companies are publicly owned. American oil companies are under more pressure when it comes to environmental issues compared to their Chinese counterparts. American oil companies face criticism from NGOs, and representatives from green political parties call for boycotts of major oil companies in the U.S. (Levy & Kolk, 2001).

A substantial body of research has investigated how metaphors are used in the representations of climate change in newspapers and government policies (Boykoff, 2008; Carvalho & Burgess, 2005; Olausson, 2009). Many other researchers have examined their

usages in the conceptualization of climate mitigation in new media, such as blogs (Koteyko, 2010; Koteyko et al., 2010; Nisbet & Kotcher, 2009). All of these studies emphasize either the scientific evidence of climate change or relevant solutions to this phenomenon. Source domains can be utilized to reinforce scientific evidence confirming climate change or advocate for relevant policies to tackle climate change. They can also be employed to denigrate scientific authority and underplay the urgency of dealing with climate change. After IPCC (Intergovernmental Panel on Climate Change) confirmed that climate change was man-made in 1990, source domains were frequently used to conceptualize climate change mitigation. Two dominant source domains are used to conceptualize climate change mitigation: the source domains of WAR and RELIGION. The WAR source domain is used extensively to advance pro-climate change arguments and emphasize the urgency of dealing with climate change (Asplund, 2011; Atanasova & Koteyko, 2017a, 2017b; Cohen, 2011). The RELIGION source domain is used predominantly to advance anti-climate change arguments (Atanasova & Koteyko, 2017a; Woods et al., 2012). Until now, source domains related to climate change in CSR reports were still under-researched.

My thesis will specifically focus on three source domains: WAR, JOURNEY, and BUILDING. Previous studies have observed that the source domains of WAR and JOURNEY are used in environmental reports to justify environment-related businesses (Jaworska, 2018; Milne et al., 2006). The BUILDING source domain is found to have a positive connotation and can be used to promote a particular worldview (Charteris-Black, 2004, 2016). Therefore, these source domains are potentially useful for legitimizing petroleum companies. Thus, my thesis will investigate how the WAR, JOURNEY, and BUILDING source domains are used in Chinese and American CSR reports.

The legitimacy of petroleum companies has attracted extensive attention from previous studies (Breeze, 2012; Hrasky, 2012; Ihlen, 2009b; Livesey, 2002). However, research on how

language is used to achieve this legitimacy remains in its infancy. Source domains are able to legitimize petroleum companies' environmental practices, and they have been proven to be effective persuasive strategies (Charteris-Black, 2005; Chilton & Ilyin, 1993; Goatly, 2007; Kövecses, 2010; Thornborrow, 1993; Van Teeffelen, 1994). Charteris-Black (2011, 2016) paved the way for identifying source domains used for legitimization by selecting the rhetorical strategies-*ethos*, *pathos,* and *logos*-as the link between source domains and legitimization. However, he did not provide a specific procedure to operationalize his criteria for determining which source domains contribute to *logos*, *pathos* and *ethos*. This thesis argues that identifying gain- and loss-framed metaphors is a way to determine how the source domains in the conceptual metaphors are used for legitimization. Metaphors that can contribute to legitimacy are those associated with potential gains or/and potential losses. I aim to examine how Chinese and American petroleum companies use gain- and loss-framed source domains to legitimize their environment business. It will be informative to observe if the risk-involved environment business conceptualized by source domains in my data is legitimized more by gain-framed source domains or loss-framed source domains. Given this, my thesis will explore the usages of gain and loss frames in Chinese, and American CSR reports.

The gain and loss frames in my data are different from previous studies as they are motivated by different types of interests of companies' various stakeholders. For organizational stakeholders, their primary interests are to maximize corporate benefits. For community stakeholders, regulatory stakeholders, and media stakeholders, their primary interests are focused on creating social and environmental benefits. These two different interests potentially result in different perceptions of risks. As petroleum companies' business inherently involves environmental impacts, the above-mentioned two types of interests are oftentimes contradictory. Given the different types of interests, it will be interesting to examine which perceptions the petroleum companies primarily pay attention to when they report their

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environmental practices and how they accommodate these competing perceptions. In order to address this issue, my thesis will examine the motivations behind the gain and loss frames in Chinese and American CSR reports.

Fuoli (2018) observed that, in CSR reports, companies tend to emphasize future objectives and ambitions. Bondi (2016) also suggests that forward-looking statements are essential in the legitimation of organizations because they can foreground corporate expertise and commitment to ethical values. Therefore, it will be interesting to explore if the gain/loss frames and corporate/environmental interests in my data are more future-oriented or past-oriented. Given this, my thesis will explore whether the gain/loss frames and corporate/environmental interests are future-oriented, present-oriented or past-oriented.

In addition, Pollach (2018) observed that environmental topics in CSR reporting tend to change as time goes by because companies have to address emerging economic, social and environmental events in response to pressures from stakeholders, activists or media. To better understand which topics are addressed in CSR reports produced by petroleum companies, I intend to answer the second sub-question under the second research question: "Which topics are the goals of gain and loss frames more often associated with?"

In order to have a clear understanding of the structure of the environmental sections of CSR reports produced by petroleum companies, my thesis will explore in which sections of the environmental sections of CSR report the gain/loss frames and corporate/environmental interests occur.

In light of all the above-mentioned issues to be addressed in my thesis, I will answer the following research questions:

● **RQ1: What keywords are used in the source domains of WAR /JOURNEY /BUILDING in Chinese and American CSR reports and their frequencies of occurrences?**

● **Overarching RQ2: Are there differences in the preferences in gain and loss frames in Chinese and American CSR reports?**

RQ2a. **Do these gain/loss frames frame a goal in the past, present or future more often?**

RQ2b. **Which topics are the goals of gain and loss frames more often associated with?**

● **Overarching RQ3: "Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?"**

RQ3a. **Do these corporate and environmental interests more often frame interests in the past, present or future?**

RQ3b. **Which topics are the goals of these corporate and environmental interests more often associated with?**

In order to address the above research questions, I will employ the research methodology introduced in Chapter 3.

3. Identification of Gain- and Loss-framed Source Domains Used for Legitimization

3.1 Corpus

Legitimization strategies of the carbon-intensive sector, particularly the petroleum industry, have received much attention in the past decades because the industry faces a paradox that is inherent in its environmental business. However, no studies have compiled comparable data sets to explore similarities and differences in the petroleum industry's legitimization strategies between the US and China. This comparative study can further our understanding of how the petroleum industry in these two countries uses legitimization strategies. This study can especially help us to understand the Chinese petroleum industry's legitimization strategies, which have been under-researched. The investigation of gain- and loss-framed source domains used in CSR reports of petroleum companies can also shed light on how source domains are used as a framing technique to legitimize environmental risks.

My thesis focuses on CSR reports published by American and Chinese petroleum companies on *Fortune 500* (2020) because these petroleum companies are key players in the petroleum industries by revenue in their respective countries. Stakeholders expect higher accountability and transparency in their CSR reports. In light of this, these companies will be intentional about the way they portray environmental issues in their CSR reports. Attitudes demonstrated in their CSR reports should be a relatively accurate reflection of their attitudes on social issues. Table 3.1 provides summary information on the Chinese and American petroleum companies on the *Fortune 500* (2020) list.

Table 3. 1 American and Chinese Petroleum Companies on the Fortune 500 List (2020)

No.	American Petroleum Companies	Revenue ($M)	Ranking	Chinese Petroleum Companies	Revenue ($M)	Ranking
1	ExxonMobil	264,983	11	Sinopec	407,009	2
2	Chevron	146,516	36	China National Petroleum	379,130	4
3	Marathon Petroleum	124,813	48	China National Offshore Petroleum	108,687	64
4	Phillips 66	109,559	61	Sinochem	80,376	109
5	Valero Energy	102,729	71	Shaanxi Yanchang Petroleum	44,564	265
6	ConocoPhillips	36,669	348	/	/	/

Table 3.1 shows five Chinese petroleum companies and six American petroleum companies from the *Fortune 500* list generated in 2020. I then searched online for the CSR reports of all these petroleum companies published from 2010 to 2019. This timespan provides a comprehensive understanding of American and Chinese CSR reports in the past decade.

It is noteworthy that the CSR reports of the Chinese petroleum companies in this study are in English. This decision is guided by the potential target readers of the English version of CSR reports of Chinese petroleum companies. English CSR reports are primarily employed to assist in expanding an international market, and their target readers are assumed to be English speakers in international markets. Hence legitimization strategies are particularly critical for multi-national companies. Increased public scrutiny over their activities prompts the need to demonstrate corporations' socially responsible attitudes because these corporations aim to maintain their social capital (Nahapiet & Ghoshal, 1998). Chinese petroleum companies might need to use CSR reports to demonstrate their socially responsible attitudes to their consumers and suppliers. Thus, it is assumed that English CSR reports of Chinese petroleum companies make use of a range of legitimization strategies.

The search result showed that none of the CSR reports of *Shaanxi Yanchang Petroleum* was accessible online, and as such, this petroleum company was excluded from my analysis. As for petroleum companies whose CSR reports are not publicly available for certain years, only the accessible CSR reports were included in my analysis.

The compilation of the corpus took three major steps. First, the pdf formats of all available CSR reports were downloaded online. Second, the pdf formats were converted to plain text with the assistance of the computer tool *ABBYY FineReader 12* (ABBYY, 2014). Third, each text file was manually examined to find out and correct conversion errors, such as misspellings and interrupted sentences.

Each CSR report is comprised of a variety of sections covering different aspects of a corporation's business. At least one section in every CSR report is associated with environmental issues (The titles of these sections are presented in Appendix 1). I categorized these sections generally as "environmental sections" and collected them as my data. After compiling all of the CSR reports as text files, *AntConc 3.3.5* (Anthony, 2012) was used to help determine the word count. To count the number of words in a text file, I first submitted the text file to *AntConc 3.3.5* and then clicked the "Start" button in the function of "Word List" to generate a list of all the words in the text file. The processing result showed the total word tokens in the text file. According to the word tokens calculated by *AntConc 3.3.5*, the Chinese corpus in my pilot study has a word count of 121,751, and the American corpus is almost double the Chinese corpus, with a word count of 266,826. The corpora sizes in my thesis are demonstrated in Table 3.2:

Table 3.2 CSR Reports of American and Chinese Petroleum Companies

	ACSRs			CCSRs		
No.	American Petroleum Companies	Years of Publication	Word Count	Chinese Petroleum Companies	Years of Publication	Word Count
1.	ExxonMobil	2010-2019	70,789	Sinopec	2010-2019	35,387
2.	Chevron	2010-2019	14,122	China National Petroleum	2013-2019	28,384
3.	Marathon Petroleum	2011-2019	34,809	China National Offshore Petroleum	2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019	35,010
4.	Phillips 66	2016-2019	6,871	Sinochem	2010, 2011, 2012, 2013, 2014, 2015, 2017, 2018, 2019	22,970
5.	Valero Energy	2015-2019	16,801			
6.	ConocoPhillips	2011-2019	123,434			
	Total		266,826	Total		121,751

As shown in Table 3.2, the corpus consists of two subcorpora: the American CSR reports subcorpus (henceforth, ACSRs) and the Chinese CSR report subcorpus (henceforth, CCSRs). Detailed information on the corpora, such as the word count and the report title for each CSR report and the titles of the environmental sections in each CSR report, can be found in Appendix 1.

3.2 Determining potential keywords

My thesis focuses on three source domains: WAR, JOURNEY, and BUILDING. To analyse these source domains, I need to retrieve metaphorical keywords belonging to these domains. There are two major retrieval procedures: sampling technique and census technique (Sardinha, 2012). The sampling technique is to retrieve keywords from a sample of the total data and draw general conclusions about all of the keywords in the total data by analyzing these retrieved keywords (Sardinha, 2012). Given this, the sampling technique is more suitable for a corpus that contains

mostly conventional metaphors because conventional metaphors feature few variations. This technique is also favourable in a corpus that is too large to be analysed manually. The census technique, on the other hand, is to analyze every token in the data. This technique is more suitable for a corpus that contains a good number of novel metaphors to cover all of their variations. This technique can also be used to test the conventionality of metaphors in a corpus, as this technique can give a comprehensive view of metaphor usages.

The large sizes of the corpora in my thesis motivated me to consider the usage of Sardinha's sampling technique (2012). To explore the feasibility of using this technique in my thesis, I applied Sardinha's census technique (2012) in a pilot study to test the conventionality of metaphors in my data.

3.2.1 Pilot study

Introduction

The purpose of this pilot study is to explore whether metaphors in the corporate social responsibility reports in my thesis are conventional. To do this, I used Sardinha's census technique (2012) in my pilot study, as this technique can be used for testing the conventionality of metaphors. I focused on head nouns in this study because Goatly (1997) argues that nominal metaphors have the greatest metaphorical force compared with metaphors within other parts of speeches. In other words, nominal metaphors are more recognisable as metaphors (Goatly, 1997).

Corpus

In my pilot study, the Chinese corpus consisted of environmental sections of CSR reports produced by Sinopec between 2012 and 2014. The CSR reports in the Chinese corpus were the English version of CSR reports published by Sinopec. In order to make the American data comparable, the American corpus was compiled by collecting environmental sections of CSR reports published by ExxonMobil from the same time span. After compiling all the CSR reports as text files, *POS Tagging* (Kristina et al., 2003) of Stanford CoreNLP helped determine the word count. The Chinese corpus had a word count of 3,813. The size of the American corpus was almost triple the Chinese corpus, with a word count of 11,619.

I used *CoreNLP* (Manning et al., 2014) to identify all noun phrases in my data. The *Shift-Reduce Constituency parser* of CoreNLP identified 1,799 noun phrases in Sinopec's corpus. After filtering 266 proper nouns based on the processing result of POS tagging, 1,533 noun phrases were retained for metaphor analysis. 6,030 noun phrases were identified in ExxonMobil's corpus, and 5,252 noun phrases were retained for metaphor analysis after filtering 778 proper nouns. Table 3.3 presents the details of the American and Chinese Corpora. "NR" refers to the Normalized Ratio per 10,000 words.

Table 3.3 ExxonMobil's Corpus and Sinopec's Corpus

	ExxonMobil				Sinopec			
Year	Environmental Section(s) of Each Year	Word Count	Noun Phrases (no proper nouns)	NR	Environmental Section(s) of Each Year	Word Count	Noun Phrases (no proper nouns)	NR
2014	Environmental performance + Managing climate change risks	7,292	2,064	1091.4	Sustainable Energy Supply + Green and Low-Carbon Growth	2,813	822	1240
2013	Environmental performance + Managing climate change risks + Managing sustainability issues	6,239	1,682	889.4	Supply of Clean Energy + Construction of Ecological Civilization	2,048	452	682.2
2012	Environmental performance + Managing climate change risks + Sustainable products in the chemical business	5,380	1,506	796.4	Construction of Ecological Civilization	1,765	259	390.9
	Total	18,911	5,252	2777.2	Total	6,626	1,533	2313.1

From the above table, we can see that from 2012 to 2014, CSR reports of ExxonMobil and Sinopec contained at least one environmental section each year. Overall, the environmental sections of American CSR reports were much lengthier than their Chinese counterparts.

The conventionality of Metaphorical Head Nouns

In order to have a comprehensive understanding of the conventionality of metaphorical head nouns, I adopted Sardinha's census technique (2012) and identified metaphorical head nouns in my corpora in a bottom-up manner. After identifying metaphorical keywords, source domains were then postulated via the source domain verification procedure (Ahrens & Jiang,

2020). Table 3.4 presents the numbers and normalized ratios (NR) per 10,000 words for each source domain in Sinopec's corpus and ExxonMobil's corpus.

Table 3.4 Frequencies of Metaphorical Keywords in Each Source Domain in American and Chinese Corpora

	ExxonMobil			Sinopec		
Source domain	Metaphorical Keywords	Tokens	NR	Metaphorical Keywords	Tokens	NR
ORGANISM	development (31), consumption (18), treatment (3), growth (2), footprint (2)	56	29.61	development (20), consumption (6), treatment (4), elimination (2), branch (2), adoption (1)	35	52.83
MACHINE	system (27), mechanism (2)	29	15.33	system (15), mechanism (3)	18	27.17
JOURNEY	way (13), course (4), advancement (4), step (2), progress (2), journey (1), pursuit (1), pace (1)	28	14.8	way (6), progress (3), road (1), route (1), exploration (1)	12	18.11
WAR	strategy (13), sector (3)	16	8.46	strategy (5), sector (1)	6	9.06
OBJECT	capture (5), chain (5), transparency (2), hurdle (1)	13	6.87	capture (2), launch (2), door (1)	5	7.55
BUILDING	framework (12), support (5), cornerstone (1), foundation (1), building (1)	20	10.58	construction (2), structure (1), support (1)	4	6.04
DRAMA	performance (23), role (4)	27	14.28	role (2)	2	3.02
CONTEST	goal (4), leader (1)	5	2.64	goal (1), leader (1)	2	3.02
Total		194	102.57		84	126.8

The above table shows that Sinopec and ExxonMobil selected the exact same eight source domains: ORGANISM, MACHINE, JOURNEY, WAR, OBJECT, BUILDING, DRAMA, and CONTEST.

All of the metaphorical head nouns in these source domains were conventional. This result indicated that metaphors in my data tend to be conventional, thus suggesting that Sardinha's (2012) sampling technique is appropriate to use and will be utilized in the larger corpora below.

3.2.2 Sardinha's Sampling Technique

After confirming the conventionality of metaphors in my data, I used Sardinha's (2012) sampling technique to retrieve potential keywords of WAR, JOURNEY, and BUILDING source domains in the corpora from 2010 to 2019.

To randomly select a CSR report of each petroleum company shown in Table 3.2, I took a random sampling approach in an Excel file. First, I entered the publication years of all the available CSR reports of a petroleum company between the years 2010 and 2019 into Column A in an Excel file. I then used the *Rand* formula to assign a random number to each year in Column B. After a random number was assigned, I ranked Column A and Column B based on Column B's assigned numbers from the smallest to the largest. Subsequently, the year listed at the top in Column A was picked up, and its corresponding CSR report was selected for metaphor identification. I went through this random sampling process in a separate Excel file one after the other. Based on the year listed at the top of Column A in 10 separate Excel files, 10 CSR reports, one from each company, were randomly extracted.

However, the randomly selected CSR report from *ExxonMobil* turned out to be generated in 2013. This year, only a condensed version of *ExxonMobil's* CSR report is accessible online, and its word count only contained around ten percent of a full-length version. To fully represent *ExxonMobil's* CSR reports in random sampling, I used the previously mentioned random sampling process to randomly select one more CSR report from this oil company. The process selected a report published by *ExxonMobil* in 2011, and this report is a full-length version. The

publication years of all of the randomly selected CSR reports and their word counts are demonstrated in Table 3.5:

Table 3. 5 CSR Reports Randomly Sampled in ACSRs and CCSRs

ACSRs			CCSRs		
Name of the Petroleum Company	Publication Year of the Selected CSR Report	Word Count	Name of the Petroleum Company	Publication Year of the Selected CSR Report	Word Count
ExxonMobil	2013&2011	9,789	Sinopec	2010	3,898
Chevron	2015	1,592	China National Petroleum	2015	3,574
Marathon Petroleum	2013	3,461	China National Offshore Petroleum	2013	2,762
Phillips 66	2017	2,585	Sinochem	2010	2,462
Valero Energy	2019	1,691	/	/	/
ConocoPhillips	2015	7,908	/	/	/
Total	27,026		Total	12,696	
Percentage of the whole corpus	10%		Percentage of the whole corpus	10%	

To generate potential keywords in a top-down manner, I also collected keywords from previous studies on WAR, JOURNEY, and BUILDING source domains. The previous studies from which I retrieved potential keywords are provided in Appendix 2.

The compiled keyword lists are demonstrated in the Excel file *Potential Source Domain Keywords*. In the Excel file, I began by listing the keywords identified from previous literature. Then I added the keywords retrieved from a subset of my data. The keywords that overlapped with those retrieved from previous literature were not re-entered into the file. Only non-overlapping keywords were typed into the Excel file. The potential keywords were categorized in terms of *Entities*, *Functions*, and *Qualities* based on Ahrens' work on the Conceptual

Mapping Model (Ahrens, 2010, 2002). In addition, these keywords were highlighted in one of three colors (blue, red, and green) based on their different sources. Keywords identified only in a bottom-up retrieval were marked in blue; keywords retrieved only from previous literature were marked in red; keywords identified both in a bottom-up retrieval and in the previous literature were marked in green. In total, there are *49* WAR metaphors, *99* JOURNEY metaphors, *39* BUILDING metaphors. The list of all these potential source domain keywords is provided in Appendix 3.

3.3 Source domain verification

Source domain verification often involves a great amount of subjective input. Most previous studies have classified source domains largely based on scholars' intuitions (Chung & Huang, 2010; Stefanowitsch, 2006). This approach may be useful for clear-cut cases. Problems might arise, however, in the process of an exhaustive annotation where analysts could encounter many cases that are not clear-cut (Stefanowitsch, 2006). The latter cases might generate potential noise in subsequent quantitative analyses. However, there are a number of studies that have found solutions to overcome these issues by using corpora-based ontologically-driven databases, *WordNet* and *SUMO* nodes, to postulate source domains in Chinese (Ahrens et al., 2004; Chung et al., 2005, 2003; Chung & Ahrens, 2006; Huang et al., 2007). These two databases have been shown to have the advantage of reducing the subjectivity involved in source domain verification effectively.

To accommodate the source domain verification of a large group of diverse keywords, Ahrens & Jiang (2020) proposed a more comprehensive approach that can be used for a variety of source domains by adding an online dictionary as well as making use of collocation patterns

(Chung & Huang, 2010; Gong et al., 2008). Their procedure exploits four different language resources to verify hypothesized source domains: 1) *SUMO*, 2) *WordNet*, 3) an online English dictionary, and 4) the *Word Sketch Function* in *Sketch Engine*. Given that the potential source domain keywords feature a large variety in my thesis, I decided to adopt Ahrens and Jiang's (2020) verification procedure to determine source domains. As for the online English dictionary, I chose *Macmillan English Dictionary for Advanced Learners* (Rundell, 2002) because this dictionary is one of three dictionaries used by *MIPVU* (Steen et al., 2010), the metaphor identification procedure I adopt in my thesis. This dictionary is a contemporary corpus of 220 million words, suitable for analyzing potential source domain keywords in contemporary texts. The procedure for verifying source domains of the potential source domain keywords (Ahrens & Jiang, 2020) is illustrated as follows:

First, I identified potential source domain keywords using Sardinha's (2012) sampling technique. I combined top-down and bottom-up approaches when I used this retrieval method to include as many different types of potential keywords as possible. To determine potential keywords in a bottom-up manner, I carefully read through a 10% subset of the whole corpus. To generate potential keywords in a top-down manner, I collected keywords in previous studies on WAR, JOURNEY, and BUILDING source domains. In total, I collected 39 potential keywords for the source domain of BUILDING, 99 potential keywords for the source domain of JOURNEY, and 49 potential keywords for the source domain of WAR.

Second, I examined all the *SUMO* nodes of a source domain keyword to see if any of these nodes are related to the concept of a hypothesized source domain. To this end, I first predetermined three lists of *SUMO* nodes that are regarded as directly associated with source domains of WAR, JOURNEY, and BUILDING by drawing on previous studies or definitions of these nodes in *SUMO*. The list of *SUMO* nodes for the source domain of BUILDING was adopted

from Ahrens and Jiang's (2020) study, which consists of the classes of "Stationary Artifact," "Building," "Architecture," and "Constructing."

As for the source domain of JOURNEY, I compiled the *SUMO* node list based on the definitions of these nodes. If the definition of a *SUMO* node indicates that the node is directly related to the concept of journey, the node was put in the list (All the definitions of *SUMO* nodes in the list are provided in Appendix 3). The compiled *SUMO* node list for the source domain of JOURNEY includes "Road," "Roadway," and "Transitway."

The *SUMO* node list of the source domain of WAR was also compiled based on the definitions of the nodes, which include "Battle," "Military Assault," "War," "War State," "Soldier," and "Fighter" (All the definitions of these *SUMO* nodes are provided in Appendix 3). These nodes were chosen because their definitions indicate that the nodes are directly associated with the concept of war. After compiling these lists of *SUMO* nodes, I searched for the *SUMO* nodes of a source domain keyword. I then went through all of the *SUMO* nodes to determine if any node corresponded to any *SUMO* node in the predetermined list of a hypothesized source domain. If this was determined to be the case, then the keyword was identified as belonging to the hypothesized source domain. If not, I consulted *WordNet* for further information.

For instance, I hypothesized that a possible source domain for the noun "construction" is BUILDING. The *SUMO* nodes predetermined to be related to this source domain are "Stationary Artifact," "Building," "Architecture," and "Constructing." I then examined all the *SUMO* nodes of the noun "construction" to determine if one of them corresponding to a predetermined node. Table 3.6 demonstrates all the *SUMO* nodes of the noun "construction."

Table 3. 6 SUMO Nodes of the Noun "construction"

SUMO nodes
Constructing
Reasoning
Calculating
Phrase
Stating
Artifact

The node highlighted in yellow corresponds to one of the predetermined *SUMO* nodes related to the concept of building: "Constructing." Thus, this source domain keyword was grouped into the source domain of BUILDING.

If none of the *SUMO* nodes of the source domain keyword corresponds to a predetermined node, I then determined its source domain by examining the categories and definitions of the source domain keyword provided in *WordNet* (Column 2 in Table 2). I need to determine if the most concrete sense in *WordNet* is compatible with a postulated source domain. To this end, I checked if any content word in the most concrete sense is clearly related to the concept of a hypothesized source domain. To promote reliability and replicability in decision-making, I followed explicit criteria to determine if content words in the most concrete sense are related to a hypothesized source domain. These criteria also apply to categorizing a keyword when using the *Macmillan* dictionary. The criteria for determining if a keyword can be subsumed into the source domain of BUILDING based on *WordNet* or dictionary senses were derived from Ahrens & Jiang's (2020) work. I then adapted these criteria and proposed my own criteria for verifying keywords belonging to the source domain of JOURNEY or the source domain of WAR using *WordNet* and dictionary senses.

(1) Criteria for a keyword to be categorized in a BUILDING source domain using *WordNet* or dictionary senses (Ahrens & Jiang, 2020).

a. The word sense and its explanation contain the word(s) "building/house/architecture" as well as the subclasses of building, including "office building," "government building," "residential building," "high rise," and "factory building," etc.

b. The word sense and its explanation contain a word(s) that refers to the components of a building, e.g., "balcony," "pillar," and "window."

c. The word sense and its explanation contain a word(s) that refers to different kinds of buildings (constructional engineering), including "bridge," and "speedway," etc.

d. The word sense and its explanation contain a word(s) that refers to the act of building, e.g., "build up." (p. 47,48)

(2) Criteria for a keyword to be classified in a JOURNEY source domain using *WordNet* or dictionary meanings

   a. The word sense and explanation contain the word(s) "journey/travel/traveling/trip."

   b. The word sense and its explanation contain a word(s) that refers to the path of a journey, e.g., "road," "path," "route," "passage," and "track," etc.

   c. The word and sense and its explanation contain a word(s) that refers to a movement towards a destination in a journey, including "forward movement," "moving forward," "walk," "advance," and "progress," etc.

   d. The word sense and its explanation contain a word(s) that refers to the destination, e.g., "destination."

   e. The word sense and its explanation contain a word(s) that refers to a maneuver made as part of progress toward a destination, e.g., "step" and "pace."

f. *The word sense and its explanation contain a word(s) that refers to the forward or backward movement of a journey, e.g., "forward," and "backward."*

(3) Criteria for a keyword to be classified in a WAR source domain using *WordNet* or dictionary meanings

a. *The word sense and its explanation contain the word(s) "war/battle/warfare," as well as the subclasses of war such as "armed conflict."*

b. *The word sense and its explanation contain a word(s) that refers to the participants in a war, e.g., "military forces," "army," "troops," "enemy," "soldiers," and "military personnel."*

c. *The word sense and its explanation contain a word(s) that refers to the actions in a war, including "military action," "military engagement," "military command," and "conduct of a war."*

d. *The word sense and its explanation contain a word(s) that refers to other essential elements of war, such as "military plane" and "military position."*

For instance, I hypothesized the source domain keyword "sector" belongs to the source domain of WAR. Table 3.7 demonstrates all the *SUMO* nodes of the noun "sector."

Table 3. 7 SUMO Nodes of the Noun "sector"

SUMO nodes
Unit of Measure
Group of People
Attribute
Region
Artifact
Circle Sector

As can be seen in Table 3.7, none of the *SUMO* nodes corresponds to the predetermined

classes related to the concept of war. In this case, I searched this word in *WordNet*, read through

all its *WordNet* senses, and located the most concrete one (highlighted in yellow in Table 3.8).

Table 3. 8 Senses of the Noun "sector" in WordNet

WordNet Senses
A plane figure bounded by two radii and the included arc of a circle
a social group that forms part of the society or the economy
a particular aspect of life or activity
the minimum track length that can be assigned to store information; unless otherwise specified a sector of data consists of 512 bytes
a portion of a <u>military position</u>
measuring instrument consisting of two graduated arms hinged at one end

In the most concrete sense (highlighted in yellow) in Table 3.8, the content words

"military position" (the underlined words) refer to an essential element of a war, which meets

the fourth criterion for categorizing a keyword belonging to the source domain of WAR using

WordNet. Hence, the noun "sector" was verified as a keyword of the source domain of WAR.

However, sometimes neither *WordNet* nor *SUMO* provided sufficient information for decision making. In this case, the *Macmillan online Dictionary* was consulted for source domain verification. For instance, I hypothesized the adjective "bumpy" can be grouped into the source domain of JOURNEY. Nevertheless, neither *SUMO* nor *WordNet* provided enough evidence to indicate which source domain the keyword belongs to. The *SUMO* nodes of the adjective "bumpy" are demonstrated in Table 3.9:

Table 3. 9 SUMO Nodes of the Adjective "bumpy"

SUMO Nodes
Texture Attribute
Rough

From Table 3.9, we can see that the *SUMO* nodes are very abstract and correspond to none of the predetermined nodes associated with the source domain of JOURNEY. Therefore, I checked the word senses in *WordNet* for further information. These senses are listed in Table 3.10.

Table 3. 10 WordNet Senses of the Adjective "bumpy"

WordNet Senses
causing or characterized by jolts and irregular movements
covered with or full of bumps

The examination of the *WordNet* senses shows that the first sense in *WordNet* seems to represent a more concrete meaning. Yet, this sense still falls short of providing enough information for decision-making. This sense merely indicates that the adjective is used to describe "movements" and fails to meet any criterion for categorizing a keyword as belonging to the source domain of JOURNEY. Definitions in the *Macmillan* online dictionary were then examined for further information. Table 3.11 demonstrates all the explanations of the adjective "bumpy" in the *Macmillan* online dictionary.

Table 3. 11 Explanation of the Adjective "bumpy" in the Macmillan Online Dictionary

Explanations in the *Macmillan* dictionary
a bumpy surface has a lot of rough or raised parts on it
a bumpy ride, flight, or journey is uncomfortable because of bad weather or a bad road
involving both failures and successes

From Table 3.11, we can see that the underlined keyword "journey" in the most concrete sense (highlighted in yellow) suggests that this explanation meets the first criterion of classifying a keyword as belonging to the source domain of JOURNEY using dictionary senses. Therefore, I verified that JOURNEY is a possible source domain for the adjective "bumpy."

If *Wordnet*, *SUMO*, and the *Macmillan Dictionary* cannot provide sufficient evidence for semantic associations between a hypothesized source domain and a potential keyword, then I ran a collocation search for the keyword in *Sketch Engine*. I used the *Word Sketch* function in *Sketch Engine* to look for collocates of the keyword to see if words related to the hypothesized source domain frequently collocate with the query word. The *Word Sketch* function in *Sketch Engine* presents the collocates of a keyword in descending importance in terms of their

different grammatical relations to the keyword. If none of the collocates in any grammatical relations category in *Sketch Engine* are associated with the hypothesized source domain, their collocated keyword is regarded as not semantically related to the source domain. If one or more than one collocates in a grammatical relations category and is associated with the hypothesized source domain, I then determine the significance. If the collocates associated with a hypothesized source domain are significant, their collocated keyword is considered semantically related to this source domain. If the collocates are non-significant, their collocated keyword is regarded as not semantically related to this source domain.

To determine if a collocation pair is significant or not, I followed one of the several calculations proposed by (Chung et al., 2007) to divide collocation pairs into significant and non-significant ones, i.e., to determine the cut-off threshold of collocating frequency based on the "mean of means." The "mean of means" was calculated based on the mean of a set of means of the collocates' saliency values (Chung & Huang, 2010; Chung, 2007; Chung et al., 2007). Using the "mean of means" as a cut-off point, I can separate saliency values of the collocates into significant and insignificant collocations (Chung & Huang, 2010).

Take the verb "surrender" as an example. Pre-existing knowledge led me to hypothesize that WAR is the potential source domain for this keyword. However, I could not find sufficient evidence to verify this source domain in *Wordnet*, *SUMO*, or the *Macmillan dictionary*. Table 7 presents all the nodes provided by *SUMO* (demonstrated in *Row 1* and *Row 2* in Table 12), all the *WordNet* senses (demonstrated in *Row 3* and *Row 4* in Table 12), and all the explanations in *the Macmillan dictionary* (demonstrated in *Row 5* to *Row 9* in Table 3.12) of the verb "surrender." Table 3.12 shows that none of these three databases provided clear evidence for decision-making.

Table 3.12 SUMO Nodes, WordNet Senses, and Macmillan Dictionary Explanations of the Verb "surrender"

SUMO nodes	
1	Cooperation
2	Giving
WordNet senses	
3	give up or agree to forgo to the power or possession of another
4	relinquish possession or control over
Macmillan dictionary explanations	
5	(1) to say officially that you have been defeated and will stop fighting
6	1a. to give control over a place or person to someone who has defeated you
7	(2) to give something to someone in authority because you have to give a document to someone in authority who does not give it back to you
8	2a. to give a document to someone in authority who does not give it back to you
9	(3) to allow yourself to show your feelings and to do what you really want to do

From Table 3.12, we can see that *SUMO* nodes of the verb "surrender" do not provide sufficient information for source domain determination as none corresponds to pre-selected nodes associated with the source domain of WAR ("Battle," "Military Assault," "War," "War State," "Soldier," and "Fighter"). As a consequence, I needed to check the senses in *WordNet* for more information.

Nevertheless, *WordNet* senses in the above table provide no clear evidence either. None of their content words can be regarded as explicitly associated with the concept of war.

I then searched for explanations of the verb "surrender" in the *Macmillan dictionary* with the aim of verifying source domains. However, the dictionary explanations also fell short of providing concrete evidence for source domain verification. None of the content words in the

explanations meet the criteria for categorizing a keyword as belonging to the source domain of WAR using dictionary senses.

As none of the above three databases provided enough evidence for source domain verification, I ran the collocation search for the keyword "surrender" in *Sketch Engine* to see if words related to the concept of war frequently collocate with the verb "surrender." *Sketch Engine* shows only the collocates of the verb "surrender" in the grammatical relation of *object*. Figure 1 demonstrates all the collocates of the keyword in this grammatical relation. The first column in this figure shows all of the collocates. The frequencies of the collocates are listed in the second column. The third column demonstrates the saliency values of the collocations. To determine the cut-off threshold, I calculated the "mean of means" based on the mean of a set of means of the collocates' saliency values. The collocation pairs with saliency values above the cut-off threshold are regarded as significant (collocations in the yellow area). Figure 3.1 illustrates all the collocations of the verb "surrender" as its objects in *Sketch Engine*.

Figure 3. 1 Collocates of the Verb "surrender" as Its Objects in Sketch Engine

Collocates	Freq	Saliency Value
Objects of "surrender"		159.73
personnel	40	10.45
sovereignty	7	8.24
weapon	20	8.14
lease	9	8.11
german	4	7.94
virginity	3	7.54
national	4	7.50
passport	4	7.26

act	13	6.75
lead	7	6.55
independence	4	6.25
territory	3	6.11
possession	3	6.03
control	11	5.7
power	14	5.26
force	7	5.13
right	15	5.07
claim	5	5.02
land	4	4.72
property	4	4.66
company	6	4.23
responsibility	3	4.05
arm	3	3.96
policy	4	3.95
part	11	3.82
house	3	3.05
nothing	3	2.33
man	3	1.91

Based on the saliency values listed in the third column, I calculated the mean of means according to the mean of a group of means of the saliency values of the collocates. The result shows that the cut-off point (mean of means) for the significant collocates of "surrender" is 7.024. All the collocation pairs with a saliency value above this point are regarded as significant. The figure shows that among the significant collocates of the verb "surrender," there is a war-related word, "weapon." Given this, the keyword "surrender" is considered collocating frequently with the war-related concept. The verb "surrender" can thus be verified as a potential keyword belonging to the source domain of WAR.

3.4 Metaphor identification

After verifying all the potential keywords' source domains, I conducted keyword-in-context (KWIC) searches for all these keywords in both CCSRs and ACSRs. For each keyword, all inflected forms, for instance, *support*, *supports*, *supported*, and *supporting*, were included in the query. The tool I used to extract keywords and concordances was *AntConc 3.3.5* (Anthony, 2012). A *KWIC* concordance was generated for each query word via *AntConc 3.3.5* and exported into an excel file. Keywords and concordances retrieved from *KWIC* searches in Chinese data were entered into the excel file of the Chinese corpus; those retrieved from *KWIC* searches in American CSR reports were put into the excel file of the American corpus. To provide sufficient contextual information for decision-making, I decided to use the concordance span of 15 words on both sides of the node word. Overall, I collected 4,586 tokens from the corpora, including 1,685 tokens from the Chinese CSR Reports Corpus and 2,901 tokens from American CSR Reports Corpus.

3.4.1 POS Tagging

After all the keywords and concordances were entered into excel files, I started my metaphor identification in these files. To determine if a word is used literally or metaphorically in its context in metaphor identification, I followed the guidelines of *MIPVU* (Steen et al., 2010). *MIPVU* (Steen et al., 2010) and *MIP* (Pragglejaz Group, 2007) are two widely used procedures to identify metaphors. In my thesis, *MIPVU* was chosen over *MIP* because the former is a refined version of *MIP*.

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It is noteworthy that the *MIPVU* procedure does not cross boundaries of *Part of Speech* when determining the metaphoricality of lexical units. I use the noun "support" in Example (1) as a clarification:

(1) ConocoPhillips has been the lead corporate participant in the PLJV since its inception, providing in-kind <u>support</u>, employee expertise and has contributed over $2.2 million to projects. (ConocoPhillops CSR rep., 2013)

In Example (1), the noun "support" is analyzed separately from the verb "support." The reason is that the noun and the verb are regarded as distinct lexical units in *MIPVU*. Hence the basic sense of the noun cannot be compared or contrasted to the verb's sense. To determine the word classes of all the potential keywords, I parsed my data with *Part of Speech* (POS) tags before the metaphor identification. If two words with the same word form are from different word classes based on the *POS* tagging, they were analyzed separately. The computer tool used for *POS* tagging is the *POS* tagging (Kristina et al., 2003) of *Stanford CoreNLP* (Manning et al., 2014). Among all the available natural language analysis toolkits, *Standford CoreNLP* is one of the most widely-used ones (Manning et al., 2014).

The English taggers of the *POS* tagging of *Stanford CoreNLP* use the *Penn Treebank tag set*. A full list of tags in this tag set and their definitions is demonstrated in Appendix 4. I determined the word class based on the tag assigned to a potential keyword. For instance, I used the *Stanford POS* tagging to process Example (1), the keyword "support" was assigned automatically with the *POS* tag "NN" by the *Stanford POS* tagging tool, and its corresponding definition is "noun, common, singular, or mass." This definition shows that this keyword is a noun. Therefore, I only compared the contextual and basic meanings of the word "support" in the grammatical category of *noun*.

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The *POS* tagging can be run on the annotation website of *Stanford CoreNLP*: https://corenlp.run/. To check the word class of a keyword on the *Stanford CoreNLP* website, I pasted the concordance line together with the keyword into the processing box on this annotation website and submitted the text for *POS* tagging. I will demonstrate how to check the word class of the keyword "track" in Example (2):

(2) In this way, we are trying to lead our suppliers and contractors on the right <u>track</u> of green and low-carbon growth. (Sinopec CSR rep., 2011)

I took the following four steps to obtain the *POS* tag of the keyword "track" on the annotation website of *Stanford CoreNLP*:

Step 1: Paste this concordance line into the processing box named "Text to annotate" on the annotation website.

Step 2: Select "part of speech" as a processing tool in the module named "Annotations."

Step 3: Select "English" as the language in the drop-down list of the module of "Language."

Step 4: Click the button "Submit."

A snapshot of the annotation website interface is demonstrated in Figure 3.2:

Figure 3. 2 POS Tagging of the Noun "Track" on the Stanford CoreNLP Website

In the box named "Text to annotate," we can see the concordance line extracted from my excel file. In the *Annotations* module below the box, the processing tool was selected as *part of speech*. I chose *English* as the language in the drop-down list on the right side of the *Annotations* module. To obtain the *POS* tagging result, I clicked the grey button *Submit* farthest to the right. After clicking this button, the *POS* tagging result was automatically generated in the section below the *Annotations* module. The result shows that each word in the concordance line was assigned with a *POS* tag. Since I only needed to analyze the keyword "track" used in this concordance line, I merely examined the *POS* tag of this keyword. *Standford CoreNLP* assigned the *POS* tag "NN" (noun, common, singular, or mass) to the keyword "track," which indicates the keyword is a noun in the concordance line. When I analyzed this keyword, I only compared the contextual and basic meanings of the word "track" in the grammatical category of *noun*.

3.4.2 Metaphor identification

After determining the word classes of the source domain keywords in my thesis, I will then use *MIPVU* to investigate if a keyword is used metaphorically or not. In *MIPVU*, the unit of analysis is *lexical unit* (LU). LUs are generally single words, with four exceptions: polywords, phrasal verbs, compounds, and some proper names (Steen et al., 2010). Therefore, a linguistic unit to be analyzed with *MIVPU* is called a "lexical unit."

MIVPU identifies a lexical unit as a metaphor if its usage shows a cross-domain mapping from its basic meaning to its contextual meaning in the text (Steen et al., 2010). In other words, if the meaning of a word in the dictionary is more basic compared to its meaning in the current context, it is identified as metaphorically used.

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Steen et al. (2010) have provided a specific definition for "basic meaning": "a more concrete, specific, and human-oriented sense in contemporary language use" (p. 35). Although a linguistic point of view dictates that a more basic meaning is the historically older meaning, Steen et al. (2010) did not include checking each lexical unit's history as an indispensable part of their procedure of identifying basic meaning. This exclusion was based on general cognitive-linguistic practice (Steen et al., 2010). Generally, Steen et al. (2010) regarded "concrete, specific, and human-oriented" (p. 35) meaning as more basic. The diachronic perspective of basic meaning was only considered when specific problems occurred (Steen et al., 2010). Analysts also need to bear in mind the following guidelines when determining basic meanings in the dictionary (Steen et al., 2010):

1. The contextual and basic meaning of the same word form has to be compared within the particular grammatical category that it has in text with the following two exceptions:

a. Only one of the grammatical categories of the word-form can be found in the dictionary.

b. Transitive and intransitive verbs share the same sense in the dictionary.

2. Always choose the concrete sense as the basic regardless of its being specialized or not. If the contextual and basic meaning of a lexical unit is similar in abstractness and concreteness, analysts need to examine if there is any evidence for the original domain of the word. If the Macmillan dictionary cannot provide sufficient evidence, search the lexical unit in the Longman dictionary.

I use Example (3) to demonstrate how to determine the basic meaning of the lexical unit "built" with Steen et al.'s (2010) guidelines:

(3) The Company carried out petroleum spillage risk analysis and evaluation,

strengthened emergency drills and training, improved petroleum spillage emergency plans, and <u>built</u> a professional response team. (Sinopec CSR rep., 2019)

The POS tag assigned to this lexical unit was "VBD," which indicates that the grammatical category of the word-form in the text is *verb*. Therefore, this lexical unit was searched in the Macmillan dictionary as a verb. The basic meaning was then selected among all the meanings listed in the dictionary for the lexical unit "build" as a verb based on Steen et al.'s (2010) criteria of "concrete, specific and human-oriented" (p. 53). Only the meaning that satisfies all these three criteria can be determined as the basic meaning. The meaning that satisfies these criteria is highlighted in Table 3.13:

Table 3.13 Senses of the Verb "build" in the Macmillan Online Dictionary

Explanations in the Macmillan dictionary
1. to make a building or other large structure by putting its parts together
a.   to make a machine, vehicle, or other structure by putting its parts together
3. to develop something
4. to increase, or to make something increase

The first meaning in Table 3.13 meets Steen et al.'s (2010) criteria: the meaning is more concrete, specific, and human-oriented compared with other senses. The keywords "building" and "structure" in the meaning are concrete as they designate concrete entities. The description of "putting its parts together" in the meaning is specific as it gives details of the building process. The expressions "make a building" and "putting …together" are human-oriented as they depict the body movements of human beings. As the first meaning meets all the criteria of being a basic meaning, it is selected as the basic meaning for the verb "built" in the example sentence.

Two databases were consulted in my thesis to compare basic and contextual meanings of a lexical unit: *WordNet* and *Macmillan* dictionary. I first checked the basic word sense of a lexical unit in *WordNet*. I used *WordNet* senses to determine the basic and contextual meanings of a lexical unit because *WordNet* is an extremely huge and freely available lexical database online (Niles & Pease, 2003). The language resource can function as an online dictionary as *WordNet* provides word definitions and sample sentences. Given this, this database can help researchers to detect the semantic incongruence in a word with *MIPVU*.

While *WordNet* is a necessary resource, using it alone is not sufficient. Sometimes *WordNet* does not provide clear information for contrasting the basic and contextual meanings. In addition, *WordNet* does not provide definitions for multi-word expressions. In light of this, I used the corpus-based dictionary, *Macmillan English Dictionary for Advanced Learners,* for further information. *Macmillan* dictionary was one of three online dictionaries used by Steen et al. (2010) to identify metaphors. *Macmillan* dictionary is based on a contemporary corpus of 220 million words, suitable for analyzing metaphors in contemporary texts. This dictionary is chosen for my metaphor analysis because my data is from contemporary business texts. The other advantage of using this dictionary is that the Macmillan dictionary is a Learners' dictionary. As Deignan (2015) sees it, learners' dictionaries are a suitable language source for metaphor analysis as these dictionaries provide detailed information of the most frequently used words regarding collocations, grammatical patterns, connotations, and registers, etc. This information makes consulting learners' dictionaries the next best thing to a corpus analysis (Deignan, 2015). Learners' dictionaries are a particularly favorable choice for metaphor analysts unable to commit much time input.

I take the noun "progress" used in a CSR report published by *Sinopec* as an example. The concordance is demonstrated in Table 3.14. Column 2 displays the 15 words on the left side of the node word, and Column 4 displays the 15 words on the right side of the node word. The *POS* tagging result of this lexical unit on the *Standford CoreNLP* website shows that this lexical unit was assigned with the *POS* tag "NNP" (noun, proper, singular). This tag is demonstrated in Column 5.

Table 3.14 Concordance of the Keyword "progress" as a Noun

Sinopec				
Year	**15 words on the left side**	**Lexical unit**	**15 words on the right side**	**POS Tag**
2014	…the development of theories on petroleum and gas exploration on marine carbonate strata and the	progress	of industrial theories and technologies, which has played a guiding role in discovering Yuanba Gas…	progress_NNP

As the *POS* tagging result indicates the lexical unit is a noun, I then searched the senses of the lexical unit "progress" as a noun in *WordNet*. All the *WordNet* senses for this word as a noun are demonstrated in Table 3. 15 (The most basic meaning is highlighted in yellow.):

Table 3.15 WordNet Senses of "progress" as a Noun

WordNet Senses
gradual improvement or growth or development
the act of moving forward (as toward a goal)
a <u>movement forward</u>

From Table 3.15, we can see that the most basic meaning for the lexical unit "progress" as a noun is about a forward movement. According to the concordance line in Table 1, however, the noun "progress" refers to gradual improvement or growth or development because this word describes a gradual improvement of theories and technologies in context. Given this incongruency between basic and contextual meanings, this source domain lexical unit is identified as a metaphor expression.

Metaphor identification with Macmillan Dictionary

When none of the *WordNet* senses provided clear information for comparing basic and contextual meanings, I consulted the *Macmillan* dictionary's explanations for further information. I take the verb "underpin" as an example.

Table 3.16 Concordance of the Lexical Unit "underpin" as a Verb

ExxonMobil				
Year	15 words on the left side	Lexical unit	15 words on the right side	POS tag
2011	…in dialogue to promote effective public policy. Mitigating GHG emissions in our operations. Technological innovation	underpins	ExxonMobil's approach to reducing GHG emissions. In particular, we focus on increasing energy efficiency in…	underpins_ VBZ

The *POS* tag of the lexical unit "underpins" is "VBZ," and its definition is "verb, present tense, 3rd person singular," which shows that this lexical unit is a verb. I then searched the sense of the lexical unit "underpin" as a verb in *WordNet*. All the *WordNet* senses for this word as a verb are demonstrated in Table 3.17:

Table 3.17 WordNet Senses of "underpin" as a Verb

WordNet Senses
support from beneath
support with evidence or authority or make more certain or confirm

From Table 3.17, we can see that *WordNet* provides only two senses. The first sense seems to be more basic than the second. Nevertheless, the relatively basic sense is not clear enough for us to make a comparison with the contextual sense. I thus searched the explanations of the verb "underpin" in the *Macmillan* dictionary. All the explanations of this verb are displayed in Table 3.18 (The most basic meaning is highlighted in yellow):

Table 3.18 Explanations of the Lexical Unit "underpin" as a Verb in the Macmillan Online Dictionary

Explanations in the Macmillan Dictionary
to be an important basic part of something, allowing it to succeed or continue to exist
to support something such as a wall by putting a strong piece of metal or concrete under it

From Table 3.18, we can see that the most basic meaning for the lexical unit "underpin" as a verb is about supporting a building structure. According to the concordance line, however, the verb "underpin" refers to being an important basic part of "ExxonMobil's approach to reducing GHG emissions." Therefore, this source domain lexical unit is identified as a metaphor expression.

Since *WordNet* does not provide senses for multi-word expressions, I examined the basic meaning of multi-word expressions in the *Macmillan* dictionary. The phrase "set up" is used as an example.

Table 3.19 Concordance of the "set up" as a Multi-word Expression

Sinopec				
Year	15 words on the left side	Lexical unit	15 words on the right side	POS tag
2011	…discharge standards, and mitigate their impact upon the environment to the minimum. In 2011, we	set up	process, equipment and environmental protection expert groups, who made EIA and follow-up assessment of many…	set_VBD up_RP

The *POS* tags suggest that "set up" is a phrasal verb (VBD: verb, past tense; RP: particle). Since *WordNet* does not provide senses for this phrasal verb, I searched for its explanations in the *Macmillan* dictionary. All the explanations of this expression are demonstrated in Table 3.20 (The most basic meaning is highlighted in yellow):

Table 3. 20 Explanations of "set up" in the Macmillan Online Dictionary

Explanations in the Macmillan Dictionary
to start something such as a business, organization, or institution
to make it possible for someone to start a business, organization, or institution
to organize or plan something such as an event or system
to build a structure, or to put it in a particular place
to make a piece of equipment ready for use

From Table 3.20, we can see that the most basic meaning is about building a structure. In this context, the multi-word expression "set up" refers to enabling someone to start an organization because this phrasal verb describes starting expert groups. Therefore, this source domain lexical unit is identified as a metaphor expression.

3.4.3 Inter-rater reliability test

Steen et al. (2010) state that a reliability test is essential to demonstrate the reliability and validity of the linguistic analysis. Cohen's Kappa and Fleiss's Kappa are recommended Steen et al.'s (2010) study as two measurements of agreement between analysts. I adopt Cohen's Kappa as the inter-rater reliability test for metaphor identification in my data because the Kappa measurement of my metaphor identification involves only two people. As my metaphor identification involves several steps where decisions need to be made, a coder was trained with these steps and assigned the metaphor identification task. Ten percent of the data (n=438) from my corpora are used for this inter-rater reliability test. In the excel file for the coder to do the identification task, the concordance lines, the *POS* tag(s), the lexical unit, and the basic

meaning were provided. The coder has to compare the basic meaning with the contextual meaning of the lexical unit. If the coder does not observe the semantic tension between the basic and contextual meaning, they select "L" in the column of "Literal/Metaphorical." If the coder observes the semantic incongruency between the basic and contextual meanings, the lexical unit is metaphorically used. They select "M" in the column of "Literal/Metaphorical." The metaphor identification results indicate Kappa values as follows: 0.771966.

3.5 Identification of gain and loss frames

To identify gain and loss frames, I extracted all the sentences containing JOURNEY, WAR, and BUILDING metaphors identified in my data and entered them into two excel files: one for ACSRs, the other for CCSRs.

3.5.1 Identification of gain and loss frames

The gain and loss frames have been extensively studied in health communication to examine how communicators shape public opinions of a particular health risk (e.g., Cho & Boster, 2008; Cho & Choi, 2010; Gallagher & Updegraff, 2012; Kim, 2012; Quick & Bates, 2010) and thereby persuade them into a recommended action. Gan frames promote the benefits of adopting a particular action, while loss frames emphasize the losses of alternative action (Cho & Boster, 2008; Gallagher & Updegraff, 2012; Rothman et al., 2006; Rothman & Salovey, 1997).

The gain and loss frames in the CSR reports differ slightly from the gain and loss frames in previous studies as they have the potential to be motivated by different types of interests due

to companies' various stakeholders. Different stakeholders of companies tend to have different and even competing anticipations and requirements (Freeman, 2010; Friedman & Miles, 2006).

Bhatia (2012) classified stakeholders into four major groups: "organizational stakeholders, community stakeholders, regulatory stakeholders, and media stakeholders"(p.222). Organizational stakeholders emphasize mostly the pursuit of corporate interests. Business nowadays, however, are under close public scrutiny, and stakeholders expect "that corporations and industries accept accountability for the social and environmental implications of their operations" (Deegan et al., 2000, p. 101). For this reason, community stakeholders, regulatory stakeholders, and media stakeholders tend to focus on the pursuit of social and environmental interests. These different interests will potentially motivate diverging perceptions of risks. As a result, organizational stakeholders perceive losses in corporate interests as risks, while community, regulatory, and media stakeholders perceive losses in environmental and social interests as risks.

The environmental business of corporations introduced in the environmental sections of CSR reports generally involves two different types of interests: corporate interests and environmental interests. Organizational stakeholders mainly focus on corporate interests, while community stakeholders, regulatory stakeholders, and media stakeholders pay primary attention to environmental interests. These two types of interests could be contradictory in that the pursuit of corporate interests might undermine the pursuit of environmental interests and *vice versa*. In this vein, the perceptions of gains and losses related to environmental businesses may be different and competing between different stakeholders. In light of this, the identification of gain and loss frames in my data is divided into two steps. The first step is to identify gain and loss frames regardless of different types of interests. The second step is to determine the types of interests that motivate the identified gain and loss frames.

Previous studies suggest that the gain-framed appeal promotes the benefits of adopting a particular action, while the loss-framed appeal emphasizes the losses of alternative action (e.g. Cho & Boster, 2008; Gallagher & Updegraff, 2012; Rothman et al., 2006; Rothman & Salovey, 1997). The criteria for identifying gain and loss frames are thus to decide if the goal of a sentence is perceived as gaining benefits or avoiding loss. The criteria are demonstrated as follows:

a. *If the goal of a sentence is perceived as gaining benefits, it is a gain frame.*

Example (4) is presented below to demonstrate how a gain frame is identified (The goal of the sentence is underlined):

(4) "Sinopec Yangzi Petrochemical Company Limited <u>embarked on a go-green road</u> by increasing its input in occupational safety and environmental protection." (Sinopec CSR rep., 2012)

Based on the understanding of the whole sentence, the goal of the sentence is to go green, which is to increase benefits. Therefore, the above sentence can be regarded as a gain frame.

b. *If the goal of the sentence is perceived as avoiding losses, it is a loss frame.*

Example (5) demonstrates how a loss frame is identified (The goal of the sentence is underlined):

(5) ExxonMobil's strategy to <u>manage climate change risks</u> is focused on reducing greenhouse gas (GHG) emissions through increased energy efficiency, enhanced operations of our facilities and technological innovation. " (ExxonMobil CSR rep., 2012)

Based on the understanding of the above sentence, the goal of *ExxonMobil*'s strategy is to manage climate change risks. This goal can be regarded as avoiding losses, and thus this sentence can be regarded as a loss frame.

c. *If the goal is perceived as neither gaining benefits or avoiding losses, it is neither the gain nor loss frame.*

Example (6) shows how to exclude a sentence as neither a gain frame nor a loss frame (The goal of the sentence is underlined):

(6) We annually review our support of <u>tax-exempt organizations</u> and make appropriate adjustments. (ExxonMobil CSR rep., 2014)

In Example (6), the goal of the sentence is to help tax-exempt organizations, which is neither gaining benefits nor avoiding losses. Consequently, the above sentence is neither a gain nor loss frame.

In order to identify gain and loss frames, all the sentences containing the WAR/BUILDING/JOURNEY metaphors identified from my data were entered into two excels files for the analyses of gain and loss frames. One Excel file is for sentences collected from ACSRs; the other excel file is for sentences extracted from CCSRs. The metaphor embedded within the sentence was presented in the row above the sentence. If a sentence contains multiple metaphors, the sentence is demonstrated in the excel file multiple times so that the sentence containing each metaphor is analyzed individually.

In order to have a clear idea of the goal(s) of a sentence, the words in the sentence describing the overarching goal(s) were typed into the column(s) on the right side of the sentence. If a goal of a sentence was perceived as gaining benefits, the goal was entered into

the box of "Gaining Benefits." If a goal of a sentence is perceived as avoiding losses, the goal was entered into the box of "Avoiding Losses."

Based on the goals presented in the box(s) of "Gaining Benefits" and/or "Avoiding Losses," a final decision was indicated in the box "Gain/Loss Frame." If at least one goal was presented within the box of "Gaining Benefits," I selected "G" in the drop-down list in the box of "Gain/Loss Frame." If at least one goal was presented within the box of "Avoiding Losses," I selected "L" in the drop-down list in the box of "Gain/Loss Frame." I selected "G&L" in the box of "Gain/Loss Frame" if both of the boxes of "Gaining Benefits" and "Avoiding Losses" contain at least one goal. If both the boxes of "Gaining Benefits" and "Avoiding Losses" were empty, the boxes for deciding gain and loss frames remained is marked with "N/A." An example is provided in Table 3.21:

Table 3. 21 Gain Frame Containing the Metaphorical Expression "structure"

Sinopec				
Metaphorical expression in the sentence: *structure*				
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**
2010	Sinopec is active in developing low-carbon energy and improving energy structure.	develop low-carbon energy, improve energy structure		G

In Table 3.21, the presented sentence contains one metaphorical word: "structure." There are two goals for the sentence where this metaphorical expression is located: developing low-carbon energy and improving energy structure. Both of these goals are about gaining benefits and were thus entered into the box "Gaining Benefits." Since the box of "Gaining Benefits" contains at least one goal and the box of "Avoiding Losses" is empty, my final decision was that this sentence is a gain frame, and the option "G" was selected in the box of "Gain/Loss Frame."

Table 3.22 A Loss Frame Containing the Metaphorical Expression "structure"

Sinopec				
Metaphorical expression in the sentence: *structure*				
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**
2017	We optimise energy structure, improve energy efficiency utilisation, and formulate target to control GHG emission.		control GHG emission	L

In Table 3.22, the presented sentence contains one metaphorical word: "structure." There is only one overarching goal for the sentence where this metaphorical expression is located: controlling GHG emissions. Since the goal is to reduce losses, it was placed into the box "Avoiding Losses." Since there is no goal in the sentence related to gaining benefits, the box "Gaining Benefits" remains blank. As the box of "Avoiding Losses" contains at least one goal, the final decision is that this sentence is a loss frame, and the letter "L" was selected in the box of "Gain/Loss Frame."

Table 3. 23 A Gain and A Loss Frame Containing the Metaphorical Expression "building"

Sinopec				
Metaphorical expression in the sentence: *building*				
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**
2018	China promotes the petroleum quality improvement as a way of reducing pollutant emissions and building a beautiful country.	building a beautiful country	reducing pollutant emissions	G&L

In Table 3.23, the sentence presented contains one metaphorical word: "building." There are two overarching goals for the sentence where this metaphorical expression is located: building a beautiful China and reducing pollutant emissions. The goal of reducing pollutant

emissions is to reduce losses and thus was typed into the box "Avoiding Losses." The goal of building a beautiful China is to gain benefits and thus was typed into the box of "Gaining Benefits." As both the boxes of "Gaining Benefits" and "Avoiding Losses" have at least one goal, a final decision was that this sentence contains both the gain frame and loss frame. Therefore, option "G&L" was selected in of "Gain/Loss Frame."

3.5.2 Identification of corporate interests and environmental interests

After identifying all the gain and loss frames, I then determine if the identified gain and loss frames were motivated by corporate interests and/or environmental interests. The criteria for identifying corporate interests and environmental interests are as follows.

a. *If the goal of the frame is perceived as creating corporate benefits, such as generating more profits, creating a safe workplace, improving product quality, or enhancing corporate influence, then the frame is motivated by corporate interests.*

b. *If the goal of the frame is perceived as creating environmental benefits, such as improving environmental conditions or preventing environmental impacts, then the frame is motivated by environmental interests.*

c. *If the goal of the frame is perceived as creating both corporate benefits as well as environmental benefits, then the frame is motivated by a mix of corporate interests and environmental interests.*

d. *If the goal of the frame is perceived as creating neither corporate benefits nor environmental benefits, then the frame is motivated by neither corporate interests nor environmental interests.*

As the second major step in identifying gain and loss frames in my data, the determination of corporate and environmental interests was made within the same excel file for analyzing

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gain and loss frames. The column for determining corporate and environmental interests is at the right side of the columns for deciding gain and loss frames. For each box within this column, a drop-down list was embedded for analysts to make a decision. Option "C" in the list is for corporate interests. Option "E" is for environmental interests. Option "M" is for a mix of corporate and environmental interests. Option "N/A" is for no presence of corporate or environmental interests. If the goal(s) of a gain frame/loss frame is/are perceived as creating corporate interests, select"C" in the "Motivation for the Gain Frame/Motivation for the Loss Frame" box.

If the goal(s) of a gain/loss frame is/are perceived as creating environmental interests, select"E" in the "Motivation for the Gain/Loss Frame" box. If the goal(s) of a gain/loss frame is/are perceived as creating mixed interests, select"M" in the "Motivation for the Gain/Loss Frame" box. If the goal(s) of a gain/loss frame is/are perceived as creating neither corporate nor environmental interests, select"N/A" in the "Motivation for the Gain/Loss Frame" box. A few examples that represent these four situations are provided in the following tables:

Table 3.24 A Gain Frame Motivated by Corporate Interests

Sinopec						
Metaphorical expression in the sentence: *structure*						
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**	**Motivation for the Gain Frame**	**Motivation for the Loss Frame**
2010	We continue to optimize and upgrade industrial structure with focus on increasing efficiency and reducing consumption.	optimize and upgrade industrial structure		G	C	

The letter "G" in the column of "Gain/Loss Frame" indicates that the sentence in the above

table is a gain frame. The goal of the gain frame is to "optimize and upgrade industrial structure," which are to create corporate benefits. Given this, the goal of this gain frame was determined to be motivated by corporate interests. The option "C" was thus selected in the box of "Motivation for the Gain Frame."

Table 3. 25 A Loss Frame Motivated by Environmental Interests

Sinopec						
Metaphorical expression in the sentence: *structure*						
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**	**Motivation for the Gain Frame**	**Motivation for the Loss Frame**
2017	We 93 tilizat energy structure, improve energy efficiency 93 tilization, and formulate target to control GHG emission.		Control GHG emission	L		E

The letter "L" in the column of "Gain/Loss Frame" shows that the sentence in Table 3.25 is a loss frame. The goal of the loss frame is to control GHG emissions, which is to reduce environmental impacts. Since reducing environmental impacts creates environmental benefits, the goal of this gain frame is motivated by environmental interests. The option "E" was thus selected in the box of "Motivation for the Loss Frame."

CNOOC						
Metaphor in the sentence: *way*						
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**	**Motivation for the Gain Frame**	**Motivation for the Loss Frame**
2013	Energy saving is the most straightforward way to reduce emissions at present stage, whereas emission reduction is the most effective way to protect the ecological environment.	Protect the ecological environment	reduce emissions at present stage	G&L	E	E

The tag "G&L" in the column of "Gain/Loss Frame" indicate that the sentence in the above table contains both a gain frame and a loss frame. The goals for the gain frame and the loss frame are motivated by the same type of interests. The goal of the gain frame is to protect the ecological environment. Since protecting the ecological environment can create environmental benefits, the goal is motivated by environmental interests. The goal of the loss frame is to reduce emissions, which protects the environment. Therefore, this goal is also motivated by environmental interests. Given that both gain and loss frames are motivated by environmental interests, option "E" was selected in both the box of "Motivation for the Gain Frame" and the box of "Motivation for the Loss Frame."

Table 3. 27 A Gain Frame Motivated by neither Corporate nor Environmental Interests

Sinopec						
Metaphor in the sentence: *structure*						
Year	**Sentence**	**Gaining Benefits**	**Avoiding Losses**	**Gain/Loss Frame**	**Motivation for the Gain Frame**	**Motivation for the Loss Frame**
2017	We annually review our support of tax-exempt organizations and make appropriate adjustments.	review of our support of tax-exempt organizations		G	N/A	

Table 3.27 shows that the sentence contains a gain frame whose goal is to "review the support of the tax-exempt organizations." It is not clear if this goal is motivated by corporate interests or environmental interests. In light of this, the option "N/A" was selected in the box of "Motivation for the Gain Frame."

3.5.3 Inter-rater reliability test

Although the determination of corporate and environmental interests is conducted within the same excel file with the identification of gain and loss frames, the inter-rater reliability tests for these two procedures were carried out separately. In other words, Cohen's Kappa calculation for determining corporate and environmental interests was solely based on two coders' agreements on corporate and environmental interests. The reason to conduct two separate inter-rater reliability tests for the two procedures is that these two procedures follow two sets of completely different criteria. I recruited two different coders to conduct the two inter-rater reliability tests. One coder was arranged with the inter-rater reliability task of identifying gain and loss frames, and the other coder was assigned the inter-rater reliability task

of determining corporate and environmental interests.

Inter-rater reliability test for identifying gain and loss frames

Ten percent of the data (n=312) from my corpora were used for this inter-rater reliability test. All these data were entered into an excel file. The file provides the coder with detailed instructions on how to complete the identification task, four examples for training (one example with a gain frame, one example with a loss frame, one example with both frames, and one example with none of the frames), and sentences for the coder to be identified. For each sentence in the excel file, coding instructions, the name of the petroleum company that generated the sentence, the publication year of the CSR report containing the sentence, and the metaphorical expression within the sentence are provided. If the coder perceives the goal of a sentence as gaining benefits, then they select "G" in the gain/loss frame box. If the coder perceives the goal of the sentence as avoiding losses, then they select "L" in the loss/loss frame box. They select "G&L" in the gain/loss frame box if both of the criteria above are met. If the criteria above are not met, they select"N/A" in the gain/loss frame box. The identification results indicate Kappa values are as follows: 0.690178.

Inter-rater reliability test for identifying corporate and environmental interests

Ten percent of the data (n= 299) from my corpora were used for this inter-rater reliability test. All these data were entered into an excel file. The file provides the coder with detailed instructions on how to complete the identification task, four examples for training (one example with corporate interests, one example with environmental interests, one example with both types of interests, and one example with none of the interests), and sentences for the coder to identify. If the coder perceives a gain frame is motivated by corporate interests, then they select

"C" in the box of "Motivation for the Gain Frame." If the coder perceives a gain frame is motivated by environmental interests, then they select "E" in the box of "Motivation for the Gain Frame." Select "M" in the box of "Motivation for the Gain Frame" if both of the criteria above are met. If the criteria for corporate and environmental interests are not met for a gain frame, the coder selects "N/A" in the box of "Motivation for the Gain Frame." Likewise, if the coder perceives a loss frame is motivated by corporate interests, then they select "C" in the box of "Motivation for the LOSS Frame." If the coder perceives a loss frame is motivated by environmental interests, then they select "E" in the box of "Motivation for the Loss Frame." Select "M" in the box of "Motivation for the Loss Frame" if a loss frame is to create both corporate and environmental interests. If the criteria for corporate and environmental interests are not met for a loss frame, the coder selects "N/A" in the box of "Motivation for the Lain Frame." The identification results indicate Kappa values are as follows: 0.634395.

3.6 Identification of Different Time Frames

The way I identify past, present, and future time frames is by ascertaining if the goal of a sentence is accomplished in the past, present, or future. The criteria I propose are as follows:

1. *A goal is determined to be located within a past time frame if the sentence indicates that the goal was accomplished in the past. In this case, the goal is labelled as "Pt."*

Example (1) demonstrates how a past time frame is identified (The goal of the sentence is underlined):

(1) By carrying out the national strategy on shale gas development, the Company made a significant breakthrough in shale gas development in Fuling. (Sinopec CSR rep., 2013)

The goal was achieved in the past because the breakthrough was made in the past.

Therefore, the goal in this sentence is labelled with "Pt."

2. *A goal is determined to be located within a future time frame if the sentence indicates that the goal will be accomplished in the future. In this case, the goal is labelled as "F".*

a. *The sentence indicates the goal is a future objective.*

Example (2) demonstrates below to demonstrate how a future time frame is identified (The goal of the sentence is underlined):

(2) Aiming at the strategic goal of <u>becoming world class energy company</u>, the Company considers energy-saving and emission-reduction as the main strategy to change development direction and increase competitiveness. (CNOOC CSR rep., 2011)

The goal is described as a future objective because the sentence indicates becoming a world class energy company is a goal that the company aims to achieve in future. Therefore, this goal is labelled with "F."

b. *The sentence indicates the goal is a vision of the company.*

Example (3) is presented below to demonstrate how a future time frame is identified (The goal of the sentence is underlined):

(3) <u>Infuse low-carbon development into corporate strategy</u>. (Petro China CSR rep., 2017)

The goal will be achieved in the future because the goal is the vision of the oil company and will be accomplished in future. Hence, this goal is labelled with the label "F."

3. *A goal is determined to be located within a present time frame if the sentence indicates the goal is accomplished at present. In this case, the goal is labelled as "Pr".*

Example (4) demonstrates how a present time frame is identified (The goal of the sentence is underlined):

(4) The combination of internal combustion engine efficiencies and faster adoption of electric vehicles, which reach 75% of new passenger vehicle sales by 2050, <u>reduces oil demand in the transportation sector.</u> (ConocoPhillips CSR rep., 2019)

The goal is accomplished at present because the reduction in oil demand is accomplished at present. The goal is labelled with the tag "Pr."

4. WAR Source Domain Used as Gain and Loss Frames for Legitimization

4.1 Introduction

The concept of organizational legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 274). Legitimation can be understood as a social process to establish or defend the congruence between the actions of an entity and social values (Richardson & Dowling, 1986).

Environmental sections in the business discourse of the carbon-intensive sector, particularly the petroleum industry, have received extensive scholarly attention because the sector faces a dilemma in terms of its environmental attitudes (Domenec, 2009; Halderen et al., 2016; Ihlen, 2009a, 2009b; Kolk & Pinkse, 2004; Livesey, 2002; O'Connor & Gronewold, 2013). This dilemma might motivate petroleum companies to use more legitimation strategies to justify their environmental business. Therefore, it would be potentially interesting to examine how legitimation strategies are used in the environmental sections of CSR reports produced by petroleum companies to justify petroleum companies' environmental business.

I investigate legitimation strategies via source domain analysis because source domain can be used as a persuasive tool for an ideological purpose (Charteris-Black, 2005; Chilton & Ilyin, 1993; Goatly, 2007; Kövecses, 2010; Thornborrow, 1993; Van Teeffelen, 1994). (Charteris-Black, 2011, 2016) paved the way for identifying source domains used for legitimization by indicating that source domains can create legitimization via contributing to *logos*, *pathos*, and *ethos*. His criteria for identifying legitimization source domains are based on the positive and negative polarity of source domains in context. However, it is not very easy to operationalize his criteria as he did not provide a specific procedure that helps determine which metaphors contribute to *logos, pathos* and *ethos*.

As far as I can see, gain, and loss frames can provide new insight into the connection between source domains and legitimization because these frames are more easily operationalized to identify legitimization strategies. Issues framed as gains tend to be considered to be legitimate, while those framed as losses would be viewed as illegitimate. Loss and gain frames have been proven to be effective in shaping public perceptions of risks. Given this, these two frames are apt for legitimizing the environmental business of petroleum companies as this business involves risks.

What is noteworthy is that the gain and loss frames in my data differ slightly from previous studies on these two types of frames in that the two frame types in my data can be motivated by different types of interests due to companies' various stakeholders. Organizational stakeholders perceive losses in corporate interests as risks, while community, regulatory, and media stakeholders perceive losses in environmental and social interests as risks.

As petroleum companies inherently impact the environment, different types of interests tend to be contradictory. The pursuit of corporate interests might undermine the pursuit of social and environmental interests and vice versa. In light of the different types of interests, it will be interesting to see which risk perceptions the petroleum companies primarily attend to when they report their environmental business and how they reconcile these competing perceptions.

In my thesis, I will focus particularly on how three source domains-War, Journey, and Building-are used as gain and loss frames because they could be potentially useful for justifying the environmental practice of corporations based on previous studies (Ahrens et al., 2021; Charteris-Black, 2005; Jaworska, 2018; Lu & Ahrens, 2008; Milne et al., 2006). This chapter aims to investigate how the War source domain is used in Chinese and American CSR reports.

Flusberg et al. (2018) reviewed previous studies on the War source domain and noted that the War source domain is effective for three reasons: 1) it can call to mind well-defined

schematic knowledge; 2) the knowledge of war is widespread; 3) many common topics share structural relations with war and thus can arouse similar emotions. The War source domain is often used to conceptualize abstract social issues as "enemies" (Charteris-Black, 2004), which could explain why this source domain has been frequently used in communication about difficulties and serious problems ranging from disease (e.g., pandemic and cancer), crime, drug, disaster to climate change (Atanasova & Koteyko, 2017a; Elwood, 1995; Flusberg et al., 2017; Semino et al., 2018; Thibodeau & Boroditsky, 2011, 2013). One of the problems frequently conceptualized by the War source domain is climate change.

The WAR source domain is used extensively to advance pro-climate change arguments and emphasize the urgency of dealing with climate change (Asplund, 2011; Atanasova & Koteyko, 2017a, 2017b). For example, Atanasova & Koteyko (2017a) observed that the WAR source domain occurs with high frequency in the British *Guardian online* newspaper to conceptualize climate change politics, with an aim to communicate the urgency to cope with climate change.

Apart from studying the WAR source domain in discourse, empirical experiments have also been conducted to test the effect of the WAR source domain on people's perceptions of climate change. Flusberg et al. (2017) compared the framing effects of WAR and RACE metaphors on attitudes towards climate change. They found that, compared with people who read the article containing the RACE metaphor, participants who read the article containing the WAR metaphor reported a higher sense of urgency, a greater consciousness of risks concerning climate change, and a greater willingness to take conservation behavior (Flusberg et al., 2017). This behavioral research proves the effectiveness of the WAR source domain in influencing how people perceive climate change.

Nevertheless, other scholars found that the WAR metaphor may not necessarily be used to heighten the urgency and indicate a commitment to acting on climate issues. Jaworska (2018)

conducts a diachronic analysis to examine the discursive representation of environmental issues in environmental reports and corporate social responsibility published by the major petroleum companies of the UK. She finds out that in the second phase of the CSR reports, the term climate change frequently collocates with the source domain of the military, especially with the terms *combat* and *fight* (Jaworska, 2018). Yet, the military metaphors are frequently juxtaposed with the account of increasing energy demand, whereby the urgency of dealing with climate change is downplayed. In light of different observations in previous studies on the WAR source domain, it would be potentially interesting to examine how petroleum companies use the WAR source domain to legitimize their environmental practice.

My thesis compares legitimation strategies used by Chinese and American petroleum companies. China and the US are the two largest consumers of petroleum (Daojiong, 2006). The petroleum companies in these two countries are major contributors to global environmental impacts. Strategies used by western petroleum companies to deal with climate issues have received extensive scholarly attention (e.g., Breeze, 2012; Dunn, 2014; Hrasky, 2012; Ihlen, 2009b; Livesey, 2002; Skjaerseth & Skodvin, 2003).

Only a few studies have investigated strategies employed by Chinese petroleum companies to justify their environmental business (Ihlen, 2009a; Jaworska, 2018). A comparative study can further our understanding of the legitimation strategies used by these petroleum companies. Legitimation strategies used by petroleum companies in these two countries may have some similarities since they are both from the carbon-intensive industry. However, different regional policies and corporate histories might result in differences in their strategies.

In this chapter, I will address the following research questions:

● **RQ1: What keywords are used in the source domains of the WAR in Chinese and American CSR reports and their frequencies of occurrences?**

● **Overarching RQ2: Are there different preferences in gain and loss frames in Chinese and American CSR reports?**

RQ2a: **Do these gain/loss frames more often frame a goal in the past, present, or future?**

RQ2b: **Which topics are the goals of gain and loss frames more often associated with?**

● **Overarching RQ3: Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?**

RQ3a: **Do these corporate and environmental interests more often frame interests in the past, present, or future?**

RQ3b: **Which topics are the goals of these corporate and environmental interests more often associated with?**

This chapter will address the above research questions by analyzing how the WAR source domain is used as gain and loss frames to create legitimization.

4.2 Corpus

My thesis focuses on CSR reports published by American and Chinese petroleum companies on *Fortune 500* (2020) because these petroleum companies are key players in the petroleum industries by revenue in their respective countries. Stakeholders expect higher accountability and transparency in their CSR reports. In light of this, these companies will be cautious about the way they discursively construct the environmental issues in their CSR reports. Attitudes demonstrated in their CSR reports should be a relatively accurate reflection of their attitudes on social issues. Table 4.1 provides summary information of all the Chinese and American petroleum companies on the *Fortune 500 (2020)* list.

Table 4. 1 American and Chinese Petroleum Companies on the Fortune 500 List (2020)

No.	American Petroleum Companies	Revenue ($M)	Ranking	Chinese Petroleum Companies	Revenue ($M)	Ranking
1	ExxonMobil	264,983	11	Sinopec	407,009	2
2	Chevron	146,516	36	China National Petroleum	379,130	4
3	Marathon Petroleum	124,813	48	China National Offshore Petroleum	108,687	64
4	Phillips 66	109,559	61	Sinochem	80,376	109
5	Valero Energy	102,729	71	Shaanxi Yanchang Petroleum	44,564	265
6	ConocoPhillips	36,669	348	/	/	/

Table 4.1 shows five Chinese petroleum companies and six American petroleum companies are on the *Fortune 500* list generated in 2020. I then searched online for the CSR reports of all these petroleum companies published from 2010 to 2019. This time span allows us to have a comprehensive understanding of American and Chinese CSR reports in the past decade.

What is noteworthy is that the CSR reports of Chinese petroleum companies I intend to study are the English version. This decision is guided by the potential target readers of the English version of CSR reports of Chinese petroleum companies. English CSR reports are primarily employed to assist in expanding an international market, and their target readers are assumed to be English speakers in international markets. Greater public scrutiny over business activities prompts the need to show a socially responsible attitude because these corporations aim to maintain their social capital (Nahapiet & Ghoshal, 1998). Thus, it is assumed that English CSR reports of Chinese petroleum companies would make use of a range of legitimation strategies.

The search result showed that all the CSR reports of *Shaanxi Yanchang Petroleum* are not accessible online, and this petroleum company was excluded from my analysis consequently. As for petroleum companies whose CSR reports are not publicly available for certain years,

only their accessible CSR reports were included in my analysis.

The compilation of the corpora took three major steps. First, the pdf formats of all available CSR reports were downloaded online. Second, the pdf formats were converted to plain text with the assistance of the computer software *Abbyy FineReader 12* (ABBYY, 2014). Third, each corpus file was manually examined to find out and correct conversion errors, such as misspellings and interrupted sentences.

Each CSR report in my data is comprised of a variety of sections covering different themes regarding a corporation's business. At least one section in every CSR report is associated with environmental issues (The titles of these sections are presented in Appendix 1). I categorize these sections generally as "environmental sections" and collect them as my data.

After compiling all of the CSR reports as text files, *AntConc 3.3.5* (Anthony, 2012) was used to help determine the word count. To count the number of words in a text file, I first submitted the text file to *AntConc 3.3.5* and then clicked the "Start" button in the function of "Word List" to generate a list of all the words in the text file. The processing result showed the total word tokens in the text file. According to the word tokens calculated by *AntConc 3.3.5*, the Chinese corpus in my pilot study has a word count of 121,751, and the American corpus is almost double the Chinese corpus, with a word count of 266,826. The corpora sizes in my thesis are demonstrated in Table 4.2:

Table 4. 2 CSR Reports of American and Chinese Petroleum Companies

	ACSRs			CCSRs		
No.	American Petroleum Companies	Years of Publication	Word Count	Chinese Petroleum Companies	Years of Publication	Word Count
1.	ExxonMobil	2010-2019	70,789	Sinopec	2010-2019	35,387
2.	Chevron	2010-2019	14,122	China National Petroleum	2013-2019	28,384
3.	Marathon Petroleum	2011-2019	34,809	China National Offshore Petroleum	2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019	35,010
4.	Phillips 66	2016-2019	6,871	Sinochem	2010, 2011, 2012, 2013, 2014, 2015, 2017, 2018, 2019	22,970
5.	Valero Energy	2015-2019	16,801			
6.	ConocoPhillips	2011-2019	123,434			
	Total		266,826	Total		121,751

As shown in Table 4.2, the corpus consists of two subcorpora for comparative purposes: the American CSR reports subcorpus (henceforth, ACSRs) and the Chinese CSR report subcorpus (henceforth, CCSRs). Detailed information on the corpus, such as the word count and the report title for each CSR report and the titles of the environmental sections in each CSR report, can be found in the Appendix.

4.3 Source domain analysis

This chapter aims to explore how the WAR source domain is used as gain and loss frames to legitimize the environmental practice of petroleum companies. My source domain analysis consists of six steps: 1) determining potential keywords; 2) source domain verification; 3) Part of Speech (POS) tagging; 4) metaphor identification; 5) identifying gain and loss frames; and 6) identify the corporate and environmental interests behind gain and loss frames.

The first step of my source domain analysis is to determine potential keywords. Considering

the large size of my corpora, I identified potential source domain keywords using Sardinha's (2012) sampling technique. To include as many different types of potential keywords as possible, I combined top-down and bottom-up approaches when I used this retrieval method. To determine potential keywords bottom-up, I carefully read through a 10% subset of the whole corpus. To generate potential keywords in a top-down manner, I collected keywords from previous studies on the WAR source domain. In total, I collected 49 potential keywords for the source domain of WAR.

As for the source domain verification, I adopted the method proposed by Ahrens & Jiang (2020), which is a comprehensive approach that can be used for a variety of source domains by adding an online dictionary as well as making use of collocation patterns (Chung & Huang, 2010; Gong et al., 2008). Their procedure exploits four different language resources to verify hypothesized source domains: 1) *SUMO*, 2) *WordNet*, 3) an online English dictionary, and 4) the *Word Sketch Function* in *Sketch Engine*. As for the online English dictionary, I chose *Macmillan English Dictionary for Advanced Learners* (Rundell, 2002) because this dictionary is one of three dictionaries used by *MIPVU* (Steen et al., 2010), the metaphor identification procedure I adopt in my thesis.

First, I examined all the *SUMO* nodes of a source domain keyword to see if any of these nodes are related to the concept of a hypothesized source domain. If none of the *SUMO* nodes of the source domain keyword corresponds to a predetermined node, I then determined its source domain by examining the categories and definitions of the source domain keyword provided in *WordNet* and *Macmillan* dictionary. If *Wordnet*, *SUMO*, and the *Macmillan* Dictionary cannot provide clearly show a semantic relationship between a hypothesized source domain and a potential keyword, I ran a collocation search for the keyword in *Sketch Engine*. To confirm if the keywords verified as belonging to the source domain of WAR are used metaphorically, I would then use *MIPVU* (Steen et al., 2010) to conduct the metaphor

identification procedure.

Since the *MIPVU* procedure does not cross word-class boundaries when determining the metaphoricality of lexical units, I parsed my data with *Part of Speech* (POS) tags before the metaphor identification. If two words with the same word form are from different word classes based on the *POS* tagging, they were analyzed separately. The computer tool used for *POS* tagging is the *POS* tagging (Kristina et al., 2003) of *Stanford CoreNLP* (Manning et al., 2014). Among all the available natural language analysis toolkits, *Standford CoreNLP* is one of the most widely-used ones (Manning et al., 2014).

After determining the word classes of the source domain keywords in my thesis, I will then use *MIPVU* to investigate if a keyword is used metaphorically or not. In *MIPVU*, the unit of analysis is *lexical unit* (LU) (Steen et al., 2010). LUs are generally single words, with four exceptions: polywords, phrasal verbs, compounds, and some proper names (Steen et al., 2010). *MIVPU* identifies a lexical unit as a metaphor if its use could be characterized by cross-domain mapping from its basic meaning to its contextual meaning in the text (Steen et al., 2010). When all the metaphorically used lexical units were identified, I then proceeded to identify gain and loss frames.

Previous studies suggest that the gain-framed appeal focuses on the benefits of adopting a particular action, while the loss-framed appeal emphasizes the losses of alternative action (e.g. Cho & Boster, 2008; Rothman et al., 2006; Rothman & Salovey, 1997). The criteria for identifying gain and loss frames are thus to decide if the goal of a sentence is perceived as gaining benefits or avoiding loss. The criteria are demonstrated as follows:

a. If the goal of a sentence is perceived as gaining benefits, it is a gain frame.

b. If the goal of the sentence is perceived as avoiding losses, it is a loss frame.

c. If the goal is perceived as neither gaining benefits or avoiding losses, it is neither

the gain nor loss frame.

After identifying all the gain and loss frames, I then determine if the identified gain and loss frames were motivated by corporate interests and/or environmental interests. The criteria for identifying corporate interests and environmental interests are as follows.

a. *If the goal of the frame is perceived as creating corporate benefits, such as generating more profits, creating a safe workplace, improving product quality, or enhancing corporate influence, then the frame is motivated by corporate interests.*

b. *If the goal of the frame is perceived as creating environmental benefits, such as improving environmental conditions or preventing environmental impacts, then the frame is motivated by environmental interests.*

c. *If the goal of the frame is perceived as creating both corporate benefits as well as environmental benefits, then the frame is motivated by a mix of corporate interests and environmental interests.*

d. *If the goal of the frame is perceived as creating neither corporate benefits nor environmental benefits, then the frame is motivated by neither corporate interests nor environmental interests.*

After identifying the three types of interests, I determined if the identified gain and loss frames, as well as different interests, were presented in different time frames. The criteria for identifying different time frames are as follows.

1. *A goal is determined to be located within a past time frame if the sentence indicates that the goal was accomplished in the past. In this case, the goal is labelled as "Pt".*

2. *A goal is determined to be located within a future time frame if the sentence indicates that the goal will be accomplished in the future. In this case, the goal is labelled as "F."*

    a. *The sentence indicates the goal is a future objective.*

    b. *The sentence indicates the goal is a vision of the company.*

3. A goal is determined to be located within a present time frame if the sentence indicates that the goal is accomplished at present. In this case, the goal is labelled as "Pr".

When all the above metaphor analysis procedures had been finished, I then started to investigate my data to see how WAR metaphors are used as gain and loss frames to legitimize the environmental practice of American and Chinese petroleum companies.

4.4 WAR source domain in ACSRs and CCSRs

After identifying all the metaphorical expressions, the metaphors belonging to the source domain of WAR were unearthed from my data. The first research question to be addressed in this chapter is: "What keywords are used in the source domain of WAR in Chinese and American CSR reports and their frequencies of occurrences?" To provide an overview of the frequencies of WAR metaphors used in two corpora, I presented in a bar chart the normalized ratios (NR) per 10,000 words of the frequencies of WAR metaphors used in ACSRs and CCSRs in Figure 4.1. The NRs of the frequencies were calculated because the sizes of the two corpora feature an obvious difference, with ACSRs being more than twice the size of CCSRs.

Figure 4. 1 WAR Metaphors in ACSRs and CCSRs
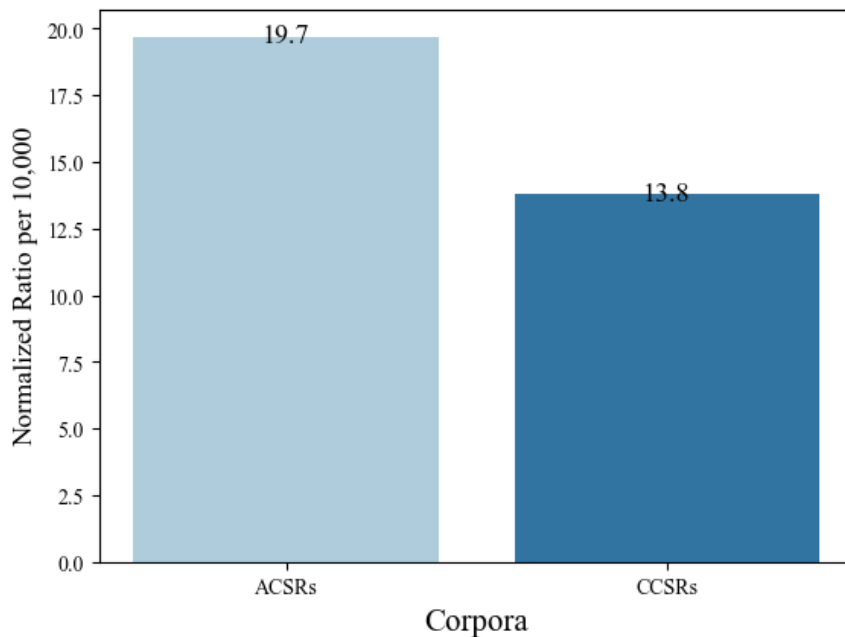
Figure 4.1 shows that WAR metaphors occur with higher frequency in ACSRs than in CCSRs. A log-likelihood (LL) test was run to determine if the differences in frequencies of WAR metaphors are significant with a significance level set at 0.05. The log-likelihood calculation indicates that the WAR source domain is significantly overused in ACSRs than those in CCSRs (LL= + 16.97). Nevertheless, the effect size is not large as the Log Ratio of the LL test is 0.51.

The WAR source domain can create a sense of urgency and risk, making people realize the seriousness and urgency of a problem and increasing people's willingness to change their behaviors accordingly (Flusberg et al., 2017). Given this, in the context of climate change, the WAR source domain might increase people's awareness of the urgency of dealing with climate change and mobilize them to take immediate actions. Yet, this change of perception might generate counterproductive effects for petroleum companies as people might turn criticism towards these companies for their contributions to environmental degradation. Any delay or

inaction in coping with climate change would be viewed as a sign of irresponsibility.

The WAR source domain could even exaggerate the perception of threat due to its arousal of a sense of fear (Flusberg et al., 2018). Alexandrescu (2014) called for an end to the "war on drug" rhetoric as it exaggerates the danger of drug use, which could generate panic, enhance negative stereotypes and justify repressive policies. This magnification or exaggeration effect could also disadvantage petroleum companies as the amplified perception of threat could potentially reinforce the negative stereotypes of petroleum companies and even delegitimize their existence.

Given the above considerations, it is not immediately clear why petroleum companies do not completely avoid using the WAR source domain in their CSR reports. It is also a surprise that American petroleum companies used more WAR metaphors, given they have received more pressure internationally and domestically for their contributions to environmental degradation than their Chinese counterparts. To delve into the motivations behind the usages of WAR metaphors, I looked at the specific WAR metaphors used in ACSRs and CCSRs. Table 4.3 demonstrates all of the metaphors identified in my data:

Table 4. 3 Metaphorical Expressions in the Source Domain of WAR in ACSRs and CCSRs

ACSRs			CCSRs		
Metaphorical Keywords	**Tokens**	**NR**	**Metaphorical Keywords**	**Tokens**	**NR**
Functions			*Functions*		
target *v.*	50		target *v.*	21	
combat *v.*	3		deploy *v.*	15	
fight *v.*	2		combat *v.*	8	
shield *v.*	1		fight *v.*	3	
struggle *v.*	3		hit *v.*	3	
deploy *v.*	54				
Qualities			*Qualities*		
strategic *a.*	96		strategic *a.*	27	
Entities			*Entities*		
strategy *n*.	190		strategy *n*.	51	
aim *n*.	19		aim *n*.	3	
sector *n*.	73		sector *n*.	21	
war *n*.	1		defense *n*.	5	
defense *n*.	1		deployment *n*.	7	
deployment *n*.	32		fight *n*.	2	
			combat *n*.	1	
			invasion *n*.	1	
Total	**525**	**19.7**	**Total**	**168**	**13.8**

Table 4.3 provides clues for the usages of WAR metaphors in ACSRs and CCSRs. Among all the WAR metaphors, only a handful of them is strongly related to aggressive or violent elements in a war, such as "combat" (n=3 in ACSRs and n=9 in CCSRs) and "fight" (n=2 in ACSRs and n=5 in CCSRs). What stands as a stark contrast is that WAR metaphors denoting war planning (e.g., "strategy," "strategic"), an area controlled by the armed forces (e.g., "sector"), and a military target (e.g., "target," "aim") occur with high frequencies in both ACSRs and CCSRs.

In both these corpora, the most frequent WAR metaphor is "strategy" (n=190 in ACSRs and n=51 in CCSRs), suggesting that both American and Chinese petroleum companies tend to view the efforts of dealing with climate issues as well-orchestrated plans. In this way, public attention is transferred from whether petroleum companies have successfully tackled climate

change to how they plan to deal with climate change. Examples (1) and (2) demonstrate how the WAR metaphor "strategy" is used.

(1) Marathon Petroleum assets are responsible for developing customized strategies and plans to minimize the impact of our operations on local water resources, and preserve freshwater for drinking and other community needs. (Marathon Petroleum CSR. rep., 2017)

(2) By carrying out the national strategy on shale gas development, the Company made a significant breakthrough in shale gas development in Fuling. (Sinopec CSR rep., 2013).

In Example (1), *Marathon Petroleum* used the WAR metaphor "strategies" to demonstrate how they cope with the impacts of business operations and preserve freshwater. American oil companies' close attention to their environmental impact is likely attributable to the social pressures in the strategies of the United States to minimize environmental impacts and preserve natural resources can address concerns from regulatory, media and community stakeholders. As strategies are plans to be accomplished in the future, the environmental practice is located in a future time frame. Since no specific deadline or schedule was indicated in the above sentence, it is hard to know when the goal of the strategies will be achieved. In addition, the adjective "customized" preceding the metaphor "strategies" suggests that the plans to reduce environmental impacts will be tailored to suit the needs of the oil company, showing *Marathon's* attention to the interests of organizational stakeholders.

In Example (2), the "strategy" used by *Sinopec* is a "national" one, implying the compliance of *Sinopec'* environmental practice with national policies. As an SOE,

compliance with government policies helps achieve its legitimacy. Shale gas development is high on the political agenda in China because it can reduce China's dependence on energy imports. Shale gas can also alleviate the mounting pressure on the Chinese government to replace sulphur, nitrogen, and carbon emission (Ng, 2020a). Since 2005, oil companies in China have actively participated in the exploration and development of shale gas (Dong et al., 2010). Among all of these oil companies, *Sinopec* leads China's shale gas revolution with its drilling practices (Ng, 2020b). As shale gas is a type of natural gas, the cleanest fossil fuel, concerns from regulatory, community, and media stakeholders about environmental impacts are also accommodated.

Through the usage of the WAR metaphor "strategy," the focus of coping with climate change shifts from achieving a clear-cut victory to exercising a well-devised plan. As long as a plan is wisely formulated, a victory should be around the corner. American oil companies tend to realise legitimacy by demonstrating how their strategies can address environmental impacts, whereas Chinese oil companies tend to achieve legitimacy by showing how their strategies align with national policies.

4.5 Gain and loss frames

To have an understanding of how the source domain of WAR is used as gain and loss frames, I will address the second research question is to answer this question: "Are there different preferences in gain and loss frames in Chinese and American CSR reports?" To answer this question, I calculated all the gain and loss frames in both ACSRs and CCSRs, which yielded 252 gain frames and 248 loss frames in ACSRs, and 101 gain frames and 83 loss frames in CCSRs. I visualized the frequencies of these two frames used in two corpora in Figure 4.2:

Figure 4. 2 Gain and Loss Frames in ACSRs and CCSRs
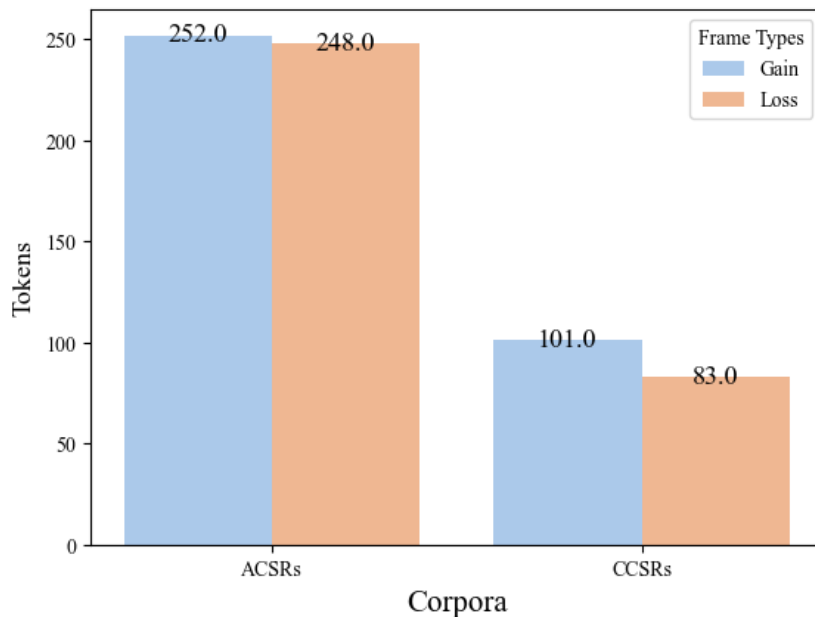
Figure 4.2 shows that both ACSRs and CCSRs have no obvious preferences for any particular frame type. To confirm this observation statistically, I used the goodness of fit test to calculate the differences between gain and loss frames in two corpora separately.

The result indicates that the usages of gain and loss frames are not significantly different in ACSRs (X-squared = 0.032, df = 1, p-value = 0.858). The calculation of goodness of fit for usages of gain and loss frames in CCSRs also shows that the two frames are not used significantly differently (X-squared = 1.7609, p-value = 0.1845). The statistical calculations of the differences between gain and loss frames in two corpora confirmed that both ACSRs and CCSRs have no apparent preferences for either frame.

This finding echoed previous studies about effective CSR communication. Kim and Rim (2019) adopted a survey to examine American consumers' expectations of CSR communication and identified several important CSR communication factors, such as "CSR informativeness, third-party endorsement, personal relevance, transparency, and "consistency" (p. 5). These factors have long been recognized as essential for effective CSR communication

by many other scholars (Coombs & Holladay, 2011; Du et al., 2010; Morsing & Schultz, 2006; Morsing et al., 2008; Schlegelmilch & Pollach, 2005).

Among the above factors, the CSR communication factor "transparency" is defined as "openness of CSR information disclosure including both good and bad" (Kim & Ferguson, 2016, p 7). Coombs and Holladay (2011) argued that this factor is pivotal as it serves as a foundation for trust-building and credibility construction in organization-public relations. The almost equal distributions of gain and loss frames in ACSRs and CCSRs could be motivated by corporate intentions to demonstrate their transparency to achieve effective CSR communication. To further explore the usages of gain and loss frames in each corpus, I demonstrate in Table 4.4 the WAR metaphors used as gain and loss frames.

Table 4. 4 Metaphors Used as Gain and Loss Frames in ACSRs and CCSRs

ACSRs			CCSRs		
Metaphorical Keywords	Gain	Loss	Metaphorical Keywords	Gain	Loss
Functions			*Functions*		
target *v.*	20	29	target *v.*	8	14
combat *v.*	2	3	combat *v.*	1	9
fight *v.*	2	1	deploy *v.*	8	8
deploy *v.*	24	28	fight *v.*	2	1
struggle *v.*	2	1	hit *v.*	1	2
Qualities			*Qualities*		
strategic *a.*	64	33	strategic *a.*	23	5
Entities			*Entities*		
defense *n.*	1		defense *n.*	5	
war *n.*	1		fight *n.*		2
strategy *n.*	88	110	strategy *n.*	37	27
aim *n.*	11	10	aim *n.*	1	2
sector *n.*	28	19	sector *n.*	12	9
deployment *n.*	9	14	deployment *n.*	3	4
	252	248		101	83
Total	500		Total	184	

From Table 4.4, we can see that the most frequent WAR metaphor "strategy" is used almost equally as gain and loss frames in both corpora (88 for gain frame and 110 for loss

118

frame in ACSRs, 37 for gain frames, and 27 for loss frames in CCSRs). These equal distributions suggest that both ACSRs and CCSRs tend to use this WAR metaphor to elaborate on how they cope with climate issues as well as generate benefits.

The above table shows that the WAR metaphor "strategic" is used more often as gain frames in two corpora. A possible reason is that this adjective is often used in my data to show a plan is well-formulated or an event is well-planned. Thus, this word is positively connotated. Examples (3) and (4) demonstrated how this WAR metaphor is used in CCSRs and ACSRs.

(3) Aiming at the strategic goal of becoming world class energy company, the Company considers energy-saving and emission-reduction as the main strategy to change development direction and increase competitiveness. The Company focused on improving management system, strengthened task tracking and assessment, intensified supervision management and technology reform in order to carrying out the energy-saving and emission-reduction. (CNOOC CSR rep., 2011)

(4) Annual incentive programs promote achievement of strategic milestones and objectives that address stakeholder issues essential to sustaining excellence in environmental and social performance. (ConocoPhillips CSR rep., 2018)

The sentence in Example (3) is gain-framed because its goal is to become a "world class energy company." The combination of the phrase "aim at" and the metaphor "strategic" intensifies *CNOOC's* strong focus on achieving this goal. This goal aligns with the interests of organizational stakeholders because being a world-class company can establish an international reputation and help expand overseas business. To achieve this goal, the oil company views "energy-saving and emission-reduction as the main strategy," which can accommodate the

interests of regulatory, media and community stakeholders. The second sentence in Example (3) indicates that saving energy and reducing emissions are achieved through management and technology improvements, which accommodates the organizational stakeholders' worries about radical changes in the core business model.

In Example (4), the metaphor "strategic" is employed before the nouns "milestones" and "objectives," foregrounding the significance of these achievements and objectives. The American oil company *ConocoPhillips* pays close attention to stakeholders' interests by indicating that these "milestones" and "objectives" are going to "address stakeholder issues." This attention could be attributable to the fact that major American oil companies are publicly owned and tend to be responsive to the needs of different types of stakeholders. However, *ConocoPhillips* does not specify which stakeholder issues are considered to be "essential to sustaining excellence in environmental and social performance." This ambiguity allows *ConocoPhillips* to set aside the issues that concern organizational stakeholders the most.

4.5.1 Gain and loss frames in different time frames

The first sub-question under this research question is "Do these gain/loss frames more often frame a goal in the past, present, or future?" To answer the question, I annotated each gain and loss frame in my data with one of three tags, "Pt," "Pr," and "F." If the goal of a frame is about achievement in the past, the tag "Pt" is assigned to the frame. If the goal of a frame is about a plan at present, the tag "Pr" is assigned to the frame. If the goal of a frame is about a plan in the future, the tag "F" is assigned to the frame. Figure 4.3 indicates the frequencies of gain and loss frames in two different time frames.

Figure 4. 3 Gain and Loss Frames in Past and Future Time frames
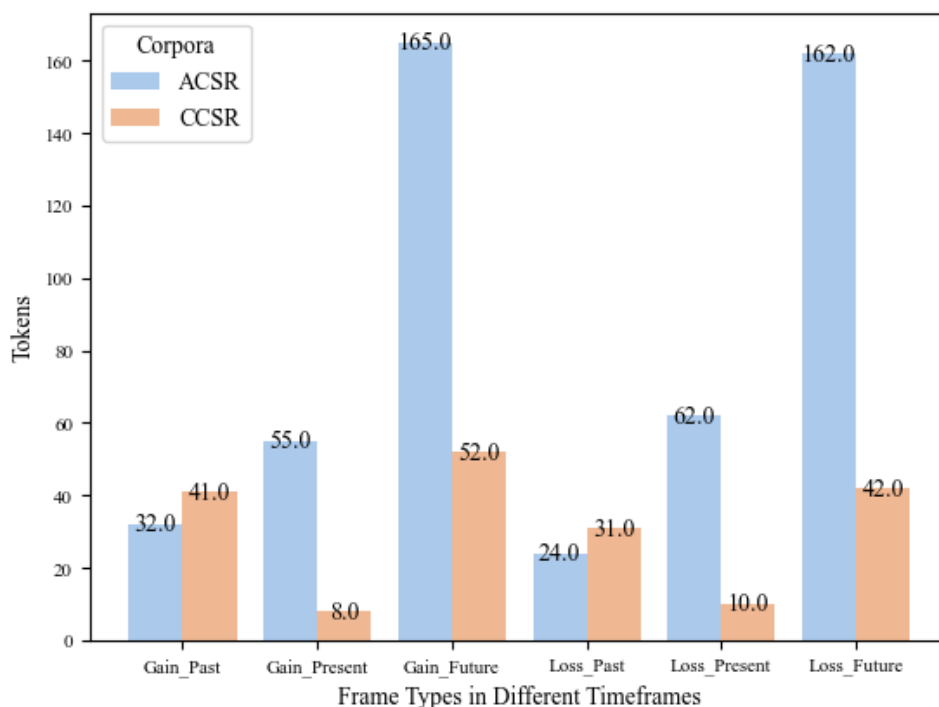
From Figure 4.3, we can see that both gain and loss frames are presented in two corpora more in the future time frame. I used the goodness of fit tests to test if the future time frame is significantly used for gain frames and loss frames in ACSRs and CCSRs. The results show that gain frame (X-squared = 120.31, df = 2, p-value < 2.2e-16) and loss frames (X-squared = 122.94, df = 2, p-value < 2.2e-16) are used in different time frames significantly differently in ACSRs. In CCSRs, gain frames (X-squared = 31.149, df = 2, p-value = 1.723e-07) and loss frames (X-squared = 19.108, df = 2, p-value = 7.09e-05) are used in different time frames significantly differently as well. The calculations of standard deviations show that in ACSRs both gain frames (-6.948792 -3.875288 10.824080) and loss frames (-7.902633 -2.783882 10.686515) are presented more often in the future time frame. In CCSRs, both gain frames (1.547915 -5.417701 3.869786) and loss frames (0.7761505 -4.1135978 3.3374473) are presented significantly less in the present time frame.

These findings echoed the observations made by many scholars that CSR reports'

environmental sustainability discourse favours future time frames. Fuoli (2018) indicated that companies tend to emphasize objectives and ambitions for the future in CSR reports. Describing business activities in a future-oriented manner is also a common legitimization or justification strategy. Bondi (2016) suggests that forward-looking statements play an important role in the discursive legitimation of organizations as they can foreground corporate expertise and commitment to ethical values. Jaworska (2018) observed that most of the solutions to tackling climate change in CSR reports are formulated as future goals as this future orientation strategy can reduce the immediacy of dealing with climate issues.

One type of WAR metaphor frequently used to describe goals of gain and loss frames in a future-oriented way is the noun "aim." This metaphor emphasizes petroleum companies' ambitions and objectives and demonstrates their commitment to ethical issues. Examples (5) and (6) demonstrated how the WAR metaphor "aim" is used in a future-oriented manner.

(5) By 2025, reduce the collective average methane intensity of the aggregated upstream gas and oil operations to below 0.25%, with the <u>aim</u> of hitting 0.2%. (Petro China, CSR rep., 2018)

(6) This network is sponsored and coordinated by the European Commission with the <u>aim</u> of uniting public and industry efforts towards the common goal of advancing large-scale CCS deployment. (ConocoPhillips CSR rep., 2011)

In Example (5), the metaphor "aim" is used to present an environmental goal, which is specified as lowering "the collective average methane intensity" to "0.2%" by 2025. An environmental goal with a specific criterion and schedule can increase transparency, which helps gain the trust of regulatory, media and community stakeholders. The concerns of the

organizational stakeholders regarding potential costs are also accommodated because it is a relatively less challenging aim. Intensity reduction is to lower the rate of emissions relative to the intensity of specific business activity. Therefore, reducing emission intensity is to reduce emissions in a relative rather than absolute manner.

In Example (6), the aim of "advancing large-scale CCS deployment" is not the goal of the petroleum company *per se*. Instead, this aim is described as a common goal of both the public and the industry. By uniting the public and the oil industry under a collective goal, the oil industry forms an alliance with the public and fights side-by-side with them in the war against climate change. In this way, potential conflicts between the oil company and community stakeholders are reconciled, and their relationship becomes collaborative.

Carbon capture and storage (CCS) is a clean-energy technology that can reduce GHG emissions. The technologies, which are commercially viable and deployment-ready, capture carbon dioxide (CO_2) from industrial processes, transport it, and permanently store it underground. CCS can reconcile different types of interests because it allows oil companies to maintain their competitiveness while meeting climate goals. The U.S. plays a leadership role in the deployment of CCS technologies. The general public has not fully embraced CCS due to their insufficient knowledge of the technology. More public education is needed to expand the social acceptance of this technology. That is probably why the oil company emphasizes that the deployment of CCS technology requires unity between the public and the oil industry. Using CCS could concern organizational stakeholders because its deployment is capital-intensive. The high costs involved in constructing CCS units could also motivate oil companies to unite with the public and persuade them to share this technology's cost.

4.5.2 Topics associated with gain and loss frames

The second sub-question I will address under the second research question is: "Which topics are the goals of gain and loss frames more often associated with?" To have an initial understanding of what topics are potentially associated with gain and loss frames, I used the "Semantic Frequency List" function in *Wmatrix* (Rayson, 2008) to obtain a list of frequently recurring domains associated with the goals of gain and loss frames.

Wmatrix is a web-based system for automated text annotation. The semantic tool *USAS* of *Wmatrix* can automatically annotate each lexical unit of a text based on its semantic meanings. The original tagset stems from *Longman Lexicon of Contemporary English* (McArthur, 1981) but has since been developed and revised, finally yielding 21 major semantic domains/fields.

As petroleum companies might use various words for a similar concept (e.g., "pollute," "pollution," and "contaminate"), investigating semantic domains which subsume semantically related words together allows me to access recurrent topics in the dataset quickly. I selected *Wmatrix* as the semantic annotation tool because the accuracy of its semantic tagging reaches about 92% accuracy (Rayson, 2008).

I extracted all the goals of gain frames identified in ACSRs and CCSRs and entered them separately into two plain texts named "goals of gain frames_ACSRs" and "goals of gain frames_CCSRs." All the goals of loss frames identified in ACSRs and CCSRs were entered into two separate plain texts named "goals of loss frames_CCSRs" and "goals of loss frames_ACSRs."

I then uploaded these four plain texts onto *Wmatrix* and clicked the button "Semantic frequency list." Figure 4.4 demonstrates the interface of *Wmatrix,* and the "Semantic frequency list" is marked with the red box:

Figure 4. 4 Interface of Wmatrix

When clicking into the "Semantic frequency list," all the semantic domains are listed with a descending order of their frequencies. Figure 4.5 displays the frequency list of semantic domains associated with the goals of gain frames in ACSRs:

Figure 4. 5 Semantic Frequency List Generated by Wmatrix

```
TOTAL          1906
Z5              632
X7+             103
A1.1.1           64
Z99              58
Z8               56
S7.1+            38
S8+              38
W5               38
A5.1+            34
O1.2             31
A2.1+            30
I2.1             28
A9+              26
X5.2+            23
K4               21
M6               20
I1.1             19
T2++             19
M7               18
A9-              18
X2.4             17
X2.2+            15
A4.1             14
A5.1             14
A1.8+            13
P1               13
A1.5.1           11
```

To obtain the semantic domains that can provide us with insightful information regarding the frequent topics associated with gain and loss frames, I excluded the grammatical domains and domains that represent proper names (e.g., Z1: Personal names, Z2: Geographical names, Z3: Other proper names). I also excluded Z99 because this tag is assigned to lexical items when the semantic matching procedure fails. A1.1.1 (General Actions/Making) is excluded because it is an abstract semantic domain that contains words describing general actions. It frequently occurs in all of the uploaded files and indicates little useful information regarding preferences for different topics. This unmatching mostly happens because a word has been misspelt or it is not yet included in the lexicon (Archer et al., 2003).

After the exclusion, the top semantic domains were extracted as domains for further investigation. The cut-off threshold was set at around 15% percent of the dataset so that analyzed domains can offer sufficient information on frequent topics associated with gain and loss frames. Meanwhile, the analysts would not be overwhelmed with too much information. The top semantic domains associated with goals of gain frames in CCSRs, goals of loss frames in CCSRs, goals of gain frames in ACSRs, and goals of loss frames in ACSRs generated by *Wmatrix* are demonstrated in Table 4.5:

Table 4. 5 Top Semantic Domains in Semantic Frequency Lists for Gain and Loss Frames in

ACSRs and CCSRs

Ranking	Gain Frames in ACSRs		Loss frames in ACSRs		Gain Frames in CCSRs		Loss Frames in CCSRs	
	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.
1	X7+: Wanted	100	A9-: Giving	83	A2.1+: Modify, change	37	A 2.1+: Modify, change	37
2	S8+: Helping	47	X7+: Wanted	82	S8+: Helping	31	X7+: Wanted	22
3	O1.2: Substances and materials: Liquid	44	N5-: Quantities : little	76	O1.3: Substances and materials: Gas	31	W4: Weather	19
4	W5: Green Issues	43	A15-: Danger	62	W5: Green issues	24	A9-: Giving	17
5	S7.1+: In power	40	S7.1+: In power	56	X7+: Wanted	22	N5-: Quantities: little	15
6	A5.1+: Evaluation: Good	37						
Freq.	311		359		145		110	
Total	2313		2499		1131		759	
Pct.	13%		14%		13%		14%	

As a few domains generated within *Wmatrix* might be too general to provide insightful information on topics associated with gain and loss frames, I examined all the concordances in the top semantic domains to see 1) if a domain can be further divided and 2) if a more specific label can be assigned to the domain. Checking concordances within a domain can also rule out possible tagging errors.

For instance, I checked the semantic domain of "A9- ": Giving" (n=67) associated with loss frames in ACSRs. The terms subsumed under this domain include words like "supply" (n=2), "offer" (n=1), "contribute" (n= 2), "provide" (n=1), "distribution" (n=1), "emission" (n=11), and "emissions" (n=45). The semantic meanings of the first four words are closer than other words in the domain, and the semantic meanings of the last two words are closer than

other words in the domain. This observation suggests that this domain can be further divided into a domain containing words "supply," "offer," "contribute," and "provide," and the other domain containing the words "emission" and "emissions." The word "distribution" is wrongly assigned and excluded from further analysis. I then assigned a new label to the domain containing the words "emission" and "emissions": "Emission."

All the domains and labels generated in the above process are represented in Table 4.6 as dominant topics associated with gain and loss frames in ACSRs and CCSRs:

Table 4. 6 Top Topics Associated with Gain and Loss Frames in ACSRs and CCSRs

Ranking	Gain Frames in ACSRs		Loss Frames in ACSRs		Gain Frames in CCSRs		Goals of Loss frames in CCSRs	
	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.
1	Aims and Plans	100	Aims and Plans	75	Change	32	Change	37
2	Liquid	44	Reduction	75	Gas	31	Aims and Plans	21
3	Environment	43	Emission	65	Environment	24	Climate	19
4	Management	37	Risks	62	Aims and Plans (X7+)	22	Emission	13
5	Facilitation	33	Management and Leadership	54	Energy (X5.2+)	17	Reduction	14
	Improvement	31						
Freq.	288		331		126		104	
Total:	2313		2499		1131		759	
Pct.	12%		13%		11%		14%	

The reformulated labels provide us with a clearer insight into which issues are associated with gain and loss frames. We can see from the above table that a few domains are associated with both types of frames in two corpora (e.g., "Business Actions" and "Aims and Plans"). However, some topics indicate different attentions of American and Chinese petroleum companies.

One interesting difference is that "Change" is a dominant topic associated with both gain

frames and loss frames in CCSRs, whereas this topic is not frequently associated with gain and loss frames in ACSRs. Many words in the topics of "Change" in CCSRs are related to the concept of "development", such as "development," "developing," "develop," and "developed." In the topic of "Change" associated with the gain frames in CCSRs, the major development targets are to develop gas (n= 10). In the topic of "Change" associated with the loss frames in CCSRs, the keyword with the highest frequency is "development," which is used to refer to low-carbon development (n=14). Examples (7) and (8) can give us an idea of how gain- and loss-framed WAR metaphors are used in the topic of "Change."

(7) Regarding natural gas as a <u>strategic</u> and growing business, the Company continued to strengthen natural gas exploration and development, accelerated the construction of cross-border gas pipelines and domestic gas pipeline networks, and facilitated the development of conventional gas and unconventional gases such as tight gas, shale gas and coal-bed methane. (Petro China CSR rep., 2019)

(8) The Company has proactively identified the risks and opportunities related to climate change, developed the low-carbon development <u>strategy</u>, strengthened the management of carbon assets, and promoted energy efficiency and greenhouse gas emissions reduction. (Sinopec CSR rep., 2019)

In Example (7), the gain-framed WAR metaphor "strategic" is used to justify natural gas as a strategic "business." As the meaning of "strategic" indicates that an event is well-planned, a "strategic" business should be able to generate benefits. Natural gas development can reconcile the interests of different stakeholders as natural gas is the cleanest fossil fuel, and corporate benefits can be generated in the commercialization of natural gas. The CCSRs'

emphasis on the development of gas and other energy resources could be motivated by China's domestic context. The large population and growing economy drive China's energy demand and the need to secure energy resources. Developing natural gas is a way to alleviate the domestic demand for energy in China. In addition, natural gas development is part of the Chinese government's efforts to adjust its energy structure to reduce its dependence on coal and petroleum. By demonstrating compliance with national policies, the legitimacy of this SOE can be realized.

In Example (8), the loss-framed WAR metaphor "strategy" is used together with the expression "low-carbon development" to present *Sinopec*'s plan to reduce carbon emissions, which aligns with the interests of regulatory, media, and community stakeholders. The contextual meaning of the expression "development" is "change, growth, or improvement over a period of time," which suggests reducing carbon emissions will be a long-term process. In addition, Example (8) indicates that the "low-carbon development strategy" was just developed. As a military strategy is usually formulated before the beginning of a war, having a low-carbon development strategy is just the beginning of carbon emission reduction. The realization of fully eliminating carbon emissions is in the far future. By downplaying the immediacy of coping with emissions, *Sinopec* can make incremental changes over time rather than immediate radical changes. The concerns of organizational stakeholders are accommodated.

4.6 Corporate and environmental interests

As CSR reports need to accommodate the interests of different types of stakeholders, it would be informative to explore the motivations behind the gain and loss frames. The third research question I will address in this chapter is "Are gain/loss frames motivated more often by

corporate interests or environmental interests in Chinese and American CSR reports?" Figure

4.6 displays the motivations of gain and loss frames in ACSRs and CCSRs.

Figure 4. 6 Gain and Loss Frames Motivated by Different Interests
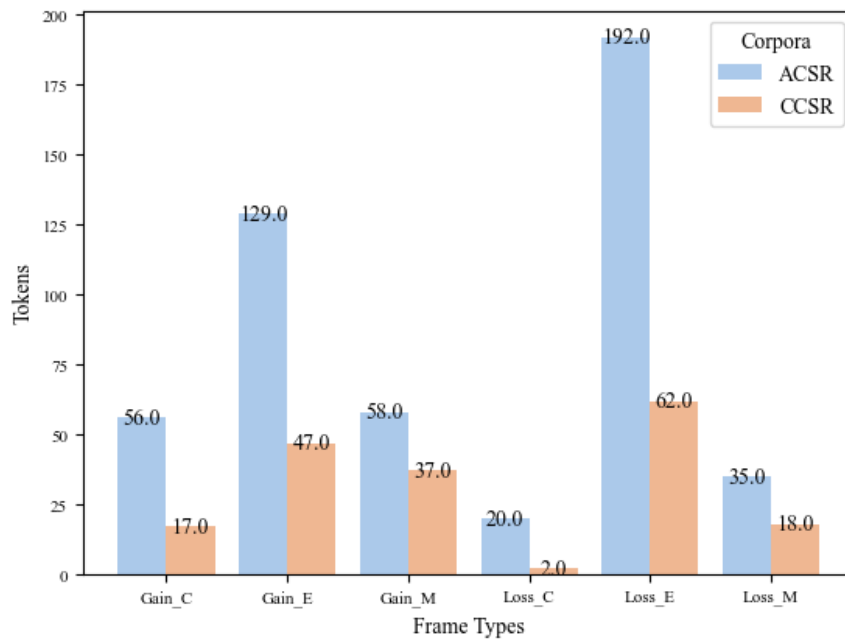
Figure 4.6 shows that both gain and loss frames in ACSRs and CCSRs are motivated

mostly by environmental interests. To confirm statistically this is the case, I used goodness of

fit to calculate the usages of different interests in two corpora separately. The test results for

the different interests in ACSRs show that both gain frames and loss frames are motivated

significantly by different interests as well (chi-square test results for gain frames: X-squared =

42.691, df = 2, p-value = 5.366e-10; chi-square test results for loss frames: X-squared = 220.48,

df = 2, p-value < 2.2e-16). The test results for the different interests in CCSRs show that both

gain frames and loss frames are motivated significantly by different interests (chi-square test

results for gain frames: X-squared = 13.861, df = 2, p-value = 0.0009773; chi-square test results

for loss frames: X-squared = 70.634, df = 2, p-value = 4.592e-16).

To understand which cell contributes most to the difference, I calculated the standard

residuals of each cell in goodness tests for gain frames and loss frames in ACSRs and CCSRs. The test results show that loss frames in CCSRs (-5.934603 8.121036 -2.186433), gain frames in ACSR (-3.402069 6.531973 -3.129904), and loss frames in ACSRs (-8.413528 14.802410 -6.388882) are motivated significantly more by environmental interests. Gain frames in CCSR are motivated significantly less by corporate interests (-3.5179877 2.8143902 0.7035975).

The above analysis results do not come as a surprise as my data are extracted from environmental sections of CSR reports, which mainly focus on how petroleum companies address environmental issues.

4.6.1 Corporate and environmental interests in different time frames

The first sub-research question under the third research question is "Do these corporate and environmental frames more often frame interests in the past, present or future?" I used a bar plot to show the preferences of different time frames of different types of interests.

Figure 4. 7 Different Interests in Three Different Time Frames
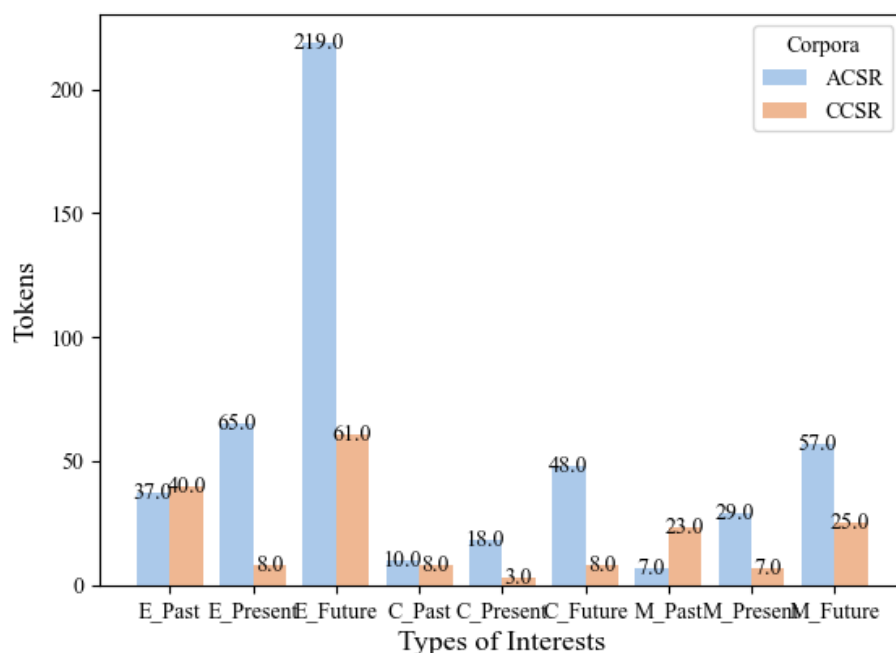
The above chart shows that environmental interests in ACSRs and CCSRs show preference to future time frame compared with other types of interests. I used the goodness of fit tests to test the preferences for different time frames in ACSRs and CCSRs. The results show that in ACSRs the environmental interests (X-squared = 179.51, df = 2, p-value < 2.2e-16), corporate interests (X-squared = 31.684, df = 2, p-value = 1.318e-07) and mixed interests (X-squared = 40.516, df = 2, p-value = 1.592e-09) are presented significantly differently in different time frames. In ACSRs, environmental interests (-8.288039 -4.972823 13.260862), corporate interests (-3.731093 -1.784436 5.515528) and mixed interests (-5.2792961 -0.4399413 5.7192375) are presented the most often in the future time frame. In CCSRs, environmental interests (X-squared = 39.211, df = 2, p-value = 3.058e-09) are presented frequently in different time frames; the future time frame is the most favoured time frame (0.745014 -5.756926 5.011912). Corporate interests (X-squared = 2.6316, df = 2, p-value = 0.2683) are not framed significantly different in different time frames in CCSRs. Mixed interests (X-squared = 10.618, df = 2, p-value = 0.004946) are significantly presented in different time frames in CCSRs. But the difference is motivated by the decreased use of the present time frame (1.334848 -3.241773 1.906925).

The environmental interests in both ACSRs and CCSRs are presented more in a future time frame, probably because American and Chinese petroleum companies receive the most pressure in their environmental practice. Jaworska (2018) suggested that "relocation" of climate change to the future is a commonly used distancing strategy employed by the petroleum industry when it shows its commitment to addressing climate change.

For instance, petroleum companies have been constantly criticized for their contributions to emissions. Given this, corporate efforts to reduce emissions are often described in a future-oriented way. Examples (9) and (10) can help us understand how WAR metaphors are used to present emission reductions.

(9) In 2018, our Board of Directors established greenhouse gas emissions performance measures, targeting a 20 to 25 percent reduction in methane emissions intensity and a 25 to 30 percent reduction in flaring intensity by 2023, in line with the first "stocktake" under the Paris Agreement. (Chevron CSR rep., 2018)

(10) With our low-carbon strategy implemented, we strive to promote clean energy and improve energy efficiency, and boost energy-saving and emission-reducing projects to proactively tackle climate change. (CNOOC CSR rep., 2018)

In Example (9), the metaphorical verb "target" is used to present a goal of addressing emissions in the future. *Chevron* explicitly indicates that the goal is "in line with' the Paris Agreement to emphasize the legitimacy of the environmental efforts. Demonstrating compliance with social norms is an important way of achieving legitimacy (Suchman, 1995). This compliance can help *Chevron* gain support from regulatory, media, and community stakeholders. In Example (9), specific criteria and schedules were mentioned regarding the reductions of methane emissions and flaring. This information demonstrates transparency and allows the regulatory, media, and community stakeholders to measure *Chevron's* environmental achievements. Nevertheless, the emission reduction goal is to reduce emission intensity, which is a relative rather than an absolute reduction in emission. This modest goal would not be capital intensive and can thus downplay the concerns of organisational stakeholders. In addition, the oil company indicates that the "greenhouse gas emissions performance measures" were established by their "Board of Directors," implying that corporate stakeholders have approved the environmental goal.

The final goal in Example (10) is to "proactively tackle climate change," which can accommodate the interests of regulatory, media, and community stakeholders. The verb

"strive" shows that this goal will be achieved in the future. The way to achieve this objective is by implementing a "low carbon strategy." The modifier "low-carbon" indicates that the company's strategy is not to eliminate carbon emissions. The absence of criteria for "low-carbon" gives the oil company the flexibility to determine to what extent carbon emissions should be reduced, making it much easier to accommodate the interests of organizational stakeholders.

4.6.2 Topics associated with environmental corporate and mixed Interests

The second sub-question under the third research question is "Which topics are the goals of these environmental, corporate, and mixed interests more often associated with?" To answer this question, I extracted all the expressions that describe environmental interests, corporate interests, and mixed interests in ACSRs and entered them into three plain texts "Environmental Interests ACSRs," "Corporate Interests ACSRs," and "Mixed Interests ACSRs." I also extracted all the expressions described environmental interests, corporate interests, and mixed interests in CCSRs and entered them into three plain texts "Environmental Interests CCSRs," "Corporate Interests CCSRs," and "Mixed Interests CCSRs."

I uploaded all these files onto *Wmatrix* and clicked the button of "Semantic frequent list" to generate the lists of frequent domains associated with gain and loss frames in both ACSRs and CCSRs. Only semantic domains that take up around 15% of the whole dataset are listed as top semantic domains and demonstrated in Table 4.7.

Table 4. 7 Topic Semantic Domains in Semantic Frequency Lists for Environment, Corporate and Mixed Interests in ACSRs and CCSRs

Ranking	ACSRs			CCSRs		
	Environment	Corporate	Mixed	Environment	Corporate	Mixed
1	X7+: Wanted (108)	X7+: Wanted (25)	X7+: Wanted (43)	A2.1+: Change (56)	A2.1+: Change (7)	O1.3: Substances and materials: Gas (23)
2	A9-: Giving (80)	I2.1: Business: Generally (20)	S7.1+: In Power (21)	X7+: Wanted (29)	A9- : Giving (5)	A15+: Safe (18)
3	N5-: Quantities: little (72)	A9-: Giving (11)	S8+: Helping (20)	W5: Green Issues (25)	I1.1: Money and pay (4)	S8+: Helping (16)
4	S7.1+: Helping (71)	A9+: Getting and giving; possession (11)	A15-: Danger (20)	X5.2+: Interested/ excited/ energetic (25)	S8+: Helping (4)	S7.1+: In Power (16)
5	O1.2: Substances and materials: Liquid (70)	M6: Location and direction (11)	X2.4: Investigate, examine, test, search (19)		O1.3 Substances and materials: Gas (3)	W3: Geographical terms (14)
6		I1.1: Money and pay (10)	A2.1+: change (19)			A2.1: Modify, change (13)
Freq.	401	88	142	135	23	100
Total	2886	536	959	925	152	713
Pct.	14%	16%	15%	15%	15%	14%

To better understand the preferable issues of environmental, corporate, and mixed interests, I then investigated the key terms and concordance lines within all the above-listed semantic domains and tried to come up with more specific domain labels. Checking the concordances also allows me to see if there is a need to divide a domain further and exclude wrongly assigned key terms. Table 4.8 displays the topics associated with different interests in ACSRs and CCSRs.

Table 4. 8 Top Topics Associated with Environment, Corporate and Mixed Interests in ACSRs and CCSRs

	ACSRs			CCSRs		
Ranking	Environment	Corporate	Mixed	Environment	Corporate	Mixed
1	Aims and Plans (102)	Aims and Plans (25)	Aims and Plans (42)	Change (56)	Change (5)	Gas (23)
2	Leadership and Management (71)	Supply (20)	Risks (20)	Aims and Plans (29)	Supply (5)	Safety and Risks (18)
3	Reduction (71)	Business and Companies (16)	Change (A2.1+) (19)	Environment (25)	Profits (4)	Leadership and Management (14)
4	Liquid (70)	Costs and Prices (I1.3) (10)	Leadership and Management (20)	Energy (17)	Facilitation (3)	Change (13)
5	Emissions (64)	Facilitation (10) (S8+)	Examination and research (18)		Gas (3)	Plans (X7.1) (13)
			Facilitation (15)			Sea (9)
Freq.	378	81	134	127	20	90
Total	2886	536	959	925	152	713
Pct.	13%	15%	14%	14%	13%	13%

The topic of "Safety and Risks" is frequently associated with the mixed interests in CCSRs, and the topic of "Risks" is frequently related to mixed interests in ACSRs to potentially reconcile corporate and environmental interests. Maintaining safety and preventing risks will reduce impacts to the environment, hazards to corporate employees, and losses in business profits.

(11) In the People pillar, specialized teams are dedicated to controlling Vale's dams, deploying qualified professionals at the operation sites to take care of the structures day-to-day, and at the offices to develop projects, studies and analyses to assure safety and

reduce structural risks. (Valero CSR rep., 2017)

(12) We leverage our long-term management system to build a line of <u>defense</u> on safety, gradually create a good atmosphere of "working in a safe way", and let every employee "happily come to work and safely go home." (Sinochem CSR rep., 2014)

In Example (11), *Valero* used the WAR metaphor "deploy" to conceptualize "qualified professionals" as military weapons to reduce risks. Supplying an army with effective weapons is decisive for winning a war. Professionals equipped with expert knowledge are powerful weapons that can enable *Valero* to win the war against risks and thus accommodate the interests of different types of stakeholders.

In Example (12), the WAR metaphor "defense" is used with the BUILDING metaphor "build" to show that *Sinochem* actively defends against safety accidents. A defense line is a barrier that can be employed to guard against the enemy in a war. The enemy in Example (12) is safety accidents. The metaphorical expression "build a line of defense" reinforces the idea that the oil company constructs a powerful military structure to guard against all the potential safety accidents and ensure the safety of the oil company, creating a strong sense of safety. *Sinochem* indicates that its goal of safety management is to create a corporate culture or atmosphere of "working in a safe way" and letting employees "safely go home." In this vein, safety becomes a core value of the corporation, guiding all of the behaviours and attitudes in the company in a wide-ranging and durable way. Since safety is beneficial for different types of stakeholders, the legitimacy of this company is established.

4.7 Conclusions

In this chapter, I tried to explore 1) usages of keywords in the source domain of WAR in ACSR and CCSR, 2) different preferences in gain and loss frames in ACSR and CCSR, as well as 3) different motivations for gain and loss frames in ACSR and CCSR. When addressing the second and third issues, I also investigated the time frames for two types of frames and different interests. The topics frequently associated with two types of frames and different interest types were also examined. By exploring all these issues, I have identified the following legitimation strategies of petroleum companies.

The first legitimation strategy is the usage of the war-planning metaphors. Although both American and Chinese petroleum companies adopt the WAR source domain in their construction of environmental practice, it does not necessarily mean they are fully committed to coping with climate change. Instead of using military metaphors closely associated with aggressive invaders and violent military actions, both ACSRs and CCSRs preferred to use the war-planning metaphor "strategy." This WAR metaphor underplayed the urgency of dealing with climate change and described climate change mitigation as a long-term process. This metaphor also transferred attention from whether petroleum companies have successfully addressed climate change to how they cope with climate change. Using this metaphor, petroleum companies promoted the idea that as long as a climate change mitigation plan is well-devised, a victory in tackling climate change is underway.

The next legitimation strategy is frequent usages of future time frame. The result of the second research question indicated that neither ACSRs and CCSRs showed obvious preferences for either gain frames or loss frames. A possible explanation is that a pivotal factor in effective CSR communication is "transparency," which requires reporting both good and bad aspects of CSR activities. However, both gain frames and loss frames were significantly

used in a future time frame, which could be a strategy used by petroleum companies to avoid elaborating on what they have achieved in environmental practices. Using future orientation as a strategy also explains why environmental interests in my data are motivated more frequently by a future time frame. Often times, no fixed schedule is attached to a future goal, downplaying concerns from organizational stakeholders. When a specific timeline was provided, the environmental goal was often formulated in a modest manner.

Although the source domain of WAR was not significantly used more often in one type of frames, the WAR metaphor "strategic" was used more often as gain frames in both corpora. A possible reason is that this metaphor was often used to indicate a plan is well-devised or an event is well-planned in my data. This metaphorical adjective was often used together with a variety of nouns as phrasal nouns to present corporate activities that can generate benefits to the environment, such as "strategic cooperation," "strategic planning," and "strategic growth," etc.

All the above legitimation strategies can help accommodate different stakeholders' different interests and demands. Petroleum companies attended to community, regulatory, and media stakeholders by using WAR metaphors to show their commitment and gain and loss frames to report good and bad aspects of their environmental practice. Meanwhile, they attended to organizational stakeholders' desires for maximizing profits by using a range of strategies when describing their engagement with climate issues: constructing tackling climate change as a long-term process, setting up a relatively modest environmental goal, and uniting different stakeholders in a common goal of addressing climate change.

The topic of "Safety" and "Risks," which was frequently related to different types of interests, also enabled companies to reconcile seemingly conflicting interests of different stakeholders. For instance, by presenting safety efforts as a core value of the corporation, the oil company demonstrates that its central focus is on addressing safety accidents and

safeguarding benefits for different types of stakeholders. Some American petroleum companies used the WAR metaphor "deploy" to highlight their potent weapons for controlling risks: qualified professionals. As potent weapons are essential for winning a war, these petroleum companies demonstrate their strong military power in a war against risks.

5. JOURNEY Source Domain as a Frame for Legitimization

5.1 Introduction

Apart from the WAR source domain, the JOURNEY source domain also has the potential to be used for legitimization purposes. Previous studies have suggested that the JOURNEY source domain sets up a frame that foregrounds a process of achieving a long-term, meaningful goal (Charteris-Black, 2004, 2016; Milne et al., 2006). Given this, petroleum companies may use this source domain to legitimize their environmental practice by conceptualizing climate change as a long-term goal and emphasizing the process of coping with this phenomenon.

Few studies have systematically analyzed how the JOURNEY source domain is employed to legitimize corporations' environmental practices. Although Milne et al. (2006) have investigated JOURNEY metaphors in the business discourse on sustainability, they primarily looked at the JOURNEY metaphors that co-occur with the two terms "sustainability" and "sustainable development." This searching method could neglect a good number of JOURNEY metaphors that do not occur in the vicinity of these two terms. In this chapter, I will extend previous studies on the source domain of JOURNEY by conducting a systematic study to identify, analyze, and interpret the gain- and loss-framed JOURNEY source domain used as legitimization strategies in CSR report produced by petroleum companies in this chapter. Chapter 5 also paves the way for comparing the JOURNEY source domain with the WAR source domain and the BUILDING source domain as legitimization strategies in Chapter 7. These comparisons seek to show the similarities and differences in using these three source domains as legitimation strategies, with the goal of shedding light on how each domain potentially benefits or hurts the company's image.

Previous research has extensively studied the JOURNEY source domain in media, political, business and medical discourse (e.g. Atanasova & Koteyko, 2017a, 2017b; Charteris-Black,

2004, 2016; Ihlen & Roper, 2014; Milne et al., 2006; Semino et al., 2017; Tay, 2011). Lakoff & Johnson (1980) have extrapolated the conceptual metaphor LOVE IS A JOURNEY from expressions such as "our marriage is on the rocks" (p. 44), etc., which was then developed into a more general metaphor LIFE IS A JOURNEY (Lakoff & Turner, 1989). Lakoff (1993) revised this JOURNEY metaphor into PURPOSEFUL ACTIVITY IS TRAVELLING ALONG A PATH TOWARDS A DESTINATION. This latest formulated conceptual metaphor, together with other studies on the source domain of JOURNEY in political and media discourse suggests that this source domain is potentially useful for constructing social activity as a long-term and purposeful process (Atanasova & Koteyko, 2017a, 2017b; Charteris-Black, 2004, 2016) and thus could be apt for legitimizing the environmental practice of petroleum companies as the environmental practice can be constructed as a long-term, ethical process.

Research on the JOURNEY source domain in business further demonstrates the usefulness of this source domain in legitimizing corporations' environmental efforts. Scholars from the field of organization studies have found that this source domain is generally positively connotated (e.g., Clancy, 1989; Kendall & Kendall, 1993), which is in alignment with Charteris-Black's (2016) finding regards the connotation of the source domain of JOURNEY in political discourse. The JOURNEY source domain implicates experiment, learning, and change, which often suggests progress (Milne et al., 2006). As Beck (1995) explains, faith in progress is the primary attitude adopted by industrial society. Given this, all progress can be regarded as good.

Nevertheless, Milne et al. (2006) pointed out the potential risks of using the JOURNEY source domain as the progress conceptualized by the JOURNEY source domain can be used with strategic ambiguity. In their study of sustainability reports, Milne et al. (2006) observed that the JOURNEY source domain is used to emphasize corporate commitment to continuous improvements or a beginning of engagement with sustainability. Nevertheless, there is no way

to determine whether progress has been made towards a sustainability goal with no specified destination or endpoint. This strategic ambiguity created by JOURNEY metaphors can be useful in legitimizing the environmental practice of petroleum companies as they may be reluctant to make concrete progress towards an environmental goal.

Although the source domain of JOURNEY can be potentially used for a legitimization purpose like the source domain of WAR, there could be differences when these two source domains function as legitimization strategies.

Chapter 5 indicated that the source domain of WAR was used in CCSRs and ACSRs to emphasize methods used to cope with climate change. Examples (1) and (2) demonstrate how the war-planning metaphor "strategy" is used in my data:

(1) To this end, we implement the low-carbon development strategy proposed by the Chinese government, and we strive to be the supplier of clean energy and the promoter of low-carbon transition of the society, and share the practices of greenhouse gas control with industry peers and all segments of society. (Petro China CSR rep., 2018)

(2) Research findings will be used to develop more cost-effective emission control strategies targeting particles with the highest public health concern. (ExxonMobil CSR, rep. 2020).

In Example (1), the WAR metaphor "strategy" is proposed by the Chinese government and is thus legitimate. In Example (2), the "strategies" will be developed based on research findings and thus are legitimate as well. The frequent use of the WAR metaphor "strategy" in both the ACSRs and CCSRs indicates that a war will be successful as long as a military plan is well devised or compliant with social norms.

However, formulating a plan may not be the focus of the source domain of JOURNEY. The source domain of JOURNEY is often used to emphasize a long-term process of taking actions to achieve a socially valued purpose (Atanasova & Koteyko, 2017a; Charteris-Black, 2004, 2016). Patience is required for awaiting the arrival of the destination as it takes time to finish a long journey. As a purposeful destination may take time to achieve, short-term suffering is worthwhile and bearable.

Given the above-mentioned differences of using the source domains of JOURNEY and WAR to construct social activity discursively, it would be informative to investigate how the source domain of JOURNEY is used as a legitimization strategy in my data, which could lay a foundation for comparing these two source domains in Chapter 7. Given the potential legitimacy gap between petroleum companies' core business and the goal of dealing with climate change, petroleum companies might make use of this source domain to construct addressing climate change as a long-term process and downplay its urgency.

The research questions in this chapter address similar research questions to those presented in Chapter 4, with the key difference being that the focus is on the JOURNEY source domain:

● **RQ1: What keywords are used in the source domains of JOURNEY in Chinese and American CSR reports and their frequencies of occurrences?**

● **Overarching RQ2: Are there different preferences in gain and loss frames in Chinese and American CSR reports?**

RQ2a: **Do these gain/loss frames more often frame a goal in the past, present, or future?**

RQ2b: **Which topics are the goals of gain and loss frames more often associated with?**

● **Overarching RQ3: Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?**

RQ3a: **Do these corporate and environmental interests more often frame interests in**

the past, present, or future?

RQ3b: **Which topics are the goals of these corporate and environmental interests more often associated with?**

This chapter will address the above research questions by analyszing how the Journey source domain is used as gain and loss frames to create legitimization.

5.2 Source domain analysis

Chapter 5 aims to explore how the Journey source domain is used as gain and loss frames to legitimize the environmental practice of petroleum companies. The source domain analysis procedure in this chapter is the same as the procedure in Chapter 4, which is comprised of six steps: 1) determining potential keywords; 2) verifying source domain; 3) tagging Part of Speech (POS); 4) identifying metaphor; 5) identifying gain and loss frames, and 6) identifying the corporate and environmental interests behind gain and loss frames.

As discussed in the previous chapter, the first step is to determine potential source domain keywords using Sardinha's (2012) sampling technique. At this step, I collected 99 potential keywords for the source domain of Journey. The potential keywords for the source domain of Journey are demonstrated in Appendix 3.

Then I adopted the method proposed by Ahrens and Jiang (2020) to verify the source domains of the collected potential keywords. Four different language resources were utilized to verify hypothesized source domains: 1) *SUMO*, 2) *WordNet*, 3) *Macmillan English Dictionary for Advanced Learners* (Rundell, 2002), and 4) the *Word Sketch Function* in *Sketch Engine*.

For instance, I checked the *SUMO* nodes first to determine if the keyword "map" belongs

to the source domain of JOURNEY. The *SUMO* nodes predetermined as related to the source domain of JOURNEY are "Road," "Roadway," and "Transitway." Nevertheless, the *SUMO* nodes for the keyword "map" are "Function" and "Map," which are not included in the predetermined *SUMO* nodes. Therefore, I then examined the most concrete sense of the keyword "map" in *WordNet* and *Macmillan dictionary.*

The most concrete sense of the keyword "map" in *WordNet* is "a diagrammatic representation of the earth's surface (or part of it)." The most concrete sense in the *Macmillan dictionary* is "an image of an area that shows the positions of things such as countries, rivers, cities, and streets." Neither of these senses provides explicit information for my decision making. Therefore, I searched for the collocates of the keyword "map" in the *Sketch Engine* to see if the journey-related keyword co-occurs with the noun "map" with a high frequency.

The search results of the collocates of the noun "map" in *Sketch Engine* showed that the saliency value (7.41) of the collocate related to the concept of journey ("tourist") is above the mean of means: 7.206342. Therefore, the keyword "map" was determined as belonging to the source domain of JOURNEY.

To confirm if the keywords verified as belonging to the source domain of JOURNEY are used metaphorically, I then used *MIPVU* (Steen et al., 2010) to conduct the metaphor identification procedure. Before conducting the metaphor identification, I parsed my data with *Part of Speech* (POS) tags with the *POS* tagging (Kristina et al., 2003) from *Stanford CoreNLP* (Manning et al., 2014). Example (3) indicates how the POS tagging is done in my study:

(3) In order to do this, technologies and projects based on a clear road <u>map</u> to becoming independently profitable are essential. (ConocoPhillps CSR rep., 2011)

In Example (3) the keyword "map" is tagged with the *POS* tag "NN" on the *Stanford*

CoreNLP website (https://corenlp.run/).

After determining the word classes of the source domain keywords in my thesis, I will use *MIPVU* to investigate if a keyword or lexical unit (Steen et al., 2010) is used metaphorically or not. As indicated in Chapter 4, *MIVPU* determines that a lexical unit is used metaphorically if its use shows cross-domain mapping from its basic meaning to its contextual meaning in the text (Steen et al., 2010). Example (4) demonstrates how a lexical unit is identified as metaphorically used.

(4) In 2019, the Company's carbon trading volume reached 2.02 million tonnes and the turnover <u>reached</u> RMB49.57 million, accounting for 3% of the national market. (Sinopec CSR rep., 2019)

In Example (4), the basic meaning of the lexical unit "reach" in *Macmillan dictionary* is "to arrive somewhere." Its contextual meaning in the sentence is "to get to a particular stage in a process" according to the *Macmillan* dictionary. This lexical unit in the sentence is metaphorically used because its use can be explained by a cross-domain mapping from its basic meaning to its contextual meaning. When all the metaphorically used lexical units were identified, I then started to identify gain and loss frames.

Following the process I used in Chapter 4, I identified gain and loss frames based on whether the goal of a sentence is perceived as gaining benefits or avoiding loss. For instance, in Example (5) below, the linguistic metaphor "map" is gain-framed because the goal of the sentence is to achieve sustainable use and management of the country's biological resources, which is to gain benefits.

(5) In order to do this, technologies and projects based on a clear road <u>map</u> to becoming

independently profitable are essential. (ConocoPhillips CSR rep. 2011)

After the identification of gain and loss frames, I then determined if the identified gain and loss frames were motivated by corporate interests and/or environmental interests. This decision is based on if a frame aims to create corporate benefits or environmental benefits. For instance, in the sentence "our biodiversity offset program provides a strategic <u>map</u> for the sustainable use and management of the country's biological resources," the gain-framed metaphor "map" is motivated by environmental interests because the goal of the sentence is to create environmental benefits, namely, protecting biological resources.

When all of the above source domain analysis procedures had been finished, I then started to examine the data to see how the JOURNEY source domain is used as gain and loss frames to legitimize the environmental practice of American and Chinese petroleum companies.

5.3 JOURNEY source domain in ACSRs and CCSRs

After the metaphor identification, metaphors belonging to the source domain of JOURNEY were collected from my data. The first research question to be answered in this chapter is: "What keywords are used in the source domains of JOURNEY in Chinese and American CSR reports and their frequencies of occurrences?" Answering this question can indicate if the source domain of JOURNEY is preferred by one of the corpora in my thesis and the reasons behind this preference. I applied the same approach that was used to address the first research question in Chapter 4 to answer this question: calculating the normalized ratios (NR) per 10,000 words of the frequencies of JOURNEY metaphors used in ACSRs and CCSRs. The normalized ratios are displayed in Figure 5.1.

Figure 5. 1 JOURNEY Metaphors in ACSRs and CCSRs
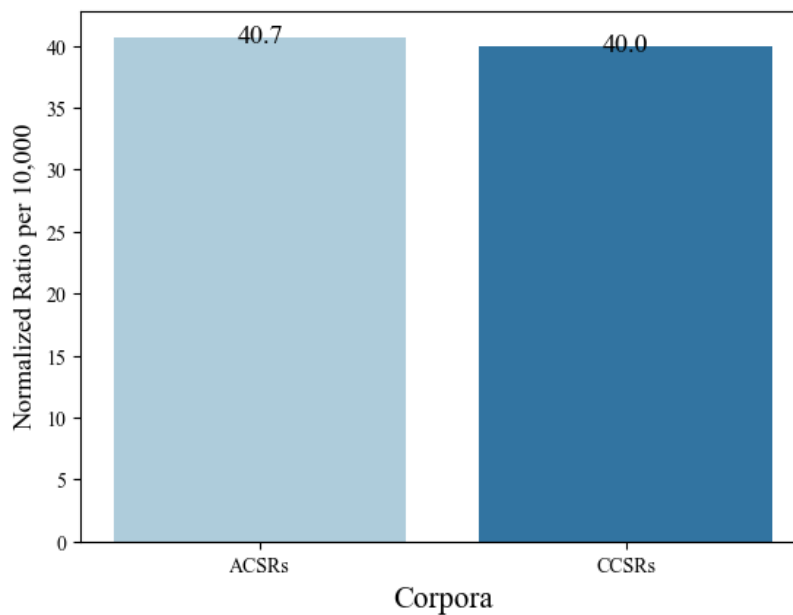
Figure 5.1 shows that JOURNEY metaphors are employed with similar frequency in two corpora. A log-likelihood (LL) test was run to determine if the differences in frequencies of JOURNEY metaphors are significant, with the significance level set at 0.05. The log-likelihood calculation indicates that the JOURNEY source domain is not significantly overused in ACSRs when compared to those in CCSRs (LL= + 0.09), which confirms that there is no significant difference in the frequencies of JOURNEY metaphors in the two corpora.

The equal preference of the JOURNEY source domain of ACSRs and CCSRs may indicate that this source domain is apt for discursively constructing environmental practice in both CCSRs and ACSRs. The first possible reason for the aptness might be that this source domain usually projects positive evaluations by constructing movements towards a socially valued destination (Charteris-Black, 2004, 2016), whereby the environmental practice of petroleum companies can be regarded as ethical. In addition, this source domain calls for patience when trying to achieve a social goal (Charteris-Black, 2004), and thus the urgency of coping with climate change is downplayed. These hypotheses regarding the reasons motivating the usages

of the source domain of JOURNEY have to be verified in the examination of metaphorical keywords belonging to this source domain.

The approach to examining metaphorical keywords is slightly different from that in Chapter 4. In Chapter 4, WAR metaphors were demonstrated in the three categories: "Functions," "Qualities," and "Entities." In this chapter, however, JOURNEY metaphors are displayed according to different components of the SOURCE-PATH-GOAL schema (S-P-G). Charteris-Black (2016) suggests that JOURNEY can serve as a productive source domain because it provides a clear schema with required components such as starting points, destination, a path, and movements along the path. This schema in cognitive linguistics is often known as SOURCE-PATH-TARGET (S-P-G). Forceville and Fludernik (2011) indicated that the two conceptual metaphors, A QUEST IS A JOURNEY and A STORY IS A JOURNEY, are based on the S-P-G schema. Raymond and Gibbs (2008) also observed that the conceptual metaphor RELATIONSHIPS ARE JOURNEYS is primarily structured by this image schema.

Lakoff and Johnson (1999) observed that the pervasiveness of the S-P-G image schema is attributable to the fact that the motion/movement represented by this image schema is associated with the most fundamental knowledge of motion (Lakoff & Johnson, 1999). Therefore, it would be insightful to explore whether the component "PATH" that is closely related to the knowledge of motion is most prominent in JOURNEY metaphors used by petroleum companies. Atanasova and Koteyko (2017b) indicated when constructing efforts to cope with climate change, the path of a journey is emphasized. However, their work does not provide concrete statistical evidence for this argument. Therefore, I classified JOURNEY metaphors according to the three components of S-P-G schema with an aim to find out the most prominent component in the JOURNEY schema in my data.

In section 5.3.2, I looked at the collocates at the immediate left of the metaphor "way." This metaphor is used with the highest frequency in the ACSRs. As a general reference to the

method used by petroleum companies, this metaphor in isolation might not provide useful information as regards how it is employed for legitimization purposes. The concordances of this metaphor indicate that it is modified by either premodifiers or postmodifiers in my data. Therefore, I look at both the premodifiers and postmodifiers of this metaphor, which can shed light on which qualities of the "way" are highlighted in the ACSRs.

5.3.1 S-P-G image schema

Charteris-Black (2016) indicates that JOURNEY can serve as a productive source domain as it provides a clear image schema: SOURCE-PATH-GOAL (S-P-G). The category of "PATH" is further divided because the basic meanings of the metaphorical expressions in this category indicate they can be further classified into three subtypes: "PATH-DIRECTION," "PATH-MOVEMENT," and "PATH-WAY." In order to have a better understanding of which component in the S-P-G image schema receives emphasis in my data and thus plays a prominent role for a legitimization purpose, I subsumed all of the JOURNEY metaphors into one of the five categories, "SOURCE," "PATH-DIRECTION," "PATH-MOVEMENT," "PATH-WAY," and "GOAL," based on their basic meaning.

To make this classification, I tagged each metaphorical keyword belonging to the source domain of JOURNEY with one of the tags: "SOURCE," "PATH-DIRECTION," "PATH-MOVEMENT," "PATH-WAY", and "GOAL." The decision was made based on whether the basic meaning of the metaphorical keyword is semantically related to the concept represented by a tag. For instance, the metaphorical expression "progress" is put into the category "PATH-MOVEMENT" as its basic meaning is "an open way (generally public) for travel or transportation," according to the *Macmillan dictionary*, which is related to the concept of movement represented by the tag "PATH-MOVEMENT." An inter-rater reliability test was conducted for this classification, and the

agreement rate was substantial: 0.8546. Figure 5.2 displays the frequencies of metaphors in each component of the S-P-G schema.

Figure 5. 2 Different Components of Source-Path Goal Image Schema
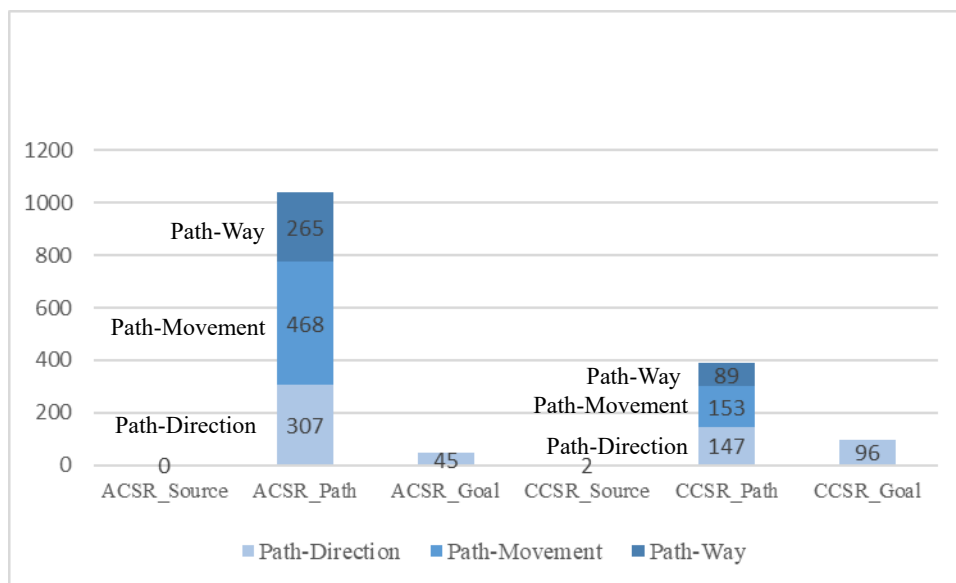
Figure 5.2 shows that the category "PATH" (n=1040 in ACSRs, n=389 in CCSRs) is the most prominent component in the S-P-G schema in the two corpora. The preference for the "PATH" category echoes Atanasova and Koteyko's (2017b) observation that the JOURNEY source domain focuses on the journeying rather than on the destination when conceptualizing efforts to address climate change. Within the category of "PATH," the sub-type "PATH-MOVEMENT" occurs with the highest frequencies in ACSRs (n=468) and CCSRs (n=153).

I then calculated the goodness of fits for the different sub-types from the category of "PATH" to see if they are used with significant differences. The results show that the subtypes within the category of "PATH" in ACSRs (X-squared = 78.115, df = 2, p-value < 2.2e-16) and CCSRs (X-squared = 19.27, df = 2, p-value = 6.54e-05) occur with a significant difference. The calculations of standard residuals indicate that in ACSRs, the subtype "PATH-MOVEMENT"

is used significantly more often than other subtypes (-5.371980 7.981228 -2.609248), and in

CCSRs, the third subtype "Path-Way" is used significantly less often than the other subtypes

(-4.373912 2.509622 1.864290).

In order to examine metaphorical expressions in each category, I have presented all of the

metaphorical expressions in each component of the S-P-G schema in Table 5.1. The most

frequent metaphorical expression in the source domain of Journey is highlighted yellow, and

the most frequent keyword in each category is bolded:

Table 5. 1 Metaphorical Expressions in Different Components of S-P-G Schema

ACSRs	CCSRs
Metaphorical Keywords	**Metaphorical Keywords**
Source (n=0, 0%)	Source (n=2, 0.4%)
/	**embark on** *phrasal verb* **(2)**
Path (n=1040, 96%)	Path (n=389, 80%)
Path-Direction (n=307)	*Path-Direction* (n=147)
guide *v.* **(55),** direct *a.* (52), lead *v.* (41), follow *v.* (53), indirect *a.* (31), leading *a.* (27), forward *adv.* (13), direction *n.* (13), direct *v.* (11), ahead *adv.* (8), map *n.* (2), roadmap *n.* (1)	**follow** *v.* **(54),** leading *a.* (17), lead *v.* (12), direct *a.* (14), ahead *adv.* (11), guide *v.* (12), forward *adv.* (6), back *adv.* (5), indirect *a.* (6), direct *v.* (4), direction *n.* (3), roadmap *n.* (3)
Path-Movement (n= 468)	*Path-Movement* (n=153)
progress *n.* **(102),** advance *v.*(62), step *n.* (53), explore *v.*(35), advance *n.* (35), accelerate *v.* (31), go *v.* (26), move *v.* (24), pace *n.* (22), come *v.* (20), back *adv.* (20), advancement *n.* (14), navigate *v.* (7), slow *a.* (4), progress *v.* (6), run *v.* (2), speed *n.* (2), travel *v.* (1), proceed *v.* (1), obstacle *n.* (1)	**accelerate** *v.* **(36),** progress *n.* (32), explore *v.* (23), advance *v.* (18), go *v.* (9), step *n.* (8), pace *n.* (7), come *v.* (6), road *n.* (3), proceed *v.* (2), advance *n.* (2), advancement *n.* (2), move *v.* (1), progress *v.* (1), exploration *n.* (1), step *v.* (1), move on *phrasal verb*. (1)
Path-Way (n=265)	*Path-Way* (n=89)
way *n.* **(125),** track *v.* (68), pathway *n.* (28), track *n.* (24), trajectory *n.* (9), path *n.* (4), journey *n.* (3), course *n.* (2), road *n.* (1), route *n.* (1)	**way** *n.* **(52),** track *n.* (3), track *v.* (20), path *n.* (5), route *n.* (4), approach *v.* (4), course *n.* (1),
Path-Goal (n=45, 4%)	Path-Goal (n=96, 20%)
reach *v.* **(35),** approach *v.* (10)	**reach** *v.* **(96)**
Total	**1085**	**Total**	**487**

Table 5.1 shows that although both ACSRs and CCSRs use the Journey source domain

frequently, they have different preferences for metaphorical expressions. The metaphorical expression that occurs with the highest frequency in the ACSRs is the noun: "way." The metaphorical expression occurring with the highest frequency in the CCSRs is the verb "reach." These two metaphors will be analyzed in the following section.

5.3.2 Examination of the metaphors "way" and "reach"

The examination of all the concordances of the metaphorical expression subsumed into the subtype of "PATH-WAY" in the category of "PATH" indicates that this JOURNEY metaphor is not used to indicate whether a movement towards a destination is made or not. Rather, the metaphor "way" in ACSR focuses on a method or the manner a method is conducted. Modifiers are attached before and/or after the metaphor "way" to specify the method or manner represented by this metaphor. Examples (6), (7) and (8) containing the metaphor "way" are shown as follows:

(6) We continuously seek cost-effective ways to reduce the impact of our operations on water resources. (Marathon CSR rep., 2017)

(7) ExxonMobil Pipeline Company (EMPCo), a subsidiary of ExxonMobil, is committed to operating its pipelines in a way that protects public safety and the environment. (ExxonMobil CSR rep., 2012)

(8) The objective is to connect our scenarios with our climate-related risk strategy in a way that enables comprehensive strategic decision making. (ConocoPhillips CSR rep., 2019)

In Example (6), the adjective "cost-effective" is used to emphasize the methods *Marathon* is looking for would not generate high costs to the petroleum company, which could reduce the concerns of organizational stakeholders. In Example (7), *ExxonMobil* indicates that the manner of operating its pipelines is beneficial to public safety and the environment, reconciling corporate and environmental interests. In Example (8), the metaphor "way" is the manner of carrying out the climate-related risk strategy.

In the above three examples, we can see that the metaphor "way" is often modified by either premodifiers or postmodifiers. I decided to search separately for the singular and plural forms of the metaphor "way" as they have nuanced differences in their focuses. The singular form of "way" focuses on a particular method or manner of carrying out the environmental practice. The plural form of the metaphor "way" proposes multiple possible methods or manners to do something, suggesting more options. Interestingly the frequencies of "way" and "ways" are similar (the number of "way" = 61; the number of "ways" = 64), which suggests that ACSRs might focus both on a particular way of conducting environmental practices as well as on multiple ways that environmental operations can be done.

In order to demonstrate how the singular and plural forms of the metaphor "way" are used in my data, I looked for the collocates immediately to the left of the node words "way" and "ways" in all of the CSR reports in ACSR and then ranked them by raw frequencies. The top 10 frequent collocates at the immediate left of the metaphorical keywords "way" and "ways" are listed in Table 5.2.

Table 5. 2 Top 10 Immediate Left-hand Collocates of the Metaphorical Expressions "way" and "ways" in ACSRs

Rank	"way"		"ways"	
	Freq.	**Collocates**	**Freq.**	**Collocates**
1	17	a	6	several
2	11	the	6	innovative
3	8	of	5	effective
4	5	this	4	new
5	5	right	4	for
6	4	under	4	better
7	3	chevron	3	in
8	2	sustainable	3	finding
9	2	practical	3	find
10	2	meaningful	3	few
Total	**59**		**41**	

The examination of the premodifiers of the metaphors "way" and "ways" to the immediate left shows that only a few premodifiers explicitly describe corporate activities as environmentally-friendly or sustainable. The adjective "sustainable" occurs only twice in front of the singular form of "way." The adjective "right" is used with a slightly higher frequency. However, this adjective is a vague word based on Tuggy's (1993) definition of "vagueness." According to Tuggy (1993), a phonological form is vaguely used if two specific meanings associated with it are united into a single, general meaning. When using the adjective "right" to modify an approach to conducting environmental practice, it is not clear if it is "right" for corporate benefits or for environmental benefits. Example (9) demonstrates how the adjective "right" is used in front of the metaphor "way."

(9) We take prudent, practical and cost-effective actions to address climate change risks as part of our commitment to running our business the right way and to unlocking the potential for progress and prosperity everywhere we work. (Chevron CSR rep., 2016)

In Example (9), the "prudent, practical and cost-effective actions to address climate change risks" are constructed as "part of" *Chevron*'s commitment to carrying out its business in a "right way." Being "practical" and "cost-effective" is beneficial for organizational stakeholders, while addressing "climate change risks" is beneficial for regulatory, media and public stakeholders. Given this, all types of stakeholders would benefit from this "right way" of carrying out the environmental practice.

In comparison with using an adjective as a premodifier to describe the characteristics of the singular form of "way," ACSRs prefer to use postmodifiers to define the way petroleum companies conduct corporate operations. The most frequent left-hand collocate of the singular form of "way" is the indefinite article "a." Examining the concordances of these collocations indicates that the metaphor "way" in these concordances serves as an antecedent, followed by a non-finite or a relative clause to describe its functions, benefits, and purposes. Examples (10) and (11) are provided below to show how post-modifiers are used in ACSRs as elaborations of the metaphor "way":

(10) Our goal is to develop and operate the PNG LNG project in a <u>way</u> that protects Papua New Guinea's natural and social environments while helping to bring economic benefits to its citizens. (ExxonMobil CSR rep., 2010)

(11) We design infrastructure and operate in a <u>way</u> that minimizes emissions. (ConocoPhillips CSR rep., 2019)

The postmodifiers allow petroleum companies to redefine sustainability or environment-friendliness in a modest manner. In Example (10), a long attributive clause follows the singular form of "way" to reconcile environmental and corporate interests

because the clause indicates that the PNG project can protect the "natural and social environments" while generating "economic benefits." In Examples (11), a non-finite clause or a relative clause follows the metaphor "way" to specify its purposes or functions. The function of the way is to minimize emissions rather than do away with emissions. The redefinition of environmental goals of corporate activities in a modest manner implies that the status quo is to be maintained. This modest environmental goal makes it easier to reconcile different types of interests.

The plural form of "way" is often used in the ACSRs to conceptualize the methods petroleum companies tend to look for, explore, or develop in the future. The plural form suggests that there is more than one approach that can be used to cope with environmental issues, which advocates the experimentality of environmental practice. In other words, multiple options are available for selection. In this sense, petroleum companies are presented as pioneers exploring "new" or "innovative" ways to conduct environmental business. In many cases, petroleum companies propose approaches that work best for their interests, as shown in Examples (12) and (13) below:

(12) ExxonMobil is developing innovative <u>ways</u> to generate power more efficiently and with less environmental impact compared to purchasing electricity from a local utility. (ExxonMobil CSR rep., 2011)

(13) There is not just one pathway to a low carbon future; there are numerous <u>ways</u> in which government action and technology development could interact with consumer behavior to bring about a lower-carbon future. (ConocoPhillips CSR rep., 2019)

In example (12), *ExxonMobil* used the plural form of the metaphor "way" to present itself

as a pioneer or revolutionist developing "innovative" ways of conducting business. The innovativity of the "ways" lies in the fact that they are capable of generating power more efficiently, as well as creating less environmental impact. Hence, these ways can reconcile corporate and environmental interests and meet the needs of all types of stakeholders. The reduction of environmental impact is asserted in relative terms because the impact is claimed as "less" when compared to that generated in "purchasing electricity from a local utility." Formulating an environmental goal in relative terms can lessen the pressures on oil companies to cope with environmental impacts.

In example (13), *ConocoPhillips* makes an explicit argument that there is not just one way towards a low-carbon future, but "numerous" ways can lead to the environmental target. In addition, the description of the ways suggests that *ConocoPhillips* is not the only traveller along the journey as governments and customers are also its travelling companions. The "lower-carbon future," argued by *ConocoPhillips*, is created by the interaction between "government action and technology development" with "consumer behaviour." In this way, a part of the responsibilities has been transferred to regulatory stakeholders and community stakeholders. The burden on the oil company to cope with environmental issues is reduced.

In the CCSRs, the most frequent JOURNEY metaphor is the verb "reach." The examination of the tense of the verb "reach" in CCSRs shows that the metaphorical expression "reach" is used slightly more often in the past tense than in the future tense ("reach" in the past time frame: n=63; "reach" in the future time frame: n=33). This observation seems counter-intuitive as previous scholars found that companies tend to focus on the process rather than the achievements of their environmental practice (Atanasova & Koteyko, 2017b; Milne et al., 2006). Exploring how the goal-related metaphor "reach" is used in the CCSRs would be potentially insightful.

A close examination of the concordances of the metaphor "reach" shows that the usages of

"reach" are not necessarily used to describe fundamental achievements in coping with climate change. For example, when it comes to the most challenging task of reducing carbon dioxide, the metaphor "reach" is often used in the future tense. The past tense is used more often when talking about less challenging goals, such as market-oriented solutions, the development of natural gas, deforestation, and the reduction of sulphur dioxide. Examples (14) and (15) are demonstrated as follows to show how the metaphor "reach" is used in CCSRs:

(14) We are developing and adopting low-energy-consumption and green technologies, developing a recycling economy, and working to <u>reach</u> international level in terms of environmental protection, energy consumption, and material consumption, so as to realize coordinated development between the company's profitability and environmental protection and energy conservation. (Petro China rep., 2010)

(15) The carbon trading volume <u>reached</u> 1.35 million tonnes, with carbon trading turnover of about RMB 19 million. (Sinopec CSR rep., 2017)

In Example (14), the goal of realizing an international level in environmental protection, energy consumption and material consumption is to be reached in the future, with no specific standard or time frame indicated. This goal is a relatively ambitious goal and may come at a high cost to the oil company. As there is no fixed time frame for realizing the goal, the oil company can make incremental improvements in the long term rather than radical changes in a short period of time. Hereby, concerns from organizational stakeholders can be reduced. The ultimate goal of all the environmental efforts is to coordinate "the company's profitability," "environmental protection," and "energy conservation," showing the company's explicit intention to reconcile corporate interests with environmental interests and accommodate the

interests of different stakeholders.

Nevertheless, the metaphorical expression "reach" is used in the past tense in Example (15) as the goal is a market-oriented solution. Oil companies favor market-oriented approaches because these approaches require no fundamental changes in the core business model. Presenting the goal in the past tense constructs it as an accomplished achievement. Specific information was offered in Example (15) to show the level of achievement: "1.34 million tonnes" and "RMB 19 million." Despite the financial costs of this achievement, the oil company can still maintain support from organizational stakeholders because the carbon market mechanism is high on the agenda of the Chinese government. One of China's principal ways to achieve the dual national goal of carbon peak and carbon neutrality is through the carbon trading market (Xue, 2022). The regional pilots of the carbon market system started in 2013, which ultimately led to the debut of the national carbon emission trading scheme (ETS) in 2021, featuring the world's largest carbon market (Reuters, 2021). As SOEs are supposed to pursue public objectives, *Sinopec* can obtain legitimacy by showing its advocacy for national policies.

Using the metaphor "reach" in different tenses when describing different types of achievements shows that this metaphor is not used in the CCSRs to indicate efforts requiring fundamental changes or high costs in petroleum companies' business. When it comes to the most challenging task of reducing carbon dioxide, the metaphor "reach" is often used in the future tense. The past tense is used more often when discussing less challenging goals, such as market-oriented solutions, natural gas development, deforestation, and reduction of sulphur dioxide. Thus, the concerns of organizational stakeholders are accommodated.

5.4 Gain and Loss Frames

The second research question has to do with whether there are different preferences in gain and loss frames in Chinese and American CSR reports, which can help us understand how the source domain of JOURNEY is used as gain and loss frames. To answer this question, I identified all the gain and loss frames in both ACSR and CCSR, following the steps laid out in Chapter 4. This yielded 518 gain frames and 404 loss frames in ACSR, and 314 gain frames and 223 loss frames in CCSR. The frequencies of these two frames are shown in Figure 5.3:

Figure 5. 3 Gain and Loss Frames in ACSRs and CCSRs
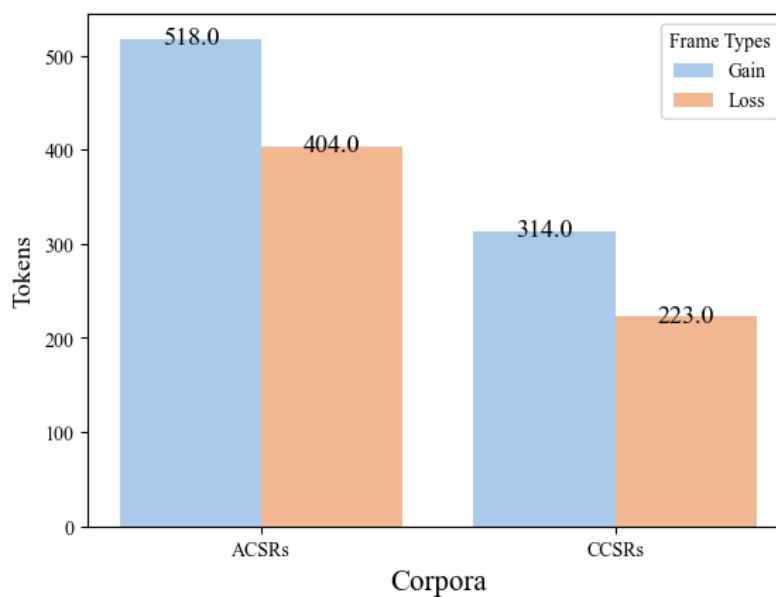
Figure 5.3 shows that both ACSRs and CCSRs have a preference for gain frames. To confirm this observation statistically, I used the goodness of fit test to calculate the differences between gain and loss frames in the two corpora separately.

The result indicates that the ACSRs prefer to use gain frames than loss frames (X-squared = 14.095, df = 1, p-value = 0.0001738). The calculation of goodness of fit for usages of gain and loss frames in CCSRs also shows that the gain frames are used significantly more frequently (X-squared = 15.421, df = 1, p-value = 8.603e-05). The statistical calculations of

the differences between gain and loss frames in the two corpora confirmed that both ACSRs and CCSRs have a significant preference for gain frames. Nevertheless, the calculation of the effect size "Phi effect (Φ)" shows that both statistical differences have low effect sizes (0.12364 for ACSRs and 0.16946 for CCSRs).

The preference for gain frames in both corpora might be attributable to the evaluative meaning of the JOURNEY source domain. Many scholars (Atanasova & Koteyko, 2017b; Charteris-Black, 2004, 2016; Milne et al., 2006) have asserted that the JOURNEY source domain is positively connotated and that it is often used to construct a meaningful purpose or process. Therefore, ACSRs and CCSRs could use the JOURNEY source domain as a gain frame to conceptualize the generated benefits that actualize the socially-valued goal of environmental protection

In order to explore the usages of gain and loss frames in each corpus, I have outlined the JOURNEY metaphors used as gain and loss frames in Table 5.3. The metaphorical expressions are used approximately two times more often as gain frames than as loss frames; those used only as gain frames are highlighted in red.

Table 5. 3 Metaphors Used as Gain and Loss Frames in ACSRs and CCSRs

ACSRs			CCSRs		
Metaphorical Keywords	Gain	Loss	Metaphorical Keywords	Gain	Loss
Source			Source		
/	/	/	embark on *phrasal verb.*	2	
Path			Path		
Direction			*Direction*		
guide *v.*	29	17	direct *v.*	2	1
direction *n.*	8	2	forward *adv.*	4	3
lead *v.*	21	20	guide *v.*	8	7
leading *a.*	17	7	leading *a.*	10	8
follow *v.*	24	16	lead *v.*	9	7
map *n.*	2	1	follow *v.*	35	21
roadmap *n.*	1		direction *n.*	3	1

back *adv.*	7	7	back *adv.*	1	3
ahead *adv.*	2	6	indirect *a.*		1
direct *a.*	8	17	ahead *adv.*	5	5
indirect *a.*	6	6	direct *a.*	6	3
direct *v.*	9	3	track *v.*	13	15
forward *adv.*	4	6	roadmap *n.*	2	1
Movement			*Movement*		
explore *v.*	29	12	accelerate *v.*	33	10
advance *v.*	44	24	go *v.*	5	1
move *v.*	10	5	advance *v.*	15	7
speed *n.*	2		move *v.*	1	1
accelerate *v.*	19	15	progress *v.*	1	
go *v.*	6	6	pace *n.*	6	1
pace *n.*	7	4	advancement *n.*	2	
progress *v.*	3	3	proceed *v.*	1	1
proceed *v.*	1	1	exploration *n.*		1
navigate *v.*	4	3	move on *phrasal verb*		1
come *v.*	3	3	explore *v.*	17	13
slow *a.*	1		come *v.*	3	4
progress *n.*	44	42	progress *n.*	24	14
step *n.*	29	24	step *n.*	1	5
advance *n.*	22	16	step *v.*	1	1
advancement *n.*	9	6	/	/	/
Way			*Way*		
road *n.*	1		track *n.*	2	2
way *n.*	59	61	path *n.*	5	1
pathway *n.*	18	9	way *n.*	36	26
route *n.*	1		road *n.*	2	2
path *n.*	3		route *n.*	3	3
course *n.*	1		course *n.*	1	1
journey *n.*	3		/	/	/
trajectory *n.*	1	6	/	/	/
track *n.*	11	8	/	/	/
track *v.*	33	37	/	/	/
Destination			**Destination**		
reach *v.*	15	9	reach *v.*	54	49
approach *v.*	1	2	approach *v.*	1	3
Total	**518**	**404**	**Total**	**314**	**223**
Total	**922**		**Total**	**537**	

From Table 5.3, we can see that only one metaphor is used in both corpora more often as gain frames: the verb "advance." This might be attributable to the semantic meaning of this verb: "to help something progress and become more developed or successful." Therefore, this verb is often used to describe how corporate actions generate benefits, which makes it more suitable to serve as a gain frame. Examples (16) and (17) demonstrate how the JOURNEY metaphor "advance" is used as a gain frame in both corpora.

(16) In the future, Sinopec Corp. will <u>advance</u> the development of solar PV and hydrogen energy industries. (Sinopec CSR rep., 2019).

(17) For example, in 2014, ExxonMobil signed an agreement to join the Massachusetts Institute of Technology Energy Initiative, a collaboration aimed at working to <u>advance</u> and explore the future of energy. ExxonMobil was also a founding member of the Global Climate and Energy Project at Stanford University, which seeks to develop fundamental, game-changing scientific breakthroughs that could lead to lower greenhouse gas emissions and a less carbon-intensive global energy system. (ExxonMobil CSR rep., 2015)

In both Examples (16) and (17), the verb "advance" was used in the active voice, which shows that this metaphor was used in an empowering way. Semino et al. (2017) studied how cancer patients communicated their treatment process and found that the JOURNEY source domain can be employed in both empowering and disempowering ways. The JOURNEY source domain was used with empowerment when patients used it to express a sense of "purpose, control, and companionship" (Semino et al., 2017, p. 4). The JOURNEY source domain was used in a disempowering way when patients described a difficult or uncontrollable journey. Examining concordances of the metaphor "advance" indicates that this metaphor is primarily used in an empowering way to conceptualize petroleum companies or environmental efforts of petroleum companies as the driving force behind climate change mitigation. In Example (16), *Sinopec* is the driving force behind the advancement of "solar PV and hydrogen energy industries." In Example (17), the collaboration between *ExxonMobil* with a technology institute is the driving force behind the advancement of "the future of energy."

Solar PV is a type of renewable energy. Thus, constructing *Sinopec* as a driving force

behind solar PV can show its contributions to environmental protection, satisfying the needs of regulatory, media, and community stakeholders. The investment in solar PV can also generate financial benefits for oil companies because solar PV is a flourishing market in China with substantial government incentives. In 2015, China became the largest producer of photovoltaic energy in the world (Rose, 2016). The booming solar PV market can generate new business opportunities for *Sinopec* and bring about profits for organizational stakeholders. In addition, juxtaposing solar PV with hydrogen energy, the main product of natural gas, suggests that the core business of the oil company will be maintained.

In Example (17), the driving force behind the advancement is the "collaboration" between *ExxonMobil* and "the Massachusetts Institute of Technology Energy Initiative," implying that technology is the power that pushes the advancement of energy forward. The second sentence in Example (17) gives a possible definition of "the future of energy:" "lower greenhouse gas emissions and a less carbon-intensive global energy system." This future is favourable for regulatory, media and community stakeholders as emissions are lowered. Since the driving force behind this advancement is technology-based, the concerns of organizational stakeholders are also accommodated.

Semino et al. (2017) observed that some of the JOURNEY metaphors in their data are used in an empowering way as they indicate "the patient as a traveller in charge of the journey" (p. 4). In the above two examples, the verb "advance" is used to describe how petroleum companies or their efforts push forward their environmental plan, which portrays petroleum companies as the driving force behind the forward momentum. In this way, the verb "advance" empowers petroleum companies and highlights their agency in enabling improvements in environmental practices.

5.4.1 Gain and loss frames in different time frames

The source domain of JOURNEY has been found to be often used to construct social activity in a future-oriented manner. As such, it would be informative to explore if the source domain of JOURNEY is used as gain/loss frames more often in the future. Following the process in the previous chapter, each gain and loss frame in my data was annotated with "Pt," "Pr," or "F." based on the procedure in Chapter 4. If the goal of a frame is about achievement in the past, the tag "Pt" is assigned to the frame. If the goal of a frame is about achievement at present, the tag "Pr" is assigned to the frame. If the goal of a frame is about a plan for the future, the tag "F" is assigned to the frame. Figure 5.4 indicates the frequencies of gain and loss frames in two different time frames.

Figure 5. 4 Gain and Loss Frames in Past and Future Time Frames
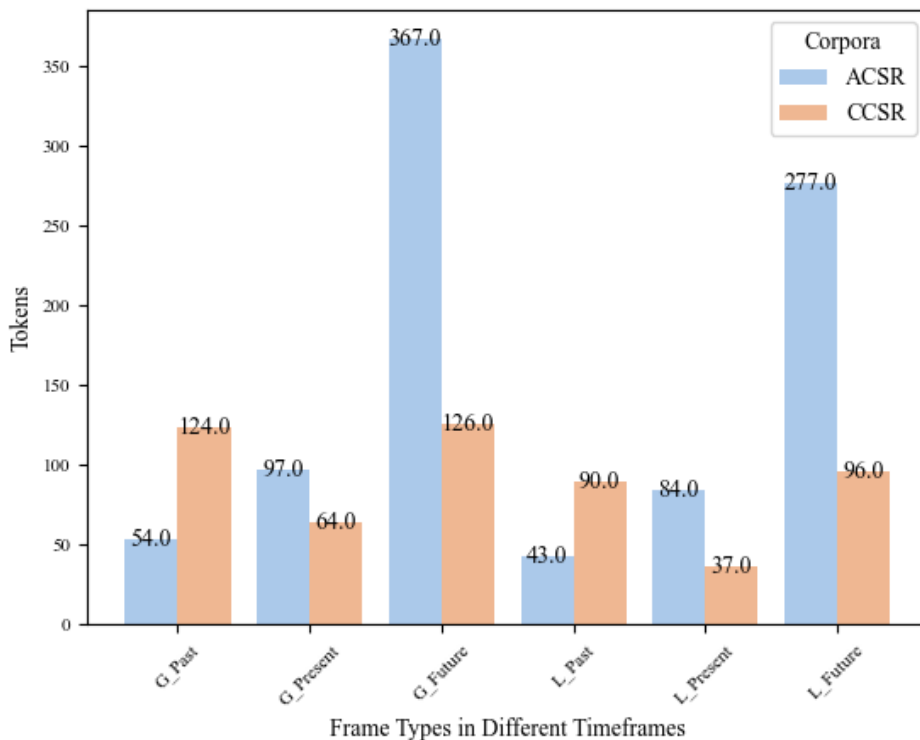
From Figure 5.4, we can see that both gain and loss frames are presented more often in the future time frame. I used the goodness of fit tests to test if the future time frame is significantly used for gain frames and loss frames in ACSRs and CCSRs. The results show that the usages of gain frames (X-squared = 333.43, df = 2, p-value < 2.2e-16) and loss frames (X-squared = 231.9, df = 2, p-value < 2.2e-16) are significantly different in different time frames in ACSR. In CCSR, gain frames (X-squared = 23.72, df = 2, p-value = 7.068e-06) and loss frames (X-squared = 28.368, df = 2, p-value = 6.919e-07) are also used with a significant difference in different time frames. The standard residuals suggest that the significant differences in the time frames of gain and loss frames in ACSRs are attributed to the overuse of the future time frame (standard residuals of time frames of gain frames: -11.060382 -7.052547 18.112929, standard residuals of time frames of loss frames: -9.674466 -5.347341 15.021808). However, the standard residuals suggest that the significant differences in the time frames of gain and loss frames in CCSRs are attributed to fewer usages of the present time frame (standard residuals of time frames of gain frames: 2.314452 -4.868330 2.553878, standard residuals of time frames of loss frames: 2.225515 -5.303354 3.077839).

The similar usages of past and future time frames for gain and loss frames in CCSRs were a bit unexpected as some previous research has suggested that CSR reports strongly favour future time frames. Fuoli (2018) indicated that companies tend to emphasize objectives and ambitions for the future in CSR reports. Bondi (2016) suggests that forward-looking statements play an important role in the legitimation of organizations as they can highlight corporate expertise and a commitment to ethical values. Jaworska (2018) observed that most of the solutions to tackling climate change in CSR reports are formulated as future goals as this future orientation strategy can reduce the immediacy of dealing with climate issues.

The examination of the past and present time frames of gain and loss frames in CCSRs indicates that although many gain and loss frames are used in the past or present time frame,

they still suggest that the eventual goal would be achieved in future. Part of the reason is that these frames used JOURNEY metaphors that suggest an ongoing process, especially those belonging to the category of "PATH-MOVEMENT," such as "progress" (past time frame: 20, present time frame: 4), "advance," (past time frame: 9, present time frame: 5), and "accelerate" (past time frame: 13, present time frame: 8).

Previous scholars found that the JOURNEY source domain is frequently used to construct corporate activities as an ongoing process or a long-term goal (Atanasova & Koteyko, 2017b; Charteris-Black, 2004, 2016; Milne et al., 2006). In CCSRs, there are high frequencies of metaphorical expressions subsumed into the subtype "PATH-MOVEMENT" in the category of "PATH" in the S-P-G schema. The metaphorical expressions in this subtype tend to conceptualize business activities in a future-oriented way by describing them as continuous movements towards a destination. By virtue of this, efforts to address climate change are conceptualized by the JOURNEY source domain either as a future goal or as an ongoing process whose goal will be achieved in the future.

Milne et al. (2006) found that journeying often implicates progress and that faith in progress dominates industrial society (Beck, 1995). As such, all progress and thus all journeying can be regarded as good (Milne et al., 2006). The industrial faith in progress is a response to "eco-modernist optimism in technical solutions to environmental and social problems" (Milne et al., 2006: p. 812), as well as a commitment to incremental experimentation and change.

Nevertheless, Milne et al. (2006) pointed out a paradox in the discursive construction of progress in sustainability reports: although corporations indicate that it is possible to measure progress toward a sustainability goal, there is no way to know if progress is made towards this goal without a defined endpoint (Milne et al. 2006). Example (18) from CCSRs exemplifies this point.

(18) We made important <u>progress</u> in water saving with measures for leak checking and fixing, condensate recovery, utilization of low temperature residual heat and reuse of waste water. (Sinopec CSR rep., 2011).

In Example (18), the goal was achieved in the past: progress was made in water saving. However, the final goal of realizing water saving is to be achieved in the future as the JOURNEY metaphor "progress" indicates an ongoing process. *Sinopec* claims that there are measures for "leak checking and fixing, condensate recovery, utilization of low temperature residual heat and reuse of waste water." Nevertheless, this petroleum company does not specify the criteria of these measures, which renders the progress unmeasurable.

Another metaphor that is used in the past and present time frame in CCSRs to suggest a future-oriented goal is "accelerate." This verb could be more deceptive than the metaphorical expression "progress." Not only can this metaphor indicate a movement towards a destination, but this metaphor also highlights that the movement speeds up. In this way, this metaphor implies that the time needed to achieve a goal is reduced, and thus the worthwhile goal is more achievable. Yet, like the usages of "progress" in CSR reports of petroleum companies, the metaphor "accelerate" is used with vagueness. Oftentimes, there is no indication of the original time frame, and hence there is no way to determine to what extent the time frame has been shortened.

(19) In particular, we <u>accelerated</u> the development and applications related to geothermal technologies and underground coal gasification. (Petro China CSR rep., 2019)

In Example (19), the verb "accelerated" is used in the past tense, which suggests that *Petro China* has sped up the development and applications of "geothermal technologies and

underground coal gasification." The JOURNEY metaphor "accelerate" creates the impression that the original timeline is shortened and the goal will be achieved much sooner.

The Chinese government regards the development and applications of geothermal energy as an effective way to cope with environmental impacts. In 2017, "The 13th five-year plan for geothermal energy development and utilization" was issued jointly by NDRC, the National Energy Administration (NEA), and MLR. According to this plan, by 2020, the total geothermal heating (cooling) area would be expanded to 1.6 billion square meters, and the installed capacity would increase to about 530 MW (NDRC, 2017). Therefore, the SOE's acceleration in geothermal energy development is supposed to have shortened the distance to the national goal of expanding the geothermal heating area, which satisfies the interests of regulatory, media, and community stakeholders. However, since the original timeline is unspecified, it is difficult to quantify to what extent the speed has been quickened, and the distance has been shortened.

The technology of coal gasification is to convert coal into gas. Underground coal gasification can realize the clean utilization of coal by generating "artificial gas," which aligns with the interests of regulatory, media and community stakeholders. It is predicted that the natural gas produced from underground coal gasification could reach 272−332 trillion cubic meters in China, about triple the amount of conventional natural gas (Zou et al., 2019). As natural gas is the core business of oil companies, employing coal gasification to reduce coal usage can reconcile corporate and environmental interests.

The JOURNEY metaphor "progress" is frequently used to describe an ongoing process. This metaphor is used with vagueness in my data as often the time, the destination of the progress is not specified. Consequently, it is not easy to determine whether the progress has shortened the remained path of a journey. In the CCSRs, the verb "accelerate" is used frequently to indicate that an improvement is made. This verb could be more deceptive than the metaphor "progress" as the metaphor "accelerate" suggests that a travelling activity is sped

up, implying a destination can be reached more quickly. Nevertheless, it is not easy to know to which extent the timeline can be shortened as the original timeline is unspecified.

5.4.2 Topics associated with gain and loss frames

The topics frequently associated with gain- and loss-framed JOURNEY source domain can provide a deeper insight into how this source domain is used as gain and loss frames. To this end, I will explore which topics are frequently associated with the goals of gain and loss frames. In accordance with the method I used in Chapter 4, I generated the "Semantic Frequency List" in *Wmatrix* (Rayson, 2008) to have an understanding of the topics often associated with the goals of gain and loss frames.

I followed the method used in Chapter 4 and extracted all the goals of gain frames identified in ACSRs and CCSRs and entered them separately into two plain texts named "goals of gain frames_ACSRs" and "goals of gain frames_CCSRs." All the goals of loss frames identified in ACSRs and CCSRs were entered into two separate plain texts named "goals of loss frames_CCSRs" and "goals of loss frames_ACSRs."

I then uploaded these four plain texts onto *Wmatrix* and clicked the button "Semantic frequency list." The generated semantic frequency list ranks all the semantic domains in a descending order based on their frequencies.

Following the process in Chapter 4, grammatical domains and domains that represent proper names were excluded (e.g., Z1: Personal names, Z2: Geographical names, Z3: Other proper names). I also excluded Z99 because this tag is assigned to lexical items when the semantic matching procedure fails.

After the aforementioned exclusions were made, the top semantic domains were extracted

as domains for further investigation. The cut-off threshold was set at around 10% of the dataset so that the analyzed domains were able to offer sufficient information on frequent topics associated with gain and loss frames. Furthermore, this ensured that the analysts would not be overwhelmed by too much information. The top semantic domains associated with the goals of gain frames in CCSRs, goals of loss frames in CCSRs, goals of gain frames in ACSRs, and goals of loss frames in ACSRs generated by *Wmatrix* are presented in Table 5.4.

Table 5. 4 Top Semantic Domains in Semantic Frequency Lists for Gain and Loss Frames in ACSRs and CCSRs

Ranking	Gain Frames in ACSRs		Loss Frames in ACSRs		Gain Frames in CCSRs		Goals of Loss frames in CCSRs	
	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.
1	A5.1+: Evaluation : Good	121	N5-: Quantities: little	119	S7.1+: In power	100	A 9-: Giving	79
2	M1: Moving, coming and going	108	A 9-: Giving	113	A2.1+: Modify, change	93	S7.1+: In power	62
3	W5: Green issues	99	A2.1+: Change	96	M1: Moving, coming and going	89	N5-: Quantities: little	56
4	S8+: Helping	97	A2.2: Cause&Effect/ Connection	79	S8+: Helping	87	M1: Moving, coming and going	54
5	X5.2+: Interested/ excited/ energetic	92	A15-: Dangers	75	W5: Green issues	87	A 15-: Dangers	49
	A2.1+: Change	79	O1.3: Substances and materials: Gas	73	A5.1+: Evaluation : Good	70	N1: Numbers	38
Freq.	596		555		526		338	
Total	5090		4245		4195		2683	
Pct.	12%		13%		13%		13%	

As a few of the domains generated by *Wmatrix* might be too general to offer insightful

information on the topics associated with gain and loss frames, I examined all the concordances in the top semantic domains to see 1) if a domain can be further divided and 2) if a more specific label can be assigned to the domain. Verifying concordances within a domain can also rule out possible tagging errors.

All the domains and labels generated in the above process are represented in Table 5.5 as dominant topics associated with gain and loss frames in ACSRs and CCSRs:

Table 5. 5 Top Semantic Domains in Semantic Frequency Lists for Gain and Loss Frames in ACSRs and CCSRs

Ranking	Gain Frames in ACSRs		Loss Frames in ACSRs		Gain Frames in CCSRs		Loss frames in CCSRs	
	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.
1	Improvements	116	Reduction	119	Leadership and Management	100	Emissions	79
2	Environment	99	Emissions	113	Change	93	Leadership and Management	62
3	Energy (X5.2+)	89	Change	96	Environment (W5)	87	Reduction	56
4	Change (A2.1+)	79	Risks (A15-)	75	Improvement (A5.1+)	70	Risks (A15-)	49
5	Leadership and Management (S7.1+)	70	Gas	73	Gas (O1.3)	58	Numbers	38
	Technology and Science	65			Numbers (N1)	58		
Freq.	518		476		466		284	
Total Freq.	5090		4245		4195		2683	
Pct.	10%		11%		11%		11%	

The reformulated labels more clearly identify which issues are associated with gain and loss frames. The topic of "Emissions" is often associated with loss frames in both ACSRs and CCSRs. Greenhouse emission is the primary reason petroleum companies have been closely scrutinized. It would be informative to examine the way that Chinese petroleum companies and

American petroleum companies elaborate on how they address the emissions as a goal in loss frames.

The examination of the emission as a loss frame in the CCSRs shows that the goal of reducing greenhouse emissions is largely framed as a future target, and the primary way to achieve the goal is via technology- or market-oriented solutions. Examples (20) and (21) can help us understand how the loss-framed JOURNEY metaphors are used to address emissions.

(20) Saving energy is the most immediate and effective <u>way</u> to reduce CO_2 emission today. (Sinopec CSR rep., 2019)

(21) Shenyang Kechuang Chemical Company is a subsidiary of the Sinochem Group and has conducted a "Saving Energy, Green Growth" week…It also organized the "Resource Conservation Activity" for Youth League Members, asking them to "save every drop of water, every kilowatt of electricity, every piece of paper, and every grain of rice" and <u>guiding</u> them to recognize the importance and urgency of energy conservation and emissions reduction. (Sinochem CSR rep., 2012)

In Example (20), the metaphor "way" is used to conceptualize a particular method of reducing emissions. The positively-connotated adjectives "immediate" and "effective," as well as the superlative forms of these two adjectives, suggests that *Sinochem* highly advocates for this way of emission reductions. The way advocated in the example is energy saving, which can improve the environment and reduce costs in business operations. In this way, corporate and environmental interests are aligned.

In Example (21), *Shenyang Kechuang Chemical Company*, a subsidiary of the *Sinochem* Group, is constructed as a knowledgeable tour guide who "guides" people to realize the

urgency of emission reduction. The representation of the petroleum company as a knowledgeable tour guide of the environment protection journey can legitimize this company as a tour guide is a person who knows the journey the best. In this way, *Sinochem* transforms from a pessimistic participant in environmental protection into an active guide who leads people on a green path. By self-presenting itself as an expert in environmental protection, the legitimacy of this oil company can be taken-for-granted.

The above usages of JOURNEY metaphors as loss frames to construct how petroleum companies cope with emissions indicate that one of the ways petroleum companies legitimize their emission reduction is to propose their favoured emission mitigation methods. The JOURNEY metaphor "way" can be used in this regard. A redefined "way" can make it easier to reconcile corporate and environmental interests. The other way of legitimizing petroleum companies' activities in dealing with emissions is to present themselves as knowledgeable and moral educators of environmental protection. In both of these examples, the Chinese oil companies emphasized the importance of saving energy, which can be attributable to the energy gap in China.

5.5 Corporate and environmental interests

As gain and loss frames could be motivated by different interests in CSR reports, it would be informative to take a look at the motivations behind these frames to have a deeper understanding of why these frames are employed. To this end, I try to address the research question, "Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?" Figure 5.5 displays the motivations of gain and loss frames in ACSRs and CCSRs.

Figure 5. 5 Gain and Loss Frames Motivated by Different Interests
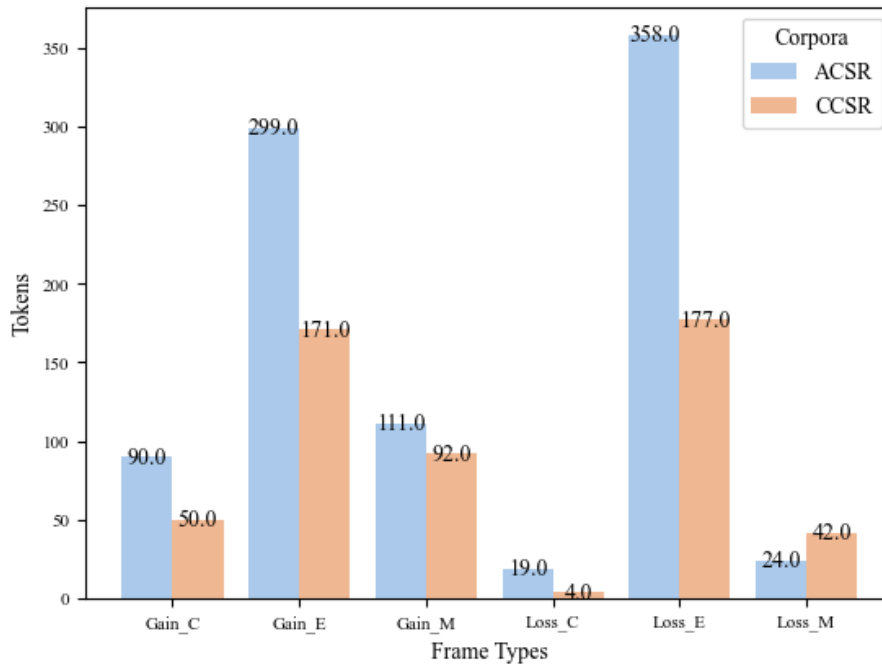
Figure 5.5 shows that both gain and loss frames in ACSRs and CCSRs are primarily motivated by environmental interests. To statistically confirm this, I used goodness of fit to calculate the usages of different interests in the two corpora separately. The test results for the different interests in ACSRs show that both gain frames and loss frames are motivated significantly by different interests as well (chi-square test results for gain frames: X-squared = 158.93, df = 2, p-value < 2.2e-16; chi-square test results for loss frames: X-squared = 564.84, df = 2, p-value < 2.2e-16). The test results for the different interests in CCSRs show that both gain frames and loss frames are motivated significantly by different interests (chi-square test results for gain frames: X-squared = 72.351, df = 2, p-value < 2.2e-16; chi-square test results for loss frames: X-squared = X-squared = 222.41, df = 2, p-value < 2.2e-16).

To understand which cell contributes most to the difference, I calculated the standard residuals of each cell in goodness tests for gain frames and loss frames in ACSR and CCSR. The test results show that in ACSR, gain frames (-7.273239 12.554242 -5.281004) and loss frames (-12.14706 23.76446 -11.61739) are motivated significantly more by environmental

interests. In CCSR, gain frames are motivated significantly by environmental interests (-6.514790 7.993608 -1.478817), and loss frames are motivated significantly by environmental interests (-9.991140 14.584223 -4.593083).

The above analysis results do not come as a surprise as my data are extracted from environmental sections of CSR reports, which mainly focus on how petroleum companies address environmental issues. The other reason could be that addressing environmental interests is fundamental for attaining legitimacy for petroleum companies. Generating environmental interests could potentially bring out losses in corporate interests. Therefore, it would be insightful to examine how environmental interests are reconciled with corporate interests via the source domain of JOURNEY. One way to reconcile environmental with corporate interests is to describe environmental interests in a future-oriented manner.

5.5.1 Corporate and environmental interests in different time frames

Previous studies indicate that the source domain of JOURNEY is often used to present a future goal (Charteris-Black, 2004, 2016). This function can help reconcile corporate and environmental interests as organizational stakeholders' concerns about potential costs in creating environmental interests could be lessened. Therefore, I will explore if these corporate and environmental frames more often frame interests in the past or in the future. I used Figure 5.6 to show the distribution of time frames for different types of interests:

Figure 5. 6 Different Interests in Three Different Time Frames
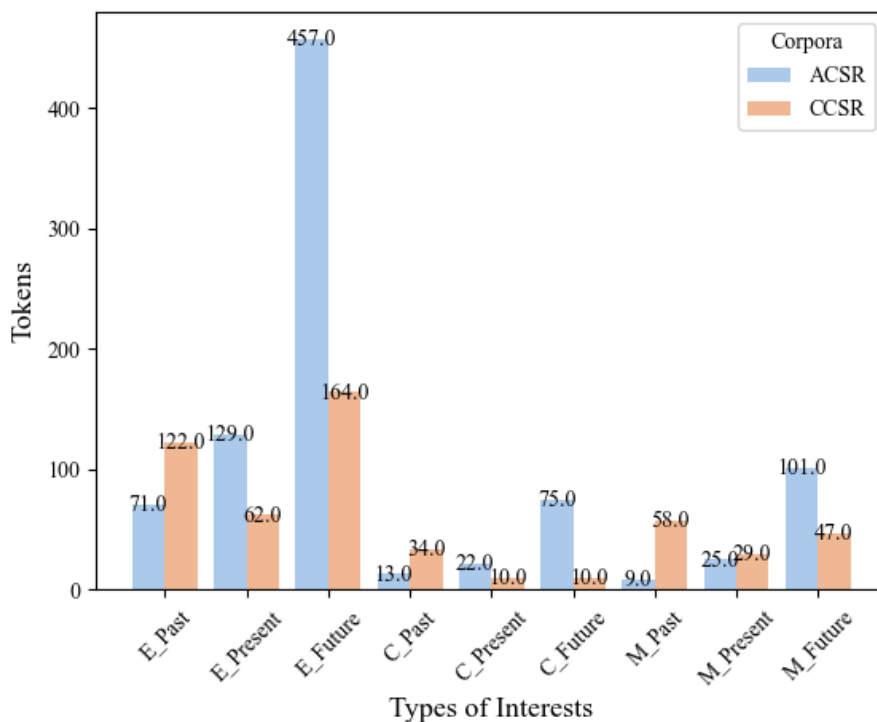
The above chart shows that environmental interests in ACSRs and CCSRs more frequently use the future time frame compared with other types of interests. I used the goodness of fit tests to test the preferences for different time frames in ACSR and CCSR. The results show that the environmental interests (X-squared = 395.65, df = 2, p-value < 2.2e-16), corporate interests (X-squared = 61.218, df = 2, p-value = 5.089e-14), and mixed interests (X-squared = 107.38, df = 2, p-value < 2.2e-16) are presented significantly in different time frames in ACSRs. The environmental interest (X-squared = 45.31, df = 2, p-value = 1.449e-10), corporate interests (X-squared = 21.333, df = 2, p-value = 2.331e-05) and mixed interests (X-squared = 9.597, df = 2, p-value = 0.008242) are presented significantly in different time frames in CCSRs. The environmental interests in ACSRs (-12.248567 -7.448453 19.697020) and the environmental interests in CCSRs (0.6822882 -6.1405942 5.4583059) are presented significantly more in the future time frame.

The environmental interests in both ACSRs and CCSRs are presented more in the future time frame, most likely because American and Chinese petroleum companies receive the most criticism for their environmental practice. As indicated in Chapter 4, Jaworska (2018) observed that "relocation" of climate change to the future is often used as a distancing strategy when the petroleum industry indicates its commitment to addressing climate change. For instance, petroleum companies have been constantly criticized for their contributions to emissions. Given this, corporate efforts to reduce emissions are often described in a future-oriented way.

5.5.2 Topics associated with environmental corporate and mixed interests

Examination of topics frequently associated with the goals of these environmental, corporate, and mixed interests can further our understanding of how different interests are accommodated in my data. To this end, I applied the method I used in chapter 4, which is to extract all the expressions that describe environmental interests, corporate interests, and mixed interests in ACSRs and enter them into three plain texts "Environmental Interests ACSRs," "Corporate Interests ACSRs," and "Mixed Interests ACSRs." I also extracted all the expressions that describe environmental interests, corporate interests, and mixed interests in CCSRs and entered them into three plain texts "Environmental Interests CCSRs," "Corporate Interests CCSRs," and "Mixed Interests CCSRs."

I uploaded all these files onto Wmatrix and clicked the button entitled "Semantic frequent list" to generate the lists of frequent domains associated with gain and loss frames in both ACSRs and CCSRs. Only semantic domains that take up around 15% of the whole dataset are listed as top semantic domains and are shown in Table 5.6.

Table 5. 6 Top Semantic Domains in Semantic Frequency Lists for Environment, Corporate and Mixed Frames in ACSRs and CCSRs

Ranking	ACSRs			CCSRs		
	Environment	Corporate	Mixed	Environment	Corporate	Mixed
1	A2.1+: Change (137)	A5.1+: Evaluation: Good/bad (27)	M1: Moving, coming and going (42)	A2.1+: Change (102)	N1: Numbers (26)	S7.1+: Helping (73)
2	A9-: Giving (118)	I2.1: Business: Generally (22)	X5.2: Interest/ boredom/ excited/ energetic (39)	W5: Green issues (98)	A5.1+: Evaluation: Good (20)	A15+: Safety (42)
3	W5: Green issues (117)	M1: Moving, coming and going (22)	Y1: Science and technology in general (35)	M1: Moving, coming and going (92)	M1: Moving, coming and going (13)	A15-: Risks (38)
4	N5-: Quantities: little (107)	I1.3-: Money: Cost and price (20)	M6: Location and direction (26)	A9-: Giving (90)	S5+: Belonging to a group (13)	M1: Moving, coming and going (37)
5	M6: Location and direction (103)	S8+: Helping (18)	A5.1+: Evaluation: Good (26)	S7.1+: In power (82)	X2.4: Investigate, examine, test, search (11)	O2: Objects generally (33)
	M1: Moving, coming and going (96)	X5.2+: Interested/ excited/ energetic (18)		S8+: Helping (76)	M7: Places (10)	
	O1.2: Substances and materials: Liquid (94)					
Freq.	772	127	168	540	93	223
Total:	5791	872	1284	3933	653	1801
Pct.	13%	15%	13%	14%	14%	12%

To better understand the preferable issues of environmental, corporate, and mixed interests, I then investigated the key terms and concordance lines within all the above-listed semantic domains and tried to come up with more specific domain labels. Table 5.7 displays the topics associated with different interests in ACSRs and CCSRs.

Table 5. 7 Top Semantic Domains in Semantic Frequency Lists for Different Motivations in ACSRs and CCSRs

	ACSRs			CCSRs		
Ranking	Environment	Corporate	Mixed	Environment	Corporate	Mixed
1	Change (137)	Improvement (27)	Energy (39)	Change (102)	Numbers (21)	Leadership and Management (73)
2	Environment (117)	Corporations (22)	Technology and Labs (35)	Environment (98)	Improvement (20)	Safety (42)
3	Reduction (106)	Economy (I1.3-) (20)	Improvement (A5.1+) (26)	Leadership and Management (S7.1+) (82)	Checking (X2.4) (11)	Risks (38)
4	Emissions (105)	Energy (X5.2) (17)	Plans and Aims (X7+) (21)	Emissions (66)	Locations (M7) (10)	Equipment and Products (O2) (33)
5	Water and Oil (O1.2) (94)	Corporations (22)	Improvement (A5.1+) (19)	Protection and Promotion (67)	Aims and Plans (S7+) (9)	Improvement (A5.1+) (24)
	Improvement (A5.1+) (72)			Energy (X5.2+) (51)	Gas and Oil (O1.2) (7)	
Freq.	631	108	140	466	78	210
Total.	5791	872	1284	3933	653	1801
Pct.	11%	12%	11%	12%	12%	12%

The above table shows that in the CCSRs, one of the topics that reconcile environmental and corporate interests is "Equipment and Products" (n=33). A good number of keywords in this domain are the singular or plural form of the noun "pipeline" (n=15). Pipelines are an essential part of the petroleum industry's business, enabling the long-distance transportation of a liquid or gas to a market for consumption. Petroleum and gas pipelines are crucial assets for economic development, and the safety of the assets is a high priority of almost all countries in this world. Although pipeline transportation is safer and cheaper than ground transportation, pipeline accidents could result in major human and environmental disasters. Given the significance of pipelines to economic development as well as environmental protection,

maintaining pipeline safety and integrity can benefit various types of stakeholders. Example (22) demonstrates how the source domain of JOURNEY is used to describe the mixed interests created by pipelines maintenance.

(22) We have developed a platform to <u>track</u> the rectification of hazards found in petroleum and gas pipelines, and implemented real-time <u>tracking</u> of the rectification of hazards. (Petro China CSR rep., 2015)

In Example (22), *Petro China* reduces the negative impact of pipelines by tracking the rectification of hazards found in petroleum and gas pipelines. The metaphorically used verb "track" is utilized twice here to indicate the petroleum company follows the rectification of hazards closely to ensure the hazards are properly handled. This close following of rectification of hazards highlights *Petro China*'s sense of social responsibility and thus represents the petroleum company as ethical, which helps *Petro China* gain support from regulatory, media, and community stakeholders. Petroleum and gas pipelines transport gas and petroleum to a market area for consumption, satisfying domestic energy demands and creating financial benefits. In this way, the interests of organizational stakeholders are accommodated.

One of the major topics that reconcile corporate and environmental interests in the ACSRs is "Energy." Energy development is essential for generating corporate profits. Renewable energy, energy efficiency and energy conservation are beneficial for the environment. Unlike Chinese oil companies, which focus on domestic energy needs, American oil companies emphasize the world's energy demand when promoting energy development. This difference can be attributed to the fact that the U.S. has grown into a petroleum exporter and global energy supplier over the past decade. Example (23) shows us how the topic of "Energy" can reconcile different interests in the ACSRs.

(23) ExxonMobil is committed to operating in an environmentally responsible manner while providing the energy needed to power the world's <u>progress</u>. (ExxonMobil CSR rep., 2015)

In Example (23), *ExxonMobil's* operations can react to mixed interests because they are conducted "in an environmentally responsible manner" on the one hand and must meet the world's energy demand on the other hand. The FORCE metaphor "power" is used together with the JOURNEY metaphor "progress" to construct the world as a forward-moving vehicle and *ExxonMobil* as the fuel that powers that movement. As a vehicle cannot function without fuel, the significance of the oil company is foregrounded.

Another topic in the ACSRs related to the generation of mixed interests is "Technology and Labs." In this topic, the keyword with the highest frequency is "technology" (n=29). Many previous studies found that carbon-intensive sectors seem to regard the technology- and market-based solutions to climate change as a win-win strategy (Dunn, 2014; Kolk & Pinkse, 2004; Tang & Yeoh, 2007). Example (24) can demonstrate how the source domain of JOURNEY is used to promote technology-oriented approaches to climate change.

(24) Recognizing the value of collaboration, Statoil helped to establish the Petroleum Sands Leadership Initiative (OSLI), a collaborative network of major petroleum sands companies that is committed to <u>accelerating</u> technology and innovation that will improve the environmental, social and economic performance of in-situ and mining development. (ConocoPhillips CSR rep., 2011)

In Example (24), the metaphor "accelerate" is used to indicate the petroleum company's commitment to speeding up technology development. The "technology and innovation" being

sped up will generate mixed interests as they "improve the environmental, social and economic performance of in-situ and mining development." Given this, different interests of different stakeholders are accommodated. Speeding up this technology development thus can potentially quicken the pace of creating mixed interests. Nevertheless, as the original timeline is unspecified, it is unclear how the timeline is shortened.

5.6 Conclusions

In this chapter, I tried to explore 1) usages of keywords in the source domain of JOURNEY in ACSRs and CCSRs, 2) frequencies in gain and loss frames in ACSRs and CCSRs, as well as 3) motivations for gain and loss frames in ACSRs and CCSRs. In order to address the second and third issues, I also examined and compared the time frames for two types of frames and different interests. The topics frequently associated with gain and loss frames and various interest types were also studied. By addressing all these issues, I have identified the following legitimation strategies of petroleum companies.

The comparison of normalized ratios of JOURNEY metaphors in both corpora indicated that this source domain was used with similar frequency by both ACSRs and CCSRs, suggesting that both American and Chinese petroleum companies had a similar preference for this source domain in their CSR reports. Examination of JOURNEY metaphors in this source domain can shed light on how two corpora use this source domain as legitimization strategies.

The first legitimization strategy is to use metaphorical keywords in the source domain of JOURNEY to highlight the journeying process. Most of the JOURNEY metaphors were subsumed into the category "PATH" of the S-P-G image schema in both corpora. The "PATH-MOVEMENT" as a subtype of the category of "PATH" occurred with a high frequency as compared to "PATH-DIRECTION" and "PATH-WAY" in both ACSRs and CCSRs. In ACSRs, the metaphor "progress"

was used with the highest frequency in the subtype of "Path-Movement." In CCSRs, the metaphor "accelerate" occurred most frequently in this subtype. Both of these metaphors were used to emphasize the progress made in environmental efforts. American and Chinese petroleum companies tried to use metaphors related to the concept of progress to suggest that their environmental efforts are legitimate as long as progress is made.

However, the metaphors used to present progress in environmental efforts were often used with vagueness. For instance, although the metaphors "progress" and "accelerate" indicated progress and quickened progress, there was no way to determine whether the progress is made or a time frame of the progress is shortened if the intended destination and the original time frame for this progress are unstated. This vagueness made it easier to legitimize petroleum companies' environmental efforts by making progress hardly measurable.

The third legitimation strategy used by the ACSRs is to redefine sustainability and environment-friendliness. American petroleum companies made use of the lexeme "way", which is part of the Journey metaphor to propose approaches or manners to address climate change that can reconcile environmental and corporate interests. This metaphor was often utilized by ACSRs to redefine sustainability and environment-friendliness. Many postmodifiers of this metaphor suggested a modest sustainability goal, implying that a status-quo would be maintained. The plural form of this metaphor indicated that numerous approaches are open for selection, and innovative ways were hereby proposed to reconcile economic and environmental goals. Some American oil companies used the plural form "way" to suggest that there are numerous alternatives for other stakeholders to take part in coping with environmental impacts, shifting part of the burdens from oil companies to their regulatory and community stakeholders.

The fourth legitimation strategy is used by CCSRs to emphasize petroleum companies' achievements with the frequent usage of Journey metaphor "reach". The metaphor "reach"

was frequently used to highlight the achievements made by Chinese petroleum companies in addressing climate change. The examination of the time frame of the verb "reach" in CCSR showed that this metaphorical expression was used more often in the past time frame than in the future time frame. In this way, Chinese petroleum companies demonstrated they have arrived at the destination of a journey of coping with environmental issues. However, the metaphor "reach" was only used in the past time frame when achievements were made to less challenging issues or when the achievements did not require radical changes to the status quo. The achievements that require fundamental changes in petroleum companies' business were presented with the metaphor "reach" in its future time frame. These usage patterns may reduce organizational stakeholders' concerns that high costs would be involved in accomplished achievements in environmental efforts.

The source domain of JOURNEY was used more often in a gain frame, which might be attributable to its positive evaluation. One metaphor that was used more often as a gain frame in both corpora was the verb "advance." As this verb was often used in the active voice, it empowers petroleum companies by presenting them, or their efforts, as the driving force behind environmental efforts that can create benefits for the environment.

When the JOURNEY source domain was used as a loss frame to describe environmental efforts to cope with GHG emissions, it was frequently used in a future time frame. Addressing GHG emissions is the environmental issue that poses the largest challenge to petroleum companies' legitimacy and requires radical changes in petroleum companies' core business. Using loss-framed JOURNEY metaphors in a future time frame when describing GHG emission reductions can reduce the pressures from regulatory, public and media stakeholders on petroleum companies to cope with GHG emissions immediately. Describing addressing GHG emissions in a future time frame can also reduce organizational stakeholders' concerns about possible costs involved in these efforts.

Some topics frequently associated with the source domain of Journey can also help legitimize petroleum companies by describing how they generate mixed interests of different stakeholders. One topic that may reconcile the seemingly conflicting interests of different stakeholders is "Equipment and Products." The primary focus on this topic was on pipeline security which is essential for both corporate and environmental interests. The Journey metaphor "track" demonstrated petroleum companies' close attention to the safety of pipelines. As meeting domestic energy demands is high on the agenda of Chinese government agencies and pipelines transmit energy to domestic consumers, the focus of Chinese oil companies on pipeline safety can help them to achieve legitimacy. One topic American petroleum companies used to accommodate the interests of different stakeholders was "energy." By juxtaposing environmental responsibilities with the world's energy demand, the interests of all types of stakeholders are accommodated. Unlike Chinese oil companies' emphasis on domestic energy needs, American oil companies attended more to the world's energy demands. This difference can be attributed to the fact that the U.S. has been developing into a global energy supplier. By constructing the oil company as the fuel that powers the "progress" of the world, the indispensable role of the oil company is highlighted. "Technology and Lab" was also an apt topic in ACSRs to reconcile different interests. Previous research indicates that carbon-intensive companies regard technology-oriented approaches as ideal in dealing with climate change as these approaches do not require fundamental changes in the core business. The metaphor "accelerate" was used to suggest that the technology development would be sped up, and there is hope that a goal for mixed interests will be achieved sooner.

In summary, the Journey source domain highlighted the concept of progress and conceptualized the environmental practice of petroleum companies as making constant progress towards a redefined sustainability or environmental goal, which can accommodate environmental and corporate interests. However, the concrete achievements presented by

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petroleum companies were mostly minor ones. The most challenging goals were presented as distant with no specified timeline. The JOURNEY source domain was used in CSR reports produced by American and Chinese petroleum companies in an empowering way; hereby, petroleum companies were constructed as the driving force behind progress on the road. Some JOURNEY metaphors presented petroleum companies as moral or knowledgeable travellers on the journey of addressing climate change. With the JOURNEY metaphor "explore," Some petroleum companies even represented themselves as pioneers who are blazing new paths or knowledge educators guiding people towards a green future. The JOURNEY metaphor "guide" conceptualized petroleum companies as tour guides with moral responsibility and environmental knowledge. In this way, legitimacy is achieved.

6. BUILDING Source Domain as a Frame for Legitimization

6.1 Introduction

Previous studies indicated that, like the WAR source domain and JOURNEY source domain, the BUILDING source domain could also potentially be used for legitimization purposes (Ahrens et al., 2021; Charteris-Black, 2004, 2016; Lu & Ahrens, 2008). Research on the source domain of BUILDING suggests that this source domain carries a positive connotation as it shows aspiration towards a worthwhile goal (Charteris-Black, 2004, 2016). As such, petroleum companies can make use of the BUILDING source domain in a similar way as a JOURNEY source domain to legitimize their environmental practice by conceptualizing climate change as a desirable goal.

Since systematic analysis of how the BUILDING source domain is employed to legitimize corporations' environmental practice remains in its infancy, I explore how the gain- and loss-framed BUILDING source domain is used as a legitimization strategy in CSR reports produced by petroleum companies in this chapter. Chapter 6 also serves as the foundation for comparing the BUILDING source domain with the WAR source domain and the JOURNEY source domain as legitimization strategies in Chapter 7. These comparisons will shed light on how each domain potentially promotes or damages a company's image.

6.1.1 The source domain of BUILDING as a legitimization strategy

The source domain of BUILDING is worthy of scholarly attention because previous studies suggested that there could be both similarities and differences in using the source domain of BUILDING to discursively construct a social issue compared with using the source domains of

JOURNEY and WAR for that purpose (Atanasova & Koteyko, 2017b; Charteris-Black, 2004, 2016).

The primary similarity lies in that the source domain of BUILDING can create a sense of unity towards a socially-valued goal like the source domains of JOURNEY and WAR (Atanasova & Koteyko, 2017b; Charteris-Black, 2004, 2016). The major difference is that the source domains of BUILDING and JOURNEY do not emphasize the urgency of coping with a social issue as the source domain of WAR does. On the contrary, the source domains of BUILDING and JOURNEY tend to construct an objective as a long-term goal, requiring patience against expectations of instant achievements (Charteris-Black, 2004, 2016). Examples (1), (2) and (3) were extracted from the studies of Charteris-Black (2004, 2016) and Milne et al. (2006) as illustrations for the similarities and difficulties of using the three source domains.

(1) That is why it is not a question of choosing between the conquest of inflation and the conquest of unemployment. Indeed, as one of our speakers reminded us yesterday, we are fighting unemployment by fighting inflation. (Charteris-Black, 2016, p.170)

(2) With these, we can build a great cathedral of the spirit-each of us raising it one stone at a time. (Charteris-Black, 2004, p. 96)

(3) Nike recognizes there is a long road ahead, and with The Natural Step as their guide, NEAT [Nike Environmental Action Team] is striving to encourage and empower everyone involved with their business-employees, subcontractors, vendors and customers-to join them in their journey toward sustainability (Milne et al., 2006, p. 817).

The WAR metaphor "fight" in Example (1), the BUILDING metaphor "build" in Example (2), and the JOURNEY metaphors "road" and "journey" in Example (3) all call for unity towards

a desirable goal. Nevertheless, the WAR metaphor "fight" indicates the urgency of coping with climate change as climate change is constructed as a battle that could lead to casualties and loss of territory. The JOURNEY metaphors and BUILDING metaphors, however, contain no reference to urgency. Instead, the BUILDING and JOURNEY metaphors in the above examples construct a goal as a long-term process, which requires cumulative efforts to reach the goal. In light of this, the source domain of BUILDING seems to be more conceptually related to the source domain of JOURNEY than the source domain of WAR.

Charteris-Black (2004) explicitly stated that the BUILDING source domain and the JOURNEY source domain are conceptually related because both describe worthwhile activities that make progress towards a predetermined social goal. Both activities require a plan (a building plan or a map) and a leader (an architect or a guide). Both source domains describe "the surface that is covered" (Charteris-Black, 2004, p. 95). In the source domain of JOURNEY, the covered surface is an expanded surface along a horizontal path, and the covered surface is expanded along a vertical path in the source domain of BUILDING (Charteris-Black, 2004).

The work of Lu & Ahrens (2008) further examined the research of Charteris-Black (2004) on BUILDING metaphors. They studied the source domain of BUILDING in Taiwanese presidential speeches and identified two cultural-specific metaphors: retrospective BUILDING metaphors and RECONSTRUCTION metaphors (Lu & Ahrens, 2008). Lu & Ahrens (2008) suggested that the RECONSTRUCTION metaphor is aligned with Charteris-Black's (2004) observation that the BUILDING metaphor calls for patience and efforts from people and is framed in a forward-looking manner. In this sense, the BUILDING metaphor serves a similar function as the JOURNEY metaphor in the Taiwan Presidential corpus, as they both indicate progress towards a future goal. They find that the retrospective BUILDING metaphor presents political issues in a retrospective-looking way (Lu & Ahrens, 2008).

The work of Ahrens et al. (2021) demonstrated further the flexibility of using the source

domain of BUILDING as a discursive strategy. They examined the BUILDING source domain in political speeches of the British Governors who ruled HKSAR prior to mid-1997 and the Chief Executives who have been leading HKSAR since mid-1997. Ahrens et al. (2021) found that the BUILDING source domain was employed by the British Governors and the HKSAR Chief Executives differently in terms of their preferences for a time frame, topic, and reference. These differences indicate that the source domain of BUILDING features flexibility in promoting various world views.

As with the source domain of JOURNEY and WAR, the source domain of BUILDING can also be used in an empowering way. Charteris-Black (2016) touched upon the source domain of BUILDING in a broader source domain CREATION, and investigated how the CREATION domain is used for legitimization. He observed that the domain of CREATION transfers the positive evaluation attached to actions to create entities to the agent responsible for these actions (Charteris-Black, 2016). The conceptual metaphor GOOD GOVERNING IS CREATING is formulated based on this observation (Charteris-Black, 2016).

An additional similarity between the source domain of BUILDING and the source domain of JOURNEY is that some BUILDING metaphors are used to describe a process with no guarantee of reaching a goal. Milne et al. (2006) indicated that the JOURNEY metaphor "progress" provides little information as to when a goal will be achieved in sustainability reports because no destination for progress is specified. Charteris-Black (2004) observes that the building effort of laying a foundation does not necessarily guarantee the completion of a building. For example, a building process can be abandoned if money runs out (Charteris-Black, 2004). Therefore, it is not easy to know to which extent the social activity presented as laying a foundation can contribute to the final achievement of a goal (Charteris-Black, 2004).

Considering the similarities and differences between using the source domain of BUILDING and using the source domains of JOURNEY and WAR as discursive strategies, it would

be informative to explore the usage of the source domain BUILDING as a legitimation strategy. This investigation paves the way for comparing this source domain with the usages of the JOURNEY and WAR source domains as legitimation strategies.

6.1.2 The source domain of BUILDING in CSR reports

Previous studies on the source domain of BUILDING focus primarily on its usages in political discourse (Ahrens et al., 2021; Charteris-Black, 2004, 2016; Lu & Ahrens, 2008). Until now, few previous studies have investigated how the source domain of BUILDING is employed in business discourse. As the usage of the source domain of BUILDING in business discourse may differ from its usage in political discourse, this chapter aims to explore how this domain is used as a legitimation strategy to justify the environmental practice of petroleum companies in CSR reports.

Chapter 6 investigates how the source domain of BUILDING is used as gain and loss frames for a legitimation purpose in CSR reports. In order to achieve this objective, I examine the frequent metaphorical keywords related to this source domain, the preferences in time frames and topics associated with gain and loss frames, and the preferences in time frames and topics associated with the motivations behind gain and loss frames.

Identifying the frequently used metaphorical keywords may uncover possible rationales for using the source domain of BUILDING in CSR reports. Preferences in time frames and topics associated with gain and loss frames may also provide clues as to how the source domain of BUILDING is used as gain and loss frames. Preferences in time frames and topics associated with motivations behind gain and loss frames additionally may provide insight into how CSR reports accommodate the various interests of different stakeholders.

Prior to the investigation of BUILDING metaphors, I calculated the ratios of metaphorical

and non-metaphorical usages of keywords related to the source domain of BUILDING, as the metaphor identification procedure indicates that a good number of building keywords are used literally. I will explore why the literal building keywords are frequently used in my data.

Nominalization as a strategy is also analyzed in this chapter as the metaphor "support" is frequently used in my data, and some of its usages are in the nominal form. Previous studies suggested that nominalization is an effective persuasion or justification strategy (Billig, 2008; Fowler, 1991; Halliday & Martin, 1993). This chapter will examine how the nominal form of the metaphor "support" is used for a legitimation purpose in CSR reports.

As the data in this chapter were extracted from the CSR reports produced by Chinese and American petroleum companies, this chapter contributes to research on how both Chinese and western petroleum companies deal with climate issues (e.g., Bhatia, 2013; Breeze, 2012; Dunn, 2014; Hrasky, 2012; Ihlen, 2009b; Livesey, 2002; Skjaerseth & Skodvin, 2003; Sun et al., 2018).

This chapter addresses similar research questions to those presented in Chapter 4 and Chapter 5. The major difference is that their focus is on the BUILDING source domain used as gain and loss frames.

● **RQ1: What keywords are used in the source domains of BUILDING in Chinese and American CSR reports and their frequencies of occurrences?**

● **Overarching RQ2: Are there different preferences in gain and loss frames in Chinese and American CSR reports?**

RQ2a: **Do these gain/loss frames more often frame a goal in the past, present or future?**

RQ2b: **Which topics are the goals of gain and loss frames more often associated with?**

● **Overarching RQ3: Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?**

RQ3a: **Do these corporate and environmental interests more often frame interests in the past, present or future?**

RQ3b: **Which topics are the goals of these corporate and environmental interests more often associated with?**

This chapter will address the above research questions by analyzing how the BUILDING source domain is used as gain and loss frames to achieve legitimacy. The corpora to be used for the analysis are the same as those in the previous two chapters. The Chinese corpus (CCSRs) has a word count of 121,751, and the American corpus (ACSRs) is more than double the Chinese corpus, with a word count of 266,826.

6.2 Source domain analysis

Chapter 6 investigates how the BUILDING source domain is used as gain and loss frames to legitimize the environmental practice of petroleum companies. The metaphor analysis procedure in this chapter is the same as the procedure in Chapter 4 and Chapter 5, which is comprised of six steps: 1) determining potential keywords; 2) verifying source domain; 3) tagging *Part of Speech* (POS); 4) identifying metaphor; 5) identifying gain and loss frames; and 6) identifying the corporate and environmental interests behind gain and loss frames.

As discussed in the previous two chapters, the first step is to determine potential source domain keywords using Sardinha's (2012) sampling technique. At this step, I collected 49 potential keywords for the source domain of BUILDING. The potential keywords for the source domain of BUILDING are demonstrated in Appendix 3.

Next, I used the method proposed by Ahrens & Jiang (2020) to verify the source domains of the collected potential keywords. Four different language resources were utilized to verify hypothesized source domains: 1) *SUMO*, 2) *WordNet*, 3) *Macmillan English Dictionary for Advanced Learners* (Rundell, 2002), and 4) the *Word Sketch Function* in *Sketch Engine*.

To start, I checked the *SUMO* nodes first to determine if the keyword "repair" belongs to

the source domain of BUILDING. Ahrens & Jiang (2020) compiled a list of SUMO nodes that are considered to be directly associated with the source domains of BUILDING in their study: "Stationary Artifact," "Building," "Architecture," and "Constructing." However, the *SUMO* nodes for the keyword "repair" are "Transportation," "Pretending," "Financial Transaction," "Biological Process," and "Repairing," are not included in the predetermined *SUMO* nodes compiled in the Ahrens & Jiang's (2020) study. Therefore, I then examined the most concrete sense of the keyword "repair" in *WordNet* and *Macmillan dictionary.*

The most basic sense of the keyword "repair" in *WordNet* is "restore by replacing a part or putting together what is torn or broken." The most concrete sense in the *Macmillan dictionary* is "to fix something that is broken or damaged." Neither of these senses provides explicit information with which to verify if the source domain has to do with building. I thus moved on to the final step and searched for the collocates of the keyword "repair" in the *Sketch Engine* to determine if the building-related keyword collocates with the verb "repair" with a high frequency.

The searching result of the collocates of the verb "repair" in *Sketch Engine* showed that the saliency value (7.49) of the collocate related to the concept of building ("roof") is above the mean of means: 6.830866. Therefore, the keyword "repair" was determined as belonging to the source domain of BUILDING.

To determine if the keywords verified as belonging to the source domain of BUILDING are used metaphorically, I used *MIPVU* (Steen et al., 2010) to conduct the metaphor identification procedure. Before conducting the metaphor identification, I parsed my data with *Part of Speech* (POS) tags with the *POS* tagging (Kristina et al., 2003) from Stanford CoreNLP (Manning et al., 2014). For instance, in Example (4), the keyword "repaired" is tagged with the *POS* tag "VBN" on the *Stanford CoreNLP* website (https://corenlp.run/).

(4) More than 10 solid waste yard and ecological treatment projects have been implemented including Sinochem Yunlong's transport of Phosphogypsum and Sinochem Ruling's closed storehouse treatment of Phosphogypsum Yard, with more than RMB 50 million invested by SBU of Agriculture, which has effectively prevented the pollution of temporary storage and <u>repaired</u> the ecological environment. (Sinochem CSR rep., 2018)

After determining the word classes of the source domain keywords in my thesis, I used *MIPVU* to investigate if a keyword or lexical unit (Steen et al., 2010) is used metaphorically or not. As indicated in Chapter 4 and Chapter 5, *MIVPU* concludes that a lexical unit is used metaphorically if its use is characterized by cross-domain mapping from its basic meaning to its contextual meaning in the text (Steen et al., 2010).

For instance, in Example (5), the basic meaning of the lexical unit "foundation" in the *Macmillan dictionary* is "the part of a structure of a building that is below the ground and supports the rest of it." Its contextual meaning in the sentence based on *Macmillan dictionary* is "the most basic part of something from which the rest of it develops." This lexical unit in the sentence is determined as metaphorically used because its use can be explained by a cross-domain mapping from its basic meaning to its contextual meaning.

(5) These efforts laid a solid <u>foundation</u> for the Company's low carbon development strategy. (CNOOC CSR rep. 2017)

When all the metaphorically used lexical units were identified, I then started the identification of gain and loss frames. Following the process I used in Chapter 4 and Chapter 5, I identified gain and loss frames based on whether the goal of a sentence is perceived as

gaining benefits or avoiding loss. For instance, in Example (6), the goal of the sentence is to build up its gain-framed because the goal of the sentence is to create a green enterprise and achieve green development, which is to gain benefits.

(6) Strenuous efforts have been put to develop circular economy, <u>build up</u> an environmental- friendly enterprise and achieve green growth. (Sinopec CSR rep., 2010)

After identifying gain and loss frames, I then determined if the identified gain and loss frames were motivated by corporate interests and/or environmental interests. The decision is based on if a frame aims to create corporate benefits or environmental benefits. For instance, in Example , (7), the gain-framed metaphor "build up" is motivated by environmental interests because the goal of the sentence is to generate benefits for the environment.

(7) Strenuous efforts have been put to develop circular economy, <u>build up</u> an environmental- friendly enterprise and achieve green growth. (Sinopec CSR rep., 2010, p. 36)

When all of the above metaphor analysis procedures had been finished, I then started to examine my data to see how the BUILDING source domain is used as gain and loss frames to legitimize the environmental practice of American and Chinese petroleum companies.

6.3 BUILDING source domain in ACSRs and CCSRs

Minor changes were made in the methods I adopted to address the first research question due to special conditions with respect to the BUILDING metaphor. When I addressed the first

research question in this chapter, I calculated the ratios between metaphorical and non-metaphorical keywords related to the source domain of BUILDING in both the ACSRs and the CCSRs. These ratios were calculated this way because I observed a higher proportion of literal keywords related to the source domain of BUILDING in both ACSRs and CCSRs compared with the literal keywords related to the source domains of WAR and JOURNEY. I will then explore why the literal and metaphorical usages of building keywords occurred with similar frequencies.

6.3.1 Frequencies of the source domain of BUILDING in ACSRs and CCSRs

After the metaphor identification, the metaphors belonging to the source domain of BUILDING were extracted from my data. The first research question to be answered in this chapter is: "What keywords are used in the source domains of BUILDING in Chinese and American CSR reports and their frequencies of occurrences?" I adopted the same approach used in Chapter 4 and Chapter 5 to demonstrate the frequencies of BUILDING metaphors: calculating the normalized ratios (NR) per 10,000 words of the frequencies of BUILDING metaphors used in ACSRs and CCSRs. Comparing frequencies can let us know whether CCSRs and ACSRs have a preference for the source domain of BUILDING. The normalized ratios are displayed Figure 6.1.

Figure 6. 1 Building Metaphors in ACSRs and CCSRs
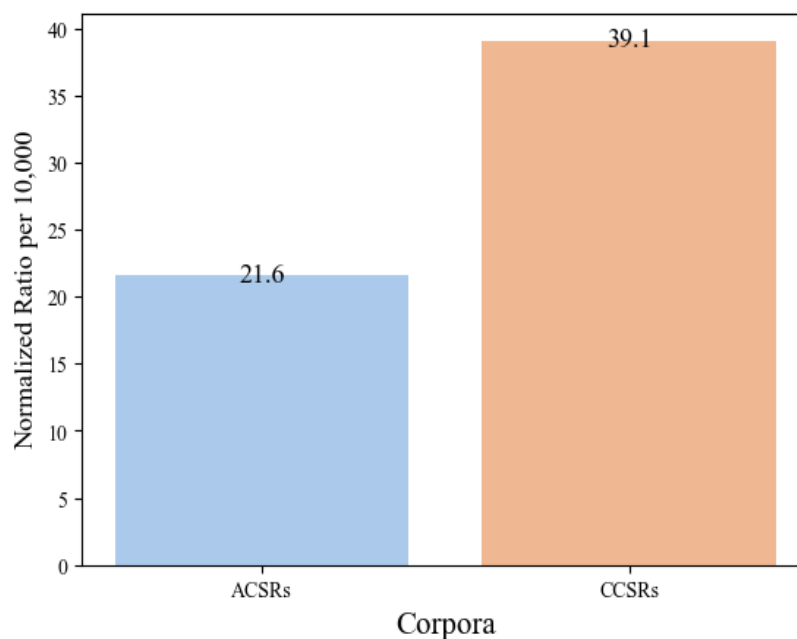
Figure 6.1 shows that Building metaphors occur much more frequently in CCSR than in ACSR. A log-likelihood (LL) test was run to determine if the differences in frequencies of Building metaphors are significant, with the significance level set at 0.05. The log-likelihood calculation indicates that the Building source domain is significantly overused in CCSRs compared to those in ACSR (LL= +88.53), which indicates a significant difference in frequencies of Building metaphors between the two corpora.

I next explore the reasons for these differences by starting from the ratios of metaphorical and non-metaphorical usages of building keywords.

6.3.2 Ratios of metaphorical and non-metaphorical usages of building keywords

In both ACSRs and CCSRs, a good number of keywords related to the source domain of Building are used literally to denote actual building processes and structures. The ratios of metaphorical versus literal usages of keywords related to the source domain of Building in

CCSRs and ACSRs are demonstrated in Table 6.1.

Table 6. 1 Ratios of Metaphorical versus Literal Usages of Keywords related to the Source

Domain of Building

ACSRs			CCSRs		
Metaphor Tokens	Non-metaphor Tokens	Ratio	Metaphor Tokens	Non-metaphor Tokens	Ratio
577	384	1.5	476	429	1.1

From the ratios in Table 6.1, we can see that the percentages of metaphor tokens and non-metaphor tokens related to the source domain of BUILDING are almost equal, which means that about half of the keywords are used to describe figurative building activities, and about half of them describe literal building activities. The similar frequencies of literal and metaphorical usage of building keywords suggest that in CCSRs and ACSRs, actual and figurative building efforts is equally emphasized. As we have also found that CCSRs use the source domain of BUILDING more frequently than ACSRs, the concept of building is predominant in CCSRs.

Examining the concordances of building keywords that conceptualize building processes in CCSRs shows that most of them are used positively. Although a few literally used building keywords that present building activities suggest negative impacts of petroleum companies, these impacts are vaguely described. Examples (8),(9), and (10) can give us some ideas in this regard.

Literal usages of building keywords

(8) Production activities like petroleum and gas E&P and pipeline <u>construction</u> may cause damage to ecological environment. Sinopec pays high attention to eco-environment restoration in areas around abandoned wells and along the pipeline, and

tries to lower impact upon the environment to the least possible degree. (Sinopec CSR rep., 2010)

(9) Recently, the Company released a total of about 500 million marine creatures and <u>built</u> several hundred artificial reefs in Bohai. As a result, the marine ecological environment around the petroleumfields has continued to improve and has even attracted leopard seals, an endangered species that had left the area because the sea failed to meet their highly required standards for water quality and noise levels, to visit the Bohai Bay frequently. (CNOOC CSR rep., 2016)

Metaphorical usages of building keywords

(10) Through the implementation of systematic, professional and lean HSE management, we are committed to<u> constructing</u> essentially safe, environmentally friendly, and resource-conserving enterprise, so as to achieve harmonious development with the natural environment. (Sinochem CSR rep., 2018)

In Example (8), the keyword "construction" is used literally to present the construction of pipelines. After indicating that this construction might bring "damage" to the environment, this petroleum company demonstrates its moral responsibility by showing its consciousness of this "damage" and intention to cope with it. As no specific information is provided as regards the "damage," it is not easy to know how serious it is and if the petroleum company has taken all the necessary measures to tackle it. The severity of the impact is also underplayed by the hedge word "may" because this modal verb indicates low usuality. Halliday (1994) postulates the degrees of usuality and indicates that the modal expression "may" shows low usuality.

In Example (9), the keyword "build" is used literally to present the construction of

artificial reefs. As the result of this building is positive-the marine ecological environment is improved-the building activity is positively evaluated.

In Example (10), the BUILDING metaphor "construct" is to establish an environmentally-friendly enterprise. As the goals are ethical, the building efforts are ethical as well.

The frequent usage of the source domain of BUILDING and the similar frequencies of literal and metaphorical usages of building keywords in CCSRs indicate that both figurative and literal building is highlighted in the CCSRs. This indicates that CCSRs pay great attention to both actual and figurative building activities. Most of the goals of building keywords' literal and metaphorical usages project positive evaluations, indicating figurative and actual building activities in China's national context are both legitimate. This could be attributable to the prominence of infrastructure projects in China. The report of Asian Infrastructure Finance 2020 (Asian Infrastructure Investment Bank, 2020) shows that China was the country with the highest investment in infrastructure as a percentage of GDP in 2017. Although a few literal usages of keywords that present actual building activities indicate the negative impacts of construction activities, these impacts are described with no specific information, and their severity is downplayed. Petroleum companies present themselves as legitimate by describing petroleum companies' consciousness of these negative impacts and intentions to tackle them.

6.3.3 Keywords related to the source domain of BUILDING

The investigation of the metaphorical expressions of the BUILDING source domain can provide a deeper insight into the characteristics of BUILDING metaphors used in CCSRs and ACSRs. I demonstrate all of the metaphorical expressions in the source domain of BUILDING in Table 6.2. These expressions are presented in three categories: "Functions," "Qualities," and "Entities." The most frequent metaphorical expression in the source domain of BUILDING in each corpus

is highlighted yellow:

Table 6. 2 Metaphorical Expressions in the Source Domain of Building

ACSRs			CCSRs		
Metaphorical Keywords	Tokens	NR	Metaphorical Keywords	Tokens	NR
Functions			*Functions*		
build *v.*	60		build *v.*	133	
set up *phrasal verb*	4		set up *phrasal verb*	37	
support *v.*	249		support *v.*	38	
construct *v.*	6		construct *v.*	10	
underpin *v*	3		repair *v.*	1	
build up *phrasal verb*	2		build up *phrasal verb*	9	
Qualities			*Qualities*		
stable *a.*	11		stable *a.*	31	
structural *a.*	2		structural *a.*	10	
			supporting *a.*	11	
Entities			*Entities*		
support *n.*	70		support *n.*	28	
construction *n.*	3		construction *n.*	36	
base *n.*	5		base *n.*	1	
cornerstone *n.*	2		cornerstone *n.*	2	
structure *n.*	26		structure *n.*	43	
window *n.*	3		reconstruction *n.*	1	
home *n.*	4		home *n.*	13	
foundation *n.*	17		foundation *n.*	18	
door *n.*	1		door *n.*	1	
platform *n.*	3		platform *n.*	37	
framework *n.*	82		framework *n.*	14	
pillar *n.*	11		pillar *n.*	1	
building *n.*	2		building *n.*	1	
threshold *n.*	8				
barrier *n.*	3				
Total	**577**	**21.6**	**Total**	**476**	**39.1**

Table 6.2 shows that the BUILDING metaphor with the highest frequency is from the category of "Functions" in both corpora, which indicates that CCSRs and ACSRs tend to make use of the source domain of BUILDING to emphasize the function of a building process. The

BUILDING metaphor with the highest frequency in CCSRs is "build," and the BUILDING metaphor with the highest frequency in ACSRs is "support." The majority of these metaphors are used in the active voice to describe how petroleum companies participate in building processes (number of "build" in the active voice= 124, number of "support" in the active voice=223), which shows that these two metaphorical expressions are used primarily to empower the petroleum company.

The metaphor "build" can be used to present the agent of the building process as an architect who takes charge of the whole process. In many cases, the petroleum company is the architect of the building process. Some of the usages of this metaphor (n=87) describe a self-building process that results in an environmentally-friendly enterprise, which suggests that the petroleum company shouldered a big responsibility of building a green society or even country in some cases (n=10).

When discussing building a green enterprise or society, the statement is often future-oriented, which accounts for most of the usages of the metaphor "build" (n=87). The metaphor "build" is used in the past tense only when describing a specific corporate operation, which accounts for only a small portion of its usages (n=16). Examples (11), (12) and (13) demonstrate how the metaphor "build" is used in CCSRs:

(11) We integrate energy conservation, emissions reduction and carbon reduction management systems to tackle climate change and promote clean production and environmental protection initiatives to <u>build</u> an efficient and green enterprise. (Sinopec CSR rep., 2016)

(12) We eliminate hidden perils from the root, enhance the safety education on all staff, strengthen energy conservation and emission reduction, disseminate the green

philosophy, and promote the safe and green development, so as to make contribution to building a beautiful China. (Sinochem CSR rep., 2014)

(13) We participated in carbon emission trading, built a trading team, upgraded carbon assets management, and optimized carbon trading strategies, facilitating environment protection and resource conservation. (Sinopec CSR rep., 2016)

In Example (11), *Sinopec* describes a self-building process that constructs itself into "an efficient and green enterprise." As an efficient and green enterprise is a valued outcome, the building processes are worthwhile as well. The goal of building a green enterprise is future-oriented because it may come at a high cost. By juxtaposing "efficient" and "green" as parallel qualities the oil company aims to acquire, *Sinopec* shows its equal attention to corporate interests and environmental interests.

The BUILDING metaphor in Example (12) may be motivated by the conceptual metaphor SOCIETY IS A BUILDING formulated in the work of Charteris-Black (2004). Through this conceptual metaphor, *Sinochem* is presented as an active participant in China's collective efforts to construct "a beautiful China," a concept proposed in the 18th Chinese People's Congress with the aim to incorporate the construction of ecological civilization into economic, political, cultural and social constructions. As an SOE, aligning its corporate goal with a national goal helps it achieve legitimacy. As "building a beautiful China" is an ambitious goal that might require high costs, it is constructed as a future goal, with the completion date of the construction unspecified. The burdens on *Sinochem* to achieve this goal can thus be lessened.

In Example (13), however, the metaphor "build" is used in the past tense. In this sentence, the metaphor refers to a specific corporate business operation: building a team of

carbon emission trading. This operation is a market-oriented approach to coping with climate change, which does not require a radical transformation of the current business model of the petroleum company and thus is favourable to organizational stakeholders. In Example (13), building a trading team is part of *Sinopec's* efforts to develop the carbon market. As Chinese governments show proactive support for carbon market mechanisms, the legitimacy of *Sinopec* can be realized.

The usage of different time frames of the metaphor "build" when describing different environmental goals indicate that Chinese petroleum companies tend to present the construction of an environmental enterprise or society as a staged process. The completion of the whole construction is framed as a distant goal. As completion in a specific building stage has been realized, completing the entire construction is presented as achievable.

Charteris-Black (2016) formulated in his work the conceptual metaphor GOOD GOVERNING IS CREATING. In my data, this conceptual metaphor can be adapted into GOOD COMPANY IS CREATING, and the metaphor "build" can be subsumed into this conceptual metaphor. As long as a company is involved in a creating or constructing process, it is legitimate.

The BUILDING metaphor that occurs with the highest frequency in ACSRs is the verb "support." The basic meaning of this metaphor indicates that the metaphor does not focus on the creating or constructing process. Instead, the metaphor "support" describes a static state that emphasizes the function of holding the upper structure of a building. This metaphor presents the petroleum company as the lower structure of a building, which is essential for the stability of the upper part of a building. In some cases in ACSRs, the upper part is environmental rules and policies. Examples (14) and (15) demonstrated the usages of the verb form of the metaphor "support" in ACSRs:

(14) We <u>support</u> the Paris Agreement as a step forward and encourage practical actions that deliver tangible results in answering the world's demands, including more energy and a cleaner environment. (Chevron CSR rep., 2019)

(15) In that context, Statpetroleum works with governments, businesses and other stakeholders to <u>support</u> viable worldwide policies and regulatory frameworks encouraging carbon-efficient solutions and the development of low-carbon technology. (ConocoPhillips CSR rep., 2011)

In the above examples, petroleum companies used the metaphor "support" to show their compliance with environmental policies and principles. In Example (14), Chevron indicates its support for the Paris Agreement. This message is useful for addressing concerns from regulatory, media and community stakeholders as petroleum companies have been under pressure to align their business with the Paris target. Nevertheless, this supportive attitude is presented in parallel with the need to answer "the world's demands," with "more energy" being one of the demands. The juxtaposition of a climate goal with an energy goal downplays the urgency of dealing with climate change and thus accommodates concerns from organizational stakeholders. In addition, the support could just be modest or symbolic as no information is provided regarding concrete supportive actions.

In Example (15), the environmental policies and rules supported by the petroleum company are to realize carbon efficiency and adopt low-carbon technology, which aligns with the interests of regulatory, media, and community stakeholders. Nevertheless, the International Energy Agency warned that the achievement of net zero emissions by 2050 and the 1.5°C Paris target requires a big reduction in the use of fossil fuels (IEA, 2021). The environmental goal presented in Example (15) is yet to be fully aligned with the requirement of the Paris target. In

addition, the petroleum company indicates that the supporting power also comes from governments, businesses, and other stakeholders, which transfers part of the responsibility of coping with climate change to other stakeholders and social groups. In this way, concerns from organizational stakeholders about potential costs are accommodated.

Previous studies suggest that one fundamental way to establish legitimacy is to demonstrate the congruence between the actions of an institution and social values (Richardson & Dowling, 1986; Suchman, 1995). Some usages of the metaphor "support" in ACSRs aim to achieve legitimacy by manifesting the petroleum company's alignment with socially valued environmental rules and policies. Since the lower part of a building is essential for the stability and durability of a building, the petroleum companies are presented as pivotal for the implementation of environmental regulations and policies. Although ACSRs and CCSRs prefer different keywords in the category of "Functions," they favour the same metaphorical keyword within the category of "Qualities" of the source domain of BUILDING: "stable." This same preference shows that stability is the most favourable quality of a building in both ACSRs and CCSRs.

In CCSRs, the metaphor "stable" is often used to emphasize the stability of business operations, which is desirable for organizational stakeholders. When the metaphor "stable" describes corporate benefits, Chinese petroleum companies are accommodating the interests of regulatory, community, and media stakeholders' by indicating that the stability of business operations can benefit the environment. Examples (16) and (17) demonstrated how Chinese petroleum companies reconcile the interests of different stakeholders when using the metaphor "stable."

(16) The Company strengthened supervision of offshore petroleum production safety. We carried out special inspections on project commencement in spring, typhoon

prevention, offshore operations in winter, and wharf workplace safety. We implemented follow-up measures for major potential hazards. Additionally, emergency response drills were carried out for fire and explosions at offshore petroleum and gas production facilities, petroleum spill and pollution, and man overboard. In 2016, we realized <u>stable</u> and orderly operation at our offshore petroleum production facilities. (Petro China CSR rep., 2016)

(17) A good ecological environment is an important guarantee that the Company makes in its efforts to acquire <u>stable</u> petroleum and gas resources and to achieve sustainable development. (CNOOC CSR rep., 2016)

In these two examples, the quality of stability is attached to either business operations or energy resources, which shows Chinese oil companies' close attention to energy. In Example (16), the broad context of the metaphor "stable" indicated that "stable" and "orderly" business operations are the desired outcomes of the effective management of safety hazards. The stability of energy production can guarantee organizational stakeholders stable financial gains and can thus gain the support of this type of stakeholder. A stable operation also accommodates the interests of community, regulatory, and media stakeholders because it implies safety hazards are under control. In Example (17), stable energy resources ensure financial profits, favourable for organizational stakeholders. The reconciliation of corporate and environmental interests is achieved by claiming that creating a good ecological environment is "an important guarantee" for the petroleum company to "acquire stable petroleum and gas resources." In this sense, creating environmental benefits is the precondition for achieving corporate benefits, which settles the potential conflicts between environmental and corporate benefits.

The metaphor "stable" is used in ACSRs in a more diversified way: it is used to describe

a stable state of environmental policies, energy demands, quality of petroleum production, and environmental conditions. American oil companies' closer attention to environmental policies and impacts is attributable to the high social pressures in the U.S. Examples (18) and (19) demonstrate how the metaphor "stable" is used in ACSRs:

(18) When impacts and disturbance cannot be completely avoided or minimized, we employ measures to restore the area to a <u>stable</u>, productive and self-sustaining ecosystem, taking into account beneficial uses of the impacted land and surrounding areas. (ConocoPhillips CSR rep., 2017)

(19) ExxonMobil supports adopting strategies for reducing emissions that are <u>stable</u>, predictable, long-term, simple, and transparent—and that encourage the greatest reduction in emissions at the least possible cost to society. (ExxonMobil CSR rep., 2011)

In Example (18), the "impacts and disturbance" to the ecosystem are described as inevitable, which justifies the business operations of the petroleum industry. The proposition regarding the inevitability of environmental impacts is placed in an adverbial clause, making the proposition less challenging. The inevitability rhetoric allows *ConocoPhillips* to present its environmental practice to restore the ecosystem in the affected area as ethical, addressing criticisms from regulatory, media, and community stakeholders. The metaphor "stable" is used to describe one of the conditions of the restored ecosystem. This condition is vague as the adjective "stable" describes a state with few changes, which does not necessarily mean the ecosystem is healthy.

In Example (19), the metaphor "stable" is used to modify emission reduction strategies. A "stable" strategy is a strategy with few sudden changes, which indicates an intention to

maintain the status quo. The concerns of organizational stakeholders can be accommodated.

The saliency of the metaphor "stable" in the category of "Qualities" in both ACSRs and CCSRs suggests that American and Chinese petroleum companies regard stability as a desirable quality. This metaphor is used in ACSRs and CCSRs to conceptualize the characteristics of business operations, environmental conditions, and environmental strategies. A stable business operation is essential for maintaining the continuous and orderly existence of petroleum companies. However, a stable ecological condition and environmental strategy may not necessarily be ideal for reaching an environmental goal, especially when radical changes are needed to address climate change.

The investigation of BUILDING metaphors used in CCSRs and ACSRs indicates that CCSRs emphasize petroleum companies' active participation in the building process by using the metaphor "build," and ACSRs highlight petroleum companies' supportive attitudes or assistance to environmental efforts or policies by using the metaphor "support." Both metaphors are used much more often in the active voice, suggesting that both corpora try to emphasize the agency of petroleum companies in addressing climate change. Nevertheless, the metaphor "build" is used more often in a future time frame, which constructs addressing climate change as a distant objective. When using the metaphor "support," the juxtaposition of environmental goals with economic goals can downplay petroleum companies' devotion to supporting environmental rules and policies. The absence of concrete actions to substantiate the supportive attitude can also turn support into a symbolic gesture. In some cases, the supporting efforts are transferred partially to other stakeholders.

Stability is a highly-valued building quality. "Stable" operations and strategies are desirable for petroleum companies as they try to maintain their core business. However, stability may not be ideal for environmental conditions as a stable ecosystem does not guarantee a healthy environmental system.

6.4 Gain and loss frames

After analyzing the building keywords used in CCSRs and ACSRs, I explored how these keywords are used as gain and loss frames. This section analyzes the frequencies, the time frames, and the topics of gain and loss frames using the method I applied in the previous chapters. Yet, I used a new approach when analyzing the metaphor "support" used as a gain frame. I classified all the premodifiers of the nominal form of the metaphor "support" because this metaphor is used more frequently as a gain frame in both corpora, and a variety of premodifiers were attached to this noun. The categories formulated based on the premodifiers of this nominal form of metaphor can indicate what qualities were attributed to this concept.

6.4.1 Frequencies of gain and loss frames

In order to answer the second research question, an exploration of whether there are different preferences in gain and loss frames in Chinese and American CSR reports is required. Findings obtained by answering this research question could indicate whether some metaphors are used more often in a particular type of frame. To this end, I identified all the gain and loss frames in both ACSRs and CCSRs, which yielded 315 gain frames and 195 loss frames in the ACSRs, and 356 gain frames and 208 loss frames in CCSRs. The frequencies of these two frames are shown in Figure 6.2:

Figure 6. 2 Gain and Loss Frames in ACSRs and CCSRs
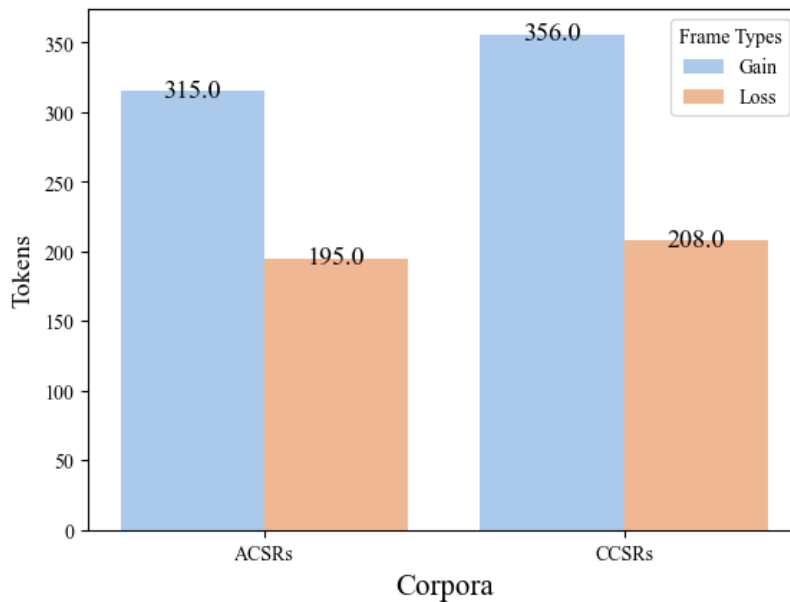
Figure 6.2 shows that both ACSRs and CCSRs have a preference for gain frames. To confirm this observation statistically, I used the goodness of fit test to calculate the differences between gain and loss frames in two corpora separately.

The result indicates that the CCSRs prefer to use gain frames than loss frames (X-squared = 38.975, df = 1, p-value = 4.292e-10). The calculation of goodness of fit for usages of gain and loss frames in ACSR also shows that the gain frames are used more frequently (X-squared = 28.235, df = 1, p-value = 1.074e-07). The statistical calculations of the differences between gain and loss frames in the two corpora confirmed that both ACSRs and CCSRs have a significant preference for gain frames. Nevertheless, the calculation of the effect size "Phi effect (Φ)" shows that the effect sizes are at the medium level for both statistical differences (0.263345 for CCSRs and 0.23529 for ACSRs).

The preference for gain frames in both corpora may be attributable to the evaluative meaning of the BUILDING source domain. Charteris-Black (2004, 2016) asserted that the

BUILDING source domain is positively connotated and often used to construct a socially-valued purpose or process. Therefore, ACSRs and CCSRs could use the BUILDING source domain as gain frames to conceptualize benefits generated via the achievement of a socially-valued goal. To have a deeper insight into how BUILDING metaphors are used as gain frames, I then examined all of the gain- and loss-framed building metaphors. BUILDING metaphors used as gain and loss frames are displayed in Table 6.3.

Table 6. 3 Metaphors Used as Gain and Loss Frames in ACSRs and CCSRs

ACSRs			CCSRs		
Metaphorical Keywords	**Gain**	**Loss**	**Metaphorical Keywords**	**Gain**	**Loss**
Function			**Function**		
support *v.*	166	79	build *v.*	112	59
build *v.*	31	13	build up *phrasal verb*	9	3
construct *v.*	3	3	set up *phrasal verb*	24	13
set up *phrasal verb*	1	4	support *v.*	21	16
underpin *v.*	1	1	construct *v.*	8	4
build up *phrasal verb*		2	repair *v.*	1	1
Qualities			**Qualities**		
stable *a.*	3	4	stable *a.*	27	6
structural *a.*	1	1	structural *a.*	9	4
			supporting *a.*	7	7
Entities			**Entities**		
support *n.*	42	17	support *n.*	21	12
framework *n.*	31	44	framework *n.*	9	5
base *n.*	3	1	base *n.*	1	
foundation *n.*	9	4	foundation *n.*	13	7
window *n.*	1	1	structure *n.*	40	14
structure *n.*	13	9	construction *n.*	23	22
construction *n.*	2		home *n.*	6	4
home *n.*	1		pillar *n.*	1	
pillar *n.*	2	7	platform *n.*	20	29
platform *n.*	2		cornerstone *n.*	2	1
barrier *n.*	1	1	reconstruction *n.*	1	1
cornerstone *n.*	1	1	door *n.*	1	
threshold *n.*		3			
building *n.*	1				
Total	**315**	**195**	**Total**	**356**	**208**
Total	**510**		**Total**	**564**	

From Table 6.3, we can see that although the metaphorical verb "support" is not consistently used more often in one type of frame in ACSRs and CCSRs, the nominal form of "support" is used in both corpora more often in gain frames (42 vs 17 in ACSRs, 21 vs 12 in CCSRs).

Previous studies have suggested that nominalization is an effective persuasion or justification strategy (Billig, 2008; Fowler, 1991; Halliday & Martin, 1993). One important function of nominalization is to present the entities denoted by nominalization as real and necessary (Billig, 2008). Fowler (1991) states that processes and qualities are granted the status of things via nominalization. The justification of the existence of these entities is less challengeable because "you can argue with a clause, but you can't argue with a nominal group" (Halliday & Martin, 1993, p. 39). In ACSRs and CCSRs, the nominalized form of the metaphor "support" can present the support provided by petroleum companies (n=55) and the support petroleum companies received (n=12) as real and necessary.

Examination of the concordances indicates that a diversity of qualities are attributed to this metaphor via a variety of premodifiers before this metaphor. I collected all the premodifiers of the metaphorical noun "support" and put them into different categories based on their semantic meanings. All the premodifiers and their categories are displayed in Table 6.4.

Table 6. 4 Premodifiers of the Metaphorical Noun "support" in ACSRs and CCSRs

ACSRs			CCSRs		
Category	Premodifiers	Tokens	Category	Premodifiers	Tokens
Technology	technical (2), research (1) technical water treatment (4), analytical (2)	9	**Technology**	technological (1), technical (2), technology (3), IT (1), software (1)	8
Corporate business	corporate (1), fuel cell characterization and modelling (1), decision (2), flow assurance (1), quality assurance (1)	6	**Corporate business**	emergency (3)	3
Quality	continuing (1), collective (2), multifunctional (1), in-kind (3), financial (1)	8	**Quality**	important (1), strong (2), logical (1)	4
Source	public (1), stakeholder (1), our (1), OSRO (2), Valero's (1), ExxonMobil's (1), research staff (1)	8	/	/	/
Total		**31**	**Total**		**15**

From the above table, we can see that most premodifiers of the nominal "support" in CCSRs are subsumed into the category: "Technology." These premodifiers emphasize the importance of technology, suggesting that technology is essential for reaching an environmental goal, as can be seen in Example (20).

(20) In 2018, we completed the development and industrial transformation of the independently IPR alkylate petroleum production technology, providing technical support for the production of gasoline and diesel that meet the National VI emission standards. (Sinopec CSR rep., 2018)

In Example (20), the adjective "technical" is used as a premodifier of the metaphor "support," emphasizing the importance of technology for realizing an environmental goal. The technology mentioned in this example is "petroleum production technology," which is

favourable for organizational stakeholders as petroleum is the core product of oil companies. Since this technology enables the production of gasoline and diesel to "meet the National VI emission standards," this technical support also accommodates environmental interests.

In ACSRs, however, the premodifiers of the noun "support" are almost equally distributed into four categories: "Technology," "Corporate business," "Quality," and "Source," indicating the diversity in premodifiers used in ACSRs to describe different characteristics of the concept of support. One category is exclusive to ACSRs: "Source." The premodifiers in this category are used to attribute support to a particular source, as can be seen in Example (21).

(21) We recognize that the scale and growth of unconventional resource development continues to prompt significant questions among stakeholders … We will continue to take a leadership role in working collaboratively with communities, regulators, and industry associations to manage operational risk and address questions and concerns. ExxonMobil recognizes the importance of responsible operations in maintaining stakeholder <u>support</u> for this significant resource. (ExxonMobil CSR rep., 2011).

In Example (21), the legitimacy of *ExxonMobil* faces threats as the development of unconventional resources "raises significant questions" among stakeholders. *ExxonMobil* demonstrates its responsiveness to the interests of stakeholders by acknowledging the significance of their support. The legitimacy obtained by a corporation's responsiveness to constituents' interests is a typical type of pragmatic legitimacy for institutions (Suchman, 1995). The expression "maintaining" indicates that stakeholders have already given support for the unconventional resource, and *ExxonMobil* just needs to maintain this support. Given this, the challenge of handling the legitimacy gap is downplayed. Being publicly owned, American oil companies tend to pay closer attention to maintaining support from different stakeholders.

The analysis of the nominalized form of the metaphor "support" shows that this metaphor is presented as a real and necessary entity via nominalization. A variety of premodifiers are used to attribute different qualities to this concept. One important quality attached to the concept of support in both CCSRs and ACSRs is that it is technical support, which emphasizes the significance of technology in developing energy while addressing climate change. Premodifiers of the noun "support" can also indicate its source. Some petroleum companies use premodifiers, such as "public" and "stakeholder," to indicate awareness of the importance of support from society. Legitimacy can be achieved by showing responsiveness to stakeholders' needs.

6.4.2 Gain and loss frames in different time frames

As previous studies of the source domain of BUILDING indicate that this source domain can be used in different time frames in political discourse (Ahrens et al., 2021; Lu & Ahrens, 2008), it would be informative to explore the time frames of the BUILDING source domain in CSR reports. I conducted this exploration by addressing the sub-question regarding whether these gain/loss frames more often frame a goal in the past, present, or future. In order to answer this question, each gain and loss frame in my data was annotated with "Pt," "Pr," or "F." based on the system I used in Chapter 4 and Chapter 5. Figure 6.3 indicates the frequencies of gain and loss frames in three different time frames.

Figure 6. 3 Gain and Loss Frames in Past and Future Time Frames
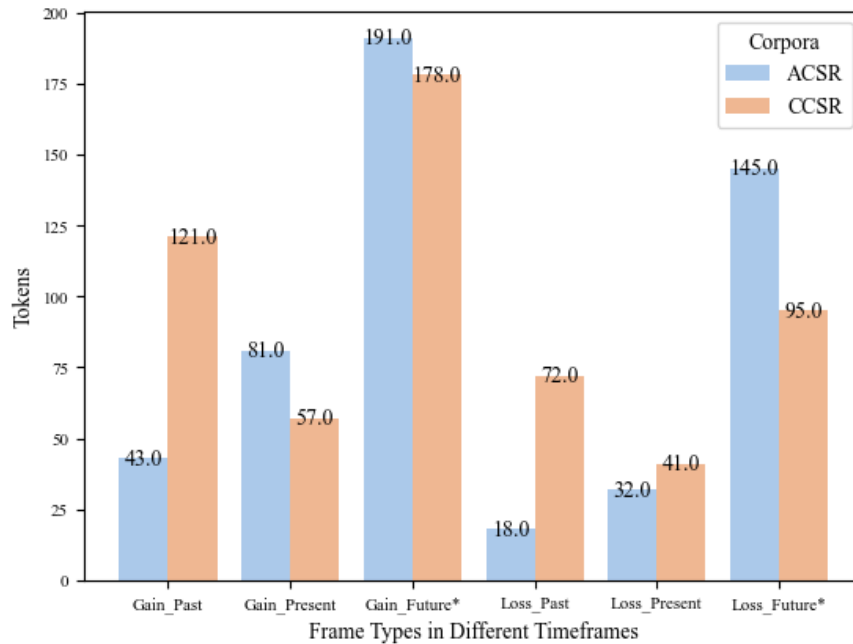
From Figure 6.3, we can see that both gain and loss frames are presented more often in the future time frame. I used the goodness of fit tests to see if the future time frame is used for gain frames and loss frames in ACSRs and CCSRs. In ACSRs, gain frames (X-squared = 112.53, df = 2, p-value < 2.2e-16) and loss frames (X-squared = 149.2, df = 2, p-value < 2.2e-16) are also used with a significant difference in different time frames. The results show that the usages of gain frames (X-squared = 61.758, df = 2, p-value = 3.884e-14) and loss frames (X-squared = 21.183, df = 2, p-value = 2.513e-05) are significantly different in different time frames in CCSRs. In ACSRs, differences in time frames of gain frames are motivated most significantly by the overuses of the future time frame (-7.410417 -2.868549 10.278966), and the differences in time frames of loss frames are motivated most significantly by the overuses of the future time frame as well (-7.139813 -5.013060 12.152872). In CCSRs, differences in time frames of gain frames are motivated most by the decreased usages of the present time frame (0.2623361 -6.9331681 6.6708320), and the differences in time frames of loss frames are motivated most by the decreased usages of the present time frame as well (0.3922323 -

4.1674679 3.7752356).

Although the source domain of Building can be used either in a past-oriented or a future-oriented manner in political discourse, this source domain is used more often in a future-oriented manner in the environmental sections of CSR reports. The preference for the future time frame can be explained by the findings in previous research that environmental sustainability discourse in CSR reports favours future time frames (Fuoli, 2018; Jaworska, 2018). The investigation of topics frequently associated with gain and loss frames can indicate how these frames are employed to legitimize the environmental practice of creating benefits and reducing losses.

6.4.3 Topics associated with gain and loss frames

The investigation of topics often associated with gain and loss frames can shed light on the major benefits petroleum companies aim to generate, and the major losses petroleum companies intend to avoid. This investigation is conducted by answering the sub-question: "Which topics are the goals of gain and loss frames more often associated with?" Adopting the method I used in Chapter 4 and Chapter 5, I generated the "Semantic Frequency List" in *Wmatrix* (Rayson, 2008) to have an understanding of the topics often associated with the goals of gain and loss frames.

For ease of analysis, two plain texts containing either the goals of gain frames or the goals of loss frames were generated for each corpus. The two plain texts for gain frames are named "goals of gain frames_ACSRs" and "goals of gain frames_CCSRs." The two plain texts for loss frames are named "goals of loss frames_CCSRs" and "goals of loss frames_ACSRs."

In accordance with the processes in the previous two chapters, I uploaded these four plain texts onto *Wmatrix* and generated the "Semantic frequency list." The generated semantic

frequency list ranks all the semantic domains in a descending order based on their frequencies.

Following the methods in Chapter 4 and Chapter 5, grammatical domains and domains that represent proper names were excluded. I also excluded Z99 because this tag is assigned to lexical items when the semantic matching procedure fails.

After the aforementioned exclusions were made, the top semantic domains were extracted as domains for further investigation. The cut-off threshold was set at approximately 15% of the dataset. The top semantic domains associated with goals of gain frames in CCSRs, goals of loss frames in CCSRs, goals of gain frames in ACSRs, and goals of loss frames in ACSRs generated by *Wmatrix* are shown in Table 6.5.

Table 6. 5 Top Semantic Domains in Semantic Frequency Lists for Gain and Loss Frames in ACSRs and CCSRs

Ranking	Gain Frames in ACSRs		Loss Frames in ACSRs		Gain Frames in CCSRs		Goals of Loss frames in CCSRs	
	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.
1	S8+: Helping	193	A15-: Danger	66	H1: Architecture, houses and buildings	147	S7.1+: In power	97
2	A2.1+: Change	76	A2.1+: Change	63	S8+: Helping	135	A11.1+: Important	69
3	W5: Green issues	70	N5-: Quantities: little	57	S7.1+: In power	129	A9-: Giving	67
4	A5.1+: Evaluation: Good	59	A9-: Giving	52	W5: Green Issues	125	A2.1+: Change	56
5	M7: Places	51	A2.2: Cause& Effect/ Connection	41	A5.1+: Evaluation: Good	107	O1.1: Substances and materials: Solid	54
Freq.	449		279		643		343	
Total	3533		2116		4794		2782	
Pct.	13%		13%		13%		12%	

Following the processes in Chapter 4 and Chapter 5, I examined all the concordances in

the top semantic domains to see 1) if a domain can be further divided and 2) if a more specific label can be assigned to the domain. Verifying concordances within a domain can also rule out possible tagging errors.

This process has the potential to cause minor changes to the list of top semantic domains. For instance, after examining the concordances in each top domain, I found that the semantic domain of "S8+: Helping" among the top semantic domains related to the environmental interests in CCSRs can be further divided as the semantic meanings of the keywords in this domain feature a large diversity. The subdivision of this domain makes it less prominent in the top 15% semantic domain list. Another semantic domain, "A5.1+: Good Evaluation," was added to the semantic domain list based on its frequency. The A5.1+ domain was at the ranking immediately below the domain of "W5." Table 6.6 displays the topics associated with different interests in ACSRs and CCSRs after the adjustments. The tags of the newly added domains are indicated and marked in red.

Table 6. 6 Top Semantic Domains in Semantic Frequency Lists for Gain and Loss Frames in ACSRs and CCSRs

Ranking	Gain Frames in ACSRs		Loss Frames in ACSRs		Gain Frames in CCSRs		Goals of Loss frames in CCSRs	
	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.	Semantic Domains	Freq.
1	Support	112	Risk	66	Building	147	Management	97
2	Change	77	Change	63	Management	129	Emergency	61
3	Environment	70	Reduction	54	Environment	125	Emissions	61
4	Improvement	59	Emissions	47	Improvement (A5.1+)	107	Change	55
5	Places	51	Management and Leadership (S7.1+)	35	Change (A2.1+)	95	Carbon	52
Freq.	369		265		603		326	
Total	3533		2116		4794		2782	
Pct.	10%		13%		13%		12%	

The reformulated labels more clearly reveal which issues are associated with gain and loss frames. Table 6.6 shows that the topic of "Emissions" is often associated with loss frames in both ACSRs and CCSRs. Petroleum companies have been under constant pressure to reduce GHG emissions. It would be informative to examine how Chinese petroleum companies and American petroleum companies elaborate on how they address the emissions as a goal in loss frames.

The examination of the "Emission" as a topic frequently associated with loss frames in CCSRs shows that the emissions goals are primarily achieved via corporate management, technology, and market-oriented solutions. Example (22) provides an insight into how Chinese petroleum companies cope with emissions:

(22) We focused on carbon footprint verification and built basic management databases, in order to lay the <u>foundation</u> for carbon emissions accounting and reporting. (Petro China CSR rep., 2016)

In Example (22), *Petro China*'s environmental efforts can "lay the foundation for" carbon emissions accounting and reporting. Laying a foundation is the initial stage of constructing a building. Conceptualizing the oil company's environmental efforts in this way indicates that these efforts are well prepared well for the realization of "carbon emission accounting and reporting," which can gain support from regulatory, media, and community stakeholders. "Carbon accounting" has to do with the process of measuring how much carbon dioxide is equivalent to the amount an organization emits. This process is used to generate the carbon credit commodity exchanged on carbon markets, which is an important way to reach the goal of carbon peak and carbon neutrality in China. The oil company's contributions to the carbon market are in compliance with national policies and are therefore legitimate.

ACSRs also used the Building metaphors that represent central structures of a building like "framework" and "pillar" to describe the achievements of emission goals. Examples (23) and (24) demonstrate how these metaphors are used in ACSRs:

(23) Along with several industry peers, we issued Guiding Principles, which provide a framework for continually reducing methane emissions, improving accuracy of methane emissions data and advocating sound policies and regulations. (ExxonMobil CSR rep., 2017)

(24) Reducing the GHG emissions intensity of our operations is a central pillar of our climate risk mitigation strategy. We track operational performance through our overall GHG emissions intensity and methane emissions intensity. Intensity metrics are measured as CO_2 emissions per thousand barrels of petroleum equivalent of all hydrocarbon produced. (Marathon CSR rep., 2019)

The metaphor "framework" is used to describe the general structure of a building. This metaphor is often used in ACSRs to highlight the systematicity of an entity or an issue. In Example (23), the metaphor "framework" is employed to foreground the importance of a systematic policy or principles in reaching an emission goal. This Building metaphor suggests that the achievement of an emission goal requires well-devised policies or principles. As the framework of a building determines the shape of a building, the environmental policies and principles can determine the outcome of an environmental goal. As the petroleum company is presented as the designer of the "framework" in Example (23), the outcome of the environmental goal is largely determined by the petroleum company itself, which takes into

account the interests of organizational stakeholders.

The metaphor "pillar" can be used to highlight the significance of an issue because a pillar holds up the weight of the upper structure of a building. Some American petroleum companies used this metaphor to emphasize the importance of dealing with emissions. In Example (24), reducing the GHG emissions intensity is conceptualized as "a central pillar" of *Marathon*'s climate risk mitigation strategy, which suggests that dealing with emissions is fundamental for the petroleum company's environmental practice. In this way, *Marathon* tries to demonstrate its commitment to coping with climate change, which accommodates the interests of regulatory, media, and community stakeholders. Nevertheless, reducing emission intensity is to reduce emissions in a relative manner rather than in an absolute manner because reducing emission intensity is to reduce the rate of GHG emissions relative to the intensity of specific business activity. As such, the climate change mitigation strategy supported by this pillar would not be ambitious as the pillar representing a modest environmental goal is a "central" one. In this way, the interests of organizational stakeholders will be reduced.

This section indicates that one dominant topic associated with loss frames in both CCSRs and ACSRs is "Emission." Metaphors that represent essential building structures are used when conceptualizing efforts in tackling emissions, such as "foundation," "framework," and "pillar." As all of these are essential building structures, the environmental practice represented by these metaphors is essential as well. The expression "lay the foundation" shows that the oil company's achievements or contributions provide the basis for the final realisation of an environmental goal. Some petroleum companies construct themselves as the designer of the "framework," and thus, the outcome of the environmental practice is largely determined by them. The metaphor "pillar" sometimes represents a modest environmental action, which suggests that the climate change mitigation strategies supported by this pillar would not require radical changes.

6.5 Corporate and environmental interests

Gain and loss frames in CSR reports are motivated by different types of interests, given the various stakeholders as the potential readership of these reports. The examination of different interests can demonstrate how potential conflicts between different interests are handled in CSR reports. I examined the different motivations of gain and loss frames by answering the third research question, "Are gain/loss frames motivated more often by corporate interests or environmental interests in Chinese and American CSR reports?" Figure 6.4 displays the motivations of gain and loss frames in ACSRs and CCSRs.

Figure 6. 4 Gain and Loss Frames Motivated by Different Interests
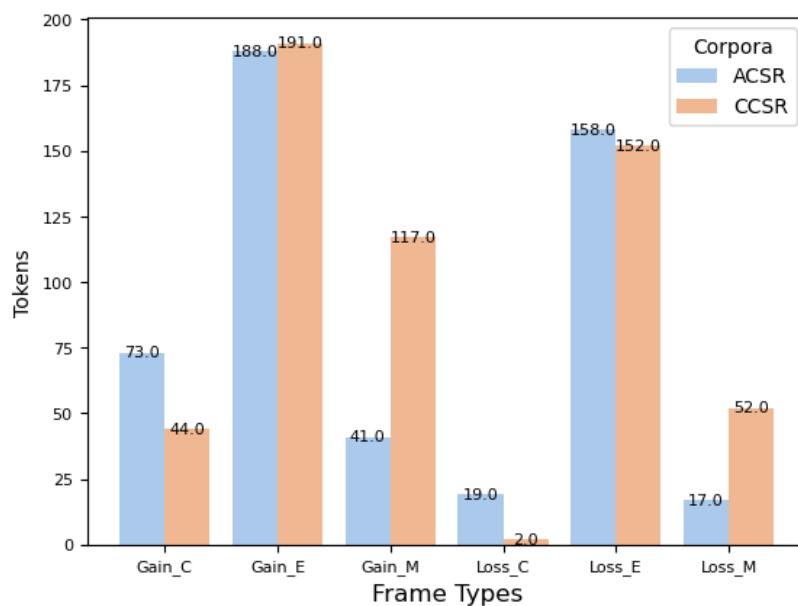
Figure 6.4 shows that both gain and loss frames in CCSRs and ACSRs are motivated mostly by environmental interests. To statistically confirm this, I used goodness of fit to calculate the usages of different interests in the two corpora separately. The test results for the different interests in CCSRs show that both gain frames and loss frames are motivated significantly by different interests (chi-square test results for gain frames: (X-squared = 92.085, df = 2, p-value

< 2.2e-16); chi-square test results for loss frames: (X-squared = 169.9, df = 2, p-value < 2.2e-16). The test results for the different interests in ACSRs show that both gain frames and loss frames are motivated significantly by different interests as well (chi-square test results for gain frames: (X-squared = 118.74, df = 2, p-value < 2.2e-16); chi-square test results for loss frames: (X-squared = 202.09, df = 2, p-value < 2.2e-16).

To understand which cell contributes most to the difference, I calculated the standard residuals of each cell in goodness tests for gain frames and loss frames in ACSR and CCSR. The test results show that in CCSRs, gain frames (-8.29156198 8.32925089 -0.03768892) and loss frames (-9.853293 12.316616 -2.463323) are motivated most significantly by environmental interests. In ACSRs, gain frames are motivated the most by environmental interests (-3.377222 10.660629 -7.283407), and loss frames are motivated the most by environmental interests as well (-6.955121 14.214846 -7.259725).

The above analysis results indicate that both ACSRs and CCSRs attend primarily to environmental interests. One of the reasons is that ACSRs and CCSRs are extracted from the environmental sections of CSR reports with a primary focus on environmental issues. The other reason could be that environmental interests are the primary way to achieve legitimacy as American and Chinese petroleum companies are under constant pressure in this regard. The following subsections will explore how petroleum companies reconcile environmental interests with corporate interests.

6.5.1 Corporate and environmental interests in different time frames

One strategy that could alleviate concerns from organizational stakeholders about the costs involved in generating environmental interests is to use the future time frame. Jaworska (2018) indicated that petroleum companies tend to use distancing strategies by relocating climate

change to the future. This chapter aims to extend Jaworska's (2008) work by answering the first sub-research question under the third research question: "Do these corporate and environmental frames more often frame interests in the past or in the future?" I used a bar plot (Figure 6.5) to show the distribution of time frames for different types of interests:

Figure 6. 5 Different Interests in Three Different Time Frames
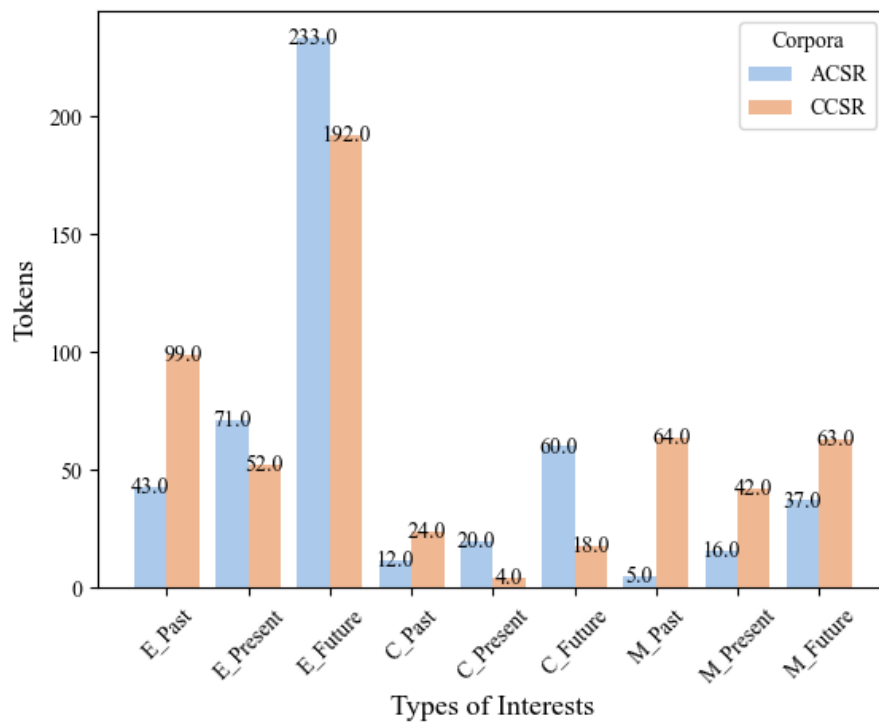
Figure 6.5 shows that environmental interests in ACSR and CCSR more frequently use the future time frame compared with other types of interests. I used the goodness of fit tests to test the preferences for different time frames in ACSRs and CCSRs. The results show that the environmental interests (X-squared = 181.93, df = 2, p-value < 2.2e-16), corporate interests (X-squared = 43.13, df = 2, p-value = 4.309e-10), and mixed interests (X-squared = 27.345, df = 2, p-value = 1.154e-06) are presented significantly more in the future time frame in ACSRs. The environmental interest (X-squared = 88.799, df = 2, p-value < 2.2e-16) and corporate interests (X-squared = 13.739, df = 2, p-value = 0.001039) are presented significantly different

in different time frame in CCSRs. Mixed interests (X-squared = 5.4793, df = 2, p-value = 0.06459) do not have a significant presence in CCSRs in different time frames. The corporate interests are not used significantly more in the future time frame in CCSRs.

The environmental interests in both ACSRs and CCSRs are presented more in the future time frame (standard residuals of environmental interests of different time frames in ACSRs: -8.275167 -5.086570 13.361737, standard residuals of environmental interests of different time frames in CCSRs: -1.756288 -7.139693 8.895981), most likely because American and Chinese petroleum companies receive the most criticism for their environmental practice. As indicated in Chapters 4 and 5, Jaworska (2018) found that relocating climate change to the future is often used as a distancing strategy when the petroleum industry indicates its commitment to addressing climate change. For instance, building a green enterprise or a green society is a goal that could bring huge costs to the petroleum industry. In this way, the concerns of organizational stakeholders would be eased.

6.5.2 Topics associated with environmental corporate and mixed interests

The exploration of topics associated with different environmental interests may indicate how petroleum companies reconcile the various interests of different stakeholders. To have a better understanding in this respect, I will address the second sub-question under the third research question: "Which topics are the goals of these environmental, corporate, and mixed interests more often associated with?" In order to answer this question, I adopted the method I used in Chapter 4 and 5, which is to extract all the expressions that describe environmental interests, corporate interests, and mixed interests in ACSRs and enter them into three plain texts "Environmental Interests ACSRs," "Corporate Interests ACSRs," and "Mixed Interests ACSRs." I also extracted all the expressions that described environmental interests, corporate

interests, and mixed interests in CCSRs and entered them into three plain texts "Environmental Interests CCSRs," "Corporate Interests CCSRs," and "Mixed Interests CCSRs."

Following the processes in the previous two chapters, I uploaded all these files onto *Wmatrix* and generated the "Semantic frequent list" to obtain frequent domains associated with corporate, mixed, and environmental interests in both ACSRs and CCSRs. Only semantic domains that take up around 15% of the whole dataset are listed as top semantic domains, which are shown in Table 6.7.

Table 6. 7 Top Semantic Domains in Semantic Frequency Lists for Environment, Corporate and Mixed Frames in ACSRs and CCSRs

Ranking	ACSRs			CCSRs		
	Environment	Corporate	Mixed	Environment	Corporate	Mixed
1	S8+: Helping (137)	S8+: Helping (43)	S8+: Helping (27)	W5: Green issues (133)	A5.1+: Evaluation: Good (16)	S7.1+: Helping (128)
2	A2.1+: Change (102)	I 2.1: Business: Generally (17)	A2.1+: Change (23)	H1: Architecture, houses and buildings (116)	A2.1+: Change (16)	A5.1+ Evaluation: Good (69)
3	W5: Green issues (80)	I1.1: Money and pay (16)	Y1: Science and technology in general (20)	S8+: Helping (106)	I2.1: Business: Generally (14)	A11.1: Importance (68)
4	A9-: Giving (73)	A5.1+: Evaluation: Good (15)	S7.1+: In power (19)	A2.1+: Change (104)	O4.1: General appearance and physical properties (13)	A15+: Safety/Danger (66)
5	M7: Places (51)	A2.1+: Change (14)	A15-: Dangers (16)	S7.1+: In power (88)	H1: Building (13)	S8+: Helping (60)
	N5-: Quantities: little (50)					
Freq.	493	105	105	547	72	391
Total	3375	854	654	4016	484	2596
Pct.	15%	13%	16%	14%	15%	15%

To better understand the preferable issues of environmental, corporate, and mixed interests, I then investigated the key terms and concordance lines within all the above-listed semantic domains and tried to come up with more specific domain labels. This process has the potential to adjust the list of top semantic domains. The tags of the newly added domains are indicated and marked in red in Table 6.8.

Table 6. 8 Top Semantic Domains in Semantic Frequency Lists for Different Motivations in ACSRs and CCSRs

	ACSRs			CCSRs		
Ranking	Environment	Corporate	Mixed	Environment	Corporate	Mixed
1	Change (101)	Support and Help (32)	Change (23)	Environment (133)	Business: Generally (14)	Leadership and Management (128)
2	Support and Help (90)	Business Generally (16)	Science and technology (20)	Building (116)	Building (13)	Emergency (62)
3	Environment (75)	Money and Stakeholders (15)	Support and Help (19)	Change (103)	Structure (12)	Safety (64)
4	Locations (51)	Improvement (11)	Leadership and Management (19)	Leadership and Management (S7.1+) (88)	Improvement (11)	Improvement (58)
5	Emission (48)	Change (12)	Risks (16)	Energy (X5.2+) (74)	Gas (11)	System and Framework (X4.2) (56)
	Reduction (48)	Community (S5+) (13)				
Freq.	413	99	97	514	61	368
Total	3375	854	654	4016	484	2596
Pct.	12%	12%	15%	13%	13%	14%

There are two semantic domains newly added to the lists of top topics associated with environmental interests: S7.1+ in CCSRs and X 4.2 in ACSRs. The semantic domain S7.1+ was added to the list because examining the concordances in the semantic domain "S8+: Helping" showed that many keywords are "protection" and "protect," which are not closely

related to the concept of help. The semantic domain S7.1+ was added to the list because it was a domain immediately following the semantic domain A2.1+ in the semantic domains associated with the environmental interests CCSRs. Similarly, the semantic domain X4.2 was added to the list because the semantic domain A5.1+ can be sub-divided into two semantic domains and thus is not regarded as a frequent semantic domain anymore.

Table 6.8 shows that, in CCSRs, the topic "Leadership and Management" is often associated with environmental interests, as well as mixed interests. In this topic, the most frequent keyword is "management," which indicates that corporate management is essential for generating both environmental and mixed interests. The concordances of the keyword "management" indicate that CCSRs often present "management" as a building structure. One important building structure used to conceptualize corporate management is "platform." Examples (25) and (26) illustrated how the metaphor "platform" is used to conceptualize management in CCSR:

(25) In order to take full advantage of information technology, CNOOC Limited began to build an environmental protection management information platform in 2011 to store all project-related data. (CNOOC CSR rep., 2016, p. 2016)

(26) We set up emergency response command organizations at multiple levels and had them take precautionary measures, draw up contingency plans, organize emergency response trainings, conduct emergency drills, set up emergency rescue teams, and improve emergency information management platforms to ensure a swift response and efficient management of all kinds of emergencies, and to reduce personnel and economic losses and improve social impacts. (Sinochem CSR rep., 2010, p.38)

The above two examples indicate that the metaphor "platform" can be used to present the management of environmental interests as well as mixed interests. In Example (25), the environmental protection management information is conceptualized as a platform to generate environmental interests. In Example (26), emergency information management is conceptualized as a platform to generate mixed interests. In CCSRs, the metaphorical usage of this keyword is often employed in reference to different abstract platforms, including technical platforms, information platforms, management platforms, learning platforms, and cooperative platforms, etc. By using this BUILDING metaphor "platform," petroleum companies present an abstract area for taking environmental activities as a tangible property of the petroleum company and the whole society.

The association between the topic "Leadership and Management" with environmental and mixed interests in CCSRs suggests that Chinese petroleum companies regard corporate management as an effective approach to generating benefits for various stakeholders. One effective way to perform management is to build, use, or improve platforms.

In both examples, the management platform is an information system. For years, China has been developing domestic Information Technology (IT) as an effective management approach. China's supportive government incentives led to the boom of domestic IT firms. Information platform has been established in almost every domestic sector in China, such as chemistry, investment, education, service, etc. Hence, building an information platform is regarded as a legitimate way to manage environmental issues in China's context. As this approach does not require radical changes in an oil company's core business, it should be favored by organizational stakeholders.

In ACSRs, the topic "Support and Help" is frequently associated with three types of interests. In this topic, the BUILDING metaphor "support" is frequently used. Examples (27) and (28) demonstrate how the metaphor "support" is used in the topic "Support and Help."

(27) We <u>support</u> well-formulated federal regulation of methane emissions from petroleum and gas exploration and production if that regulation:

•Encourages early adopters and voluntary efforts.

•Incorporates cost-effective innovations in technology.

•<u>Supports</u> appropriate state-level regulations.

(ConocoPhillips CSR rep., 2019)

(28) In 2008, natural gas contributed \$385 billion to the U.S. economy and <u>supported</u> nearly 3 million American jobs. (ExxonMobil CSR rep., 2010)

The frequent association of the topic "Support and Help" with different interests in ACSRs indicates that different interests of stakeholders can be met with useful assistance or supportive attitudes. The metaphor "support" is used twice in Example (27). *ConocoPhillips* used the first metaphor, "support," to emphasize its supportive attitude towards regulations regarding GHG emission reductions, which helps obtain support from regulatory stakeholders. Nevertheless, this support comes with conditions: the regulations have to be "well-formulated" and "appropriate." The absence of the criteria for being "well-formulated" and "appropriate" allows the oil company to withdraw support at any time when it considers the regulations inappropriate or ill-formulated. In this vein, it would be easier for *ConocoPhillips* to reconcile corporate and environmental interests.

In Example (28), *ExxonMobil* legitimizes its business by emphasizing the contributions of natural gas to the national economy. The metaphor "support" highlights the importance of the natural gas business to the labour market. Unlike Chinese oil companies' vigorous advocacy for natural gas development, American oil companies are more prudent when it comes to this issue. Although natural gas is the cleanest fossil fuel, it still generates a certain amount of emissions in the burning processes. Great public pressure has been placed on oil companies in

the U.S. to compel them to address public concerns. To help community stakeholders increasingly embrace natural gas more, *ExxonMobil* highlights and specifies the benefits natural gas can create for the US economy. The great economic contributions of natural gas can promote its acceptability among community stakeholders in the U.S.

Examining topics that are frequently associated with different interests in CCSRs and ACSRs shows that CCSRs regard management as an effective approach to serving the interests of different stakeholders. The approach to performing this management is to construct, improve and make use of management platforms. ACSRs, on the other hand, imply that different interests can be created with useful assistance and a supportive attitude. Nevertheless, petroleum companies' support sometimes comes with conditions, which can make it easier to reconcile different interests.

6.6 Conclusions

In this chapter, I explored 1) usages of keywords in the source domains of BUILDING in ACSR and CCSR, 2) frequencies in gain and loss frames in ACSR and CCSR, and 3) motivations for gain and loss frames in ACSR and CCSR. In order to address the second and third issues, I also examined and compared the time frames for two types of frames and different interests. The topics frequently associated with gain and loss frames and various interest types were also studied. By addressing all of these issues, I have identified the following six legitimation strategies of petroleum companies.

The first legitimation strategy is to use the source domain of BUILDING in an empowering way so that the agent of the construction is presented positively. Oftentimes, the agent was the petroleum company itself. The finding of the first research question indicated that the most frequent building keyword in CCSRs was the verb "build," and the

most frequent building keyword in ACSRs was the verb "support." Both of these metaphors were used overwhelmingly more often in the active voice. The verb "build" was often used to construct a petroleum company as an architect, either of the company itself or the whole society. The conceptual metaphor GOOD GOVERNING IS CREATING formulated in Charteris-Black's work (Charteris-Black, 2004) can be adapted into GOOD COMPANY IS CREATING in my data. As long as a company participates in the building or creating process, it is legitimate.

This concept is especially true in CCSRs. The calculations of the normalized ratios of the source domain of BUILDING in CCSRs and ACSRs indicated that CCSRs used significantly more BUILDING metaphors than ACSRs. In addition, the ratios of metaphorical and literal building keywords are almost equal in CCSRs. The investigation of literal and metaphorical usages of building keywords in CCSRs showed that most of them were used to present the construction activities of petroleum companies as ethical. These usage patterns may be motivated by China's national context. As a country with high investment in infrastructure, the concept of building is largely legitimate.

The second legitimation strategy is to demonstrate the compliance of corporate activities with social norms. ACSRs often used the metaphorical verb "support" to show the petroleum company's alignment with socially-valued environmental rules and policies. Since the lower part of a building maintains the building's stability and durability, the petroleum companies are represented as fundamental for the implementation of environmental regulations and policies. Nevertheless, the supportive attitude was downplayed by juxtaposing environmental goals with economic goals. The absence of concrete information about supportive actions can render an oil company's support symbolic. In addition, petroleum companies also tended to transfer the supporting efforts to other stakeholders by implying their involvement in the environmental practice.

The third strategy is to use nominalization to construct the concept of support as a real entity so that this concept is less challengeable. When addressing the second research question about gain and loss frames, I found that the nominal form of the metaphor "support" was used more often as a gain frame in both ACSRs and CCSRs. In ACSRs and CCSRs, the nominalized metaphor "support" can present the support provided by petroleum companies and the support petroleum companies received as real and necessary. A variety of premodifiers were used in front of the metaphorical noun "support" to describe its qualities. CCSRs tended to use adjectives related to technology to emphasize the technology-oriented approaches to climate change, which were favourable approaches for petroleum companies. ACSRs also used the nominalized form of the metaphor "support" to show their recognition of advocacy from stakeholders, which is an important approach to establishing pragmatic legitimacy. Maintaining support from different types of stakeholders is essential for publicly-owned companies.

The fourth legitimation strategy is to construct addressing climate change as a distant goal. The finding of the first sub-question of the second research question indicated that the source domain of BUILDING was used more often in a future-oriented manner. As the construction process requires time and effort, the patience in awaiting the completion of the construction was justified (Charteris-Black, 2004, 2016). In addition, the goal of completing the construction was presented as achievable because staged completion has been realized.

The fifth strategy is to use some BUILDING metaphors with vagueness, such as the metaphors "lay the foundation" and "stable." Charteris-Black (2004) indicates that laying the foundation does not necessarily mean the completion of a building. Building efforts could be abandoned if capital runs out during the building process. When the BUILDING metaphor "stable" was employed to describe a natural environment condition, it was to emphasize the steady status of the natural environment, which does not necessarily mean the environment is healthy.

The above legitimation strategies can also help reconcile environmental and corporate

interests. Petroleum companies attended to community, regulatory, and media stakeholders by using the BUILDING source domain to emphasize the staged progress and achievements they made in environmental practice. Meanwhile, they attended to organizational stakeholders' desires to maximize profits by describing the construction processes with vagueness, emphasizing staged progress rather than the completion of the whole construction process, framing achievements in a future time frame, and highlighting market- and technology-oriented approaches. Petroleum companies also juxtaposed environmental goals with corporate goals to show the compatibility of these two types of goals.

The investigation of topics frequently associated with different interests in CCSRs and ACSRs also indicated how petroleum companies accommodate the various interests of stakeholders. The topic of "Leadership and Management" was used to reconcile the different interests of stakeholders in CCSRs. This topic indicated that mixed interests can be generated by management. One useful way to manage was to build, use, or improve information platforms. By using the metaphor "platform," petroleum companies present the achievements of management as tangible properties for the whole society. As constructing information platforms aligns with China's strong advocacy for information technology, this management approach is legitimate within the context of China.

As for ACSRs, the topic of "Support and Help" was employed to accommodate the various interests of stakeholders. This topic suggested that different interests can be created with useful assistance or supportive attitudes. In some cases, the support from petroleum companies comes with strings attached, which allows different interests to be reconciled.

The concept of stability was also exploited to reconcile corporate and environmental buildings. The quality of stability was highlighted in both ACSRs and CCSRs. Petroleum companies claimed that maintaining stable business operations was beneficial for the environment, and conversely, maintaining a good ecological environment could generate

business benefits. In this way, potential conflicts among different interests of various types of stakeholders were settled. However, questions remain regarding if stability is an ideal quality for the environmental practice of petroleum companies. There is no doubt that a stable business operation is essential for maintaining the continuous existence of petroleum companies. A stable ecological condition and environmental strategy, however, may not necessarily be ideal for society, especially when radical changes are required to fully address climate change.

In summary, the BUILDING source domain conceptualized the environmental practice of petroleum companies as a staged process toward a long-term environmental goal in CSR reports produced by American and Chinese petroleum companies. The BUILDING source domain was used in an empowering way; wherein, petroleum companies were either presented as architects for a greener future or strong supporters of a greener society. As the source domain of BUILDING was used more often in a future-oriented manner, patience was required to wait for the completion of the construction. In addition, petroleum companies' support could come with conditions. The quality of stability of a building was highly valued, which indicated the status quo may be maintained.

7. Comparisons of Using WAR, JOURNEY and BUILDING Source Domains as a Frame for Legitimization

7.1 Introduction

Previous studies indicated that the source domains of WAR, JOURNEY and BUILDING may be used for legitimization purposes in similar and also different ways (e.g. Ahrens et al., 2021; Atanasova & Koteyko, 2017a, 2017b; Charteris-Black, 2004, 2016; Lu & Ahrens, 2008). Previous literature has shown that the similarity lies in that all of the three source domains can address climate change as a goal requiring collective efforts (Atanasova & Koteyko, 2017a, 2017b; Charteris-Black, 2004; Semino, 2021). The difference is that the source domain of WAR may emphasize the urgency of addressing an issue and an antagonistic relationship between two opposing sides (Atanasova & Koteyko, 2017a, 2017b; Charteris-Black, 2004; Semino, 2021; Semino et al., 2017). However, the source domains of JOURNEY and BUILDING do not focus on these two aspects and instead conceptualize the efforts of handling an issue as a distant goal, calling for patience in awaiting the achievement of the goal (Charteris-Black, 2004, 2016; Lu & Ahrens, 2008). Both the source domains of JOURNEY and BUILDING are positively connotated and can be used in a forward-oriented way (Charteris-Black, 2004, 2016; Lu & Ahrens, 2008). Nevertheless, the source domain of BUILDING can also be used in a backwards-looking way (Lu & Ahrens, 2008). Given these similarities and differences, in this chapter, I compare how American and Chinese petroleum companies use these source domains as legitimation strategies.

Although extensive studies have been done to examine the source domains of WAR, JOURNEY and BUILDING, few of them have systematically compared the similarities and

differences of all of these three source domains used in business discourse. The existing research comparing these source domains mainly focuses on political, media and health communication discourse (Atanasova & Koteyko, 2017a, 2017b; Charteris-Black, 2004, 2016; Semino et al., 2017). A systematic comparison of these three source domains in business discourse will shed light on how these source domains promote and damage a corporation's image. Hence, this chapter compares how the source domains of WAR, JOURNEY and BUILDING are employed in American and Chinese CSR reports.

Chapter 4, Chapter 5 and Chapter 6 in this thesis have paved the way for the source domain comparison in Chapter 7 as they have examined how each source domain functions as legitimation strategies individually. Chapter 7 will build on these findings and further explore the similarities and differences in using the three source domains as legitimation strategies in CSR reports in a systematic manner. This chapter conducts a comparative study by addressing the following research questions:

● **RQ1: Are there similarities and differences in preferences in the source domains of WAR, JOURNEY and BUILDING in Chinese and American CSR reports?**

● **RQ2: Are there similarities and differences in frequent keywords within the source domains of WAR, JOURNEY and BUILDING in Chinese and American CSR reports?**

● **RQ3: Are there similarities and differences in preferences for gain and loss frames in Chinese and American CSR reports?**

To answer the second research question, I calculated and compared the Metaphoric Type-token Ratios of the three source domains apart from examining frequent keywords of each source domain. Johnson (1944) defined the ratio of different words types relative to total words tokens as the type-token ratio and regarded it as a measure of vocabulary variability. Other scholars described the TTR as a measure of "vocabulary diversity" (Cramblit & Siegel, 1977, p. 476), a measure of "vocabulary richness" (Andolina, 1980, p. 373), and "a relative simple,

straight-forward measure of language deviance" (Manschreck et al., 1981, p. 7).

Metaphoric Type Token Ratio (mTTR) is to examine the vocabulary richness of metaphors by dividing metaphor types by metaphor tokens. Krennmayr (2015) compared the mTTR of metaphorical verbs in fiction, academic texts and conversation and found that mTTR in fiction is higher than that in academic texts and conversation. Koller (2008b) calculated mTTRs of different source domains in business media discourse and found that the WAR/FIGHTING metaphor shows the lowest mTTR. The mTTRs of SPORTS and MATING metaphors stand in the middle the mTTRs of GAMES and FEEDING are 0.17 and 0.31 respectively (Koller, 2008b). The calculations of the metaphoric type-token ratios of different source domains in this chapter are to show the vocabulary richness of each source domain. mTTR is not calculated in previous chapters because this type of ratio is more informative in a comparative study.

Overall, this chapter will address the above research questions by comparing how the WAR, JOURNEY and BUILDING source domains are used as gain and loss frames to achieve legitimacy. As this chapter is built on the previous three chapters, the corpora used for this comparison are the same as those in the previous three chapters.

7.2 WAR, JOURNEY and BUILDING source domain in the ACSRs and the CCSRs

The frequencies of the three source domains in two corpora are calculated in the three previous chapters. A comparison of these frequencies can demonstrate petroleum companies' preferences for the three source domains. To this end, I display the frequencies of the three source domains in the ACSRs and the CCSRs in Figure 7.1.
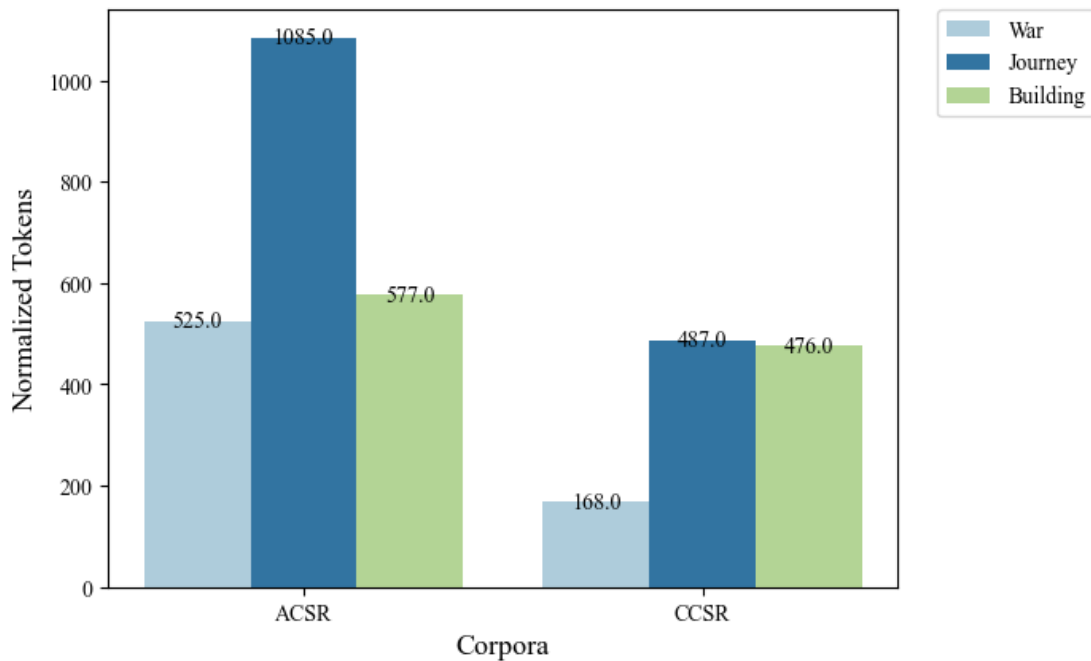
Figure 7.1 shows that in ACSRs, the source domain of JOURNEY is used with the highest frequency. The WAR source domain and the BUILDING source domain in the ACSRs are used with similar frequencies. In the CCSRs, the frequency of the source domain of WAR is much lower than those of the source domains of JOURNEY and BUILDING. The JOURNEY and BUILDING source domains are used with similar frequencies in the CCSRs.

To verify if differences in the frequencies of source domains are significant, I conducted goodness of fit test in the two corpora separately. The results show that the three source domains are used with a significant difference in the ACSRs (X-squared = 262.63, df = 2, p-value < 2.2e-16) and the three source domains are used with a significant difference in the CCSRs as well (X-squared = 173.96, df = 2, p-value < 2.2e-16). To have an idea of which source domain contributes to the difference in each corpus, the standard residual of each source domain is calculated. The calculation results show that in the ACSRs, the overuse of the source domain of JOURNEY contributes most to the difference (-9.253628 16.148488 -6.894860). In the CCSRs, the underuse of the source domain of WAR contributes most to the difference (the

standard residual of each source domain: -13.183212   6.938533   6.244679).

The overuses of the source domain of JOURNEY in both corpora might indicate that both corpora tend to highlight the process of dealing with climate change and represent addressing this phenomenon as a distant goal. The equal prominence of the BUILDING source domain with the source domain of JOURNEY in the CCSRs could be attributable to China's national context, which is to encourage all the building activities. The less prominent presence of the source domain of WAR in both corpora probably suggests that the urgency of dealing with climate change is not the focus of both the CCSRs and the ACSRs. I will examine these hypotheses by studying keywords in each source domain.

7.3 Frequent keywords in WAR, JOURNEY and BUILDING source domain in the ACSRs and the CCSRs

To have an understanding of the reasons behind different preferences for these three source domains as legitimization strategies in the CCSRs and the ACSRs, we need to take a look at which keywords are used in these source domains, especially those with high frequencies. Therefore, the second research question to be answered in this chapter is: "Are there similarities and differences in frequent keywords within the source domains of WAR, JOURNEY and BUILDING in Chinese and American CSR reports?"

Before taking a look at the most frequent keywords, I will calculate the Metaphoric Type-token ratios (mTTRs) to have an overall understanding of the vocabulary richness of each source domain. In other words, mTTR can indicate if a preference for a particular source domain is motivated by the rich scenarios created by a source domain or just a particular aspect of this source domain. The more productive a source domain is, this source domain can generate richer entailments. In this way, this source domain can represent various aspects of a

social issue. On the other hand, a low mTTR probably indicates that a source domain is used to emphasize a few particular aspects of an issue.

After finding out the vocabulary richness of the three source domains in my data, I will then examine the most frequent keyword in each source domain with an aim to explore the major reasons motivating their usages in my data. Similarities and differences in these motivations in CCSRs and ACSRs will be examined.

7.3.1 Metaphoric Type-Token Ratios

Metaphoric Type Token Ratio (mTTR) indicates the richness of metaphorical vocabulary in accordance with the length of the text. The higher the mTTR, the less repetitive the vocabulary usage is. Table 7.1 demonstrates the mTTR of each source domain in the CCSRs and the ACSRs.

Table 7. 1 Metaphoric Type-token Ratios of the Source Domains of WAR, JOURNEY and BUILDING

	ACSR			CCSR		
	Metaphor Types	**Metaphor Tokens**	**TTR Ratio**	**Metaphor Types**	**Metaphor Tokens**	**TTR Ratio**
WAR	13	525	0.02	12	168	0.07
JOURNEY	39	1085	0.04	33	487	0.07
BUILDING	22	577	0.04	21	476	0.03

From Table 7.1, we can see that in the CCSRs, the mTTRs of the source domain of WAR and JOURNEY are the same, twice the higher than the mTTR of the source domain of BUILDING. Although the previous section indicates that the BUILDING source domain is used with high

frequency in the CCSRs, its mTTR stands the lowest in the CCSRs. In comparison, the mTTR of the source domain of BUILDING is similar to those of the source domains in the ACSRs. This potentially suggests that the source domain of BUILDING in the CCSRs is frequently used not to create a rich scenario but to emphasize a few aspects of the concept of building.

Chapter 6 showed that around half of the building keywords in the CCSRs are from the category of "Functions" (n=228, percentage=47.9%), and most BUILDING metaphors in this category are used to conceptualize building activities, including "construct" (n=10), "set up" (n=37), "build" (n=133), and "build up" (n=9). The high frequency of BUILDING metaphors used to present building activities in the CCSRs indicates the source domain of BUILDING is used by Chinese petroleum companies to mainly conceptualize environmental efforts as building activities. Example (1) and (2) demonstrate how metaphors that present metaphorical building activities are used in the CCSRs.

(1) The Report represents the solemn commitment of Sinopec to going green and helping build an environment- friendly and resource-efficient society. (Sinopec CSR rep., 2012)

(2) Through the implementation of systematic, professional and lean HSE management, we are committed to constructing essentially safe, environmentally friendly, and resource-conserving enterprise, so as to achieve harmonious development with the natural environment. (Sinochem CSR rep., 2018)

In Example (1), the BUILDING metaphor "build" is used to describe creating an "environment-friendly and resource-efficient society" metaphorically. In Example (2), the BUILDING metaphor "construct" is to establish an environmentally-friendly enterprise metaphorically. As these construction goals are socially-valued, the building efforts are ethical

as well. These two examples indicate that BUILDING metaphors that present building activities legitimize petroleum companies by demonstrating the goals of the building activities are legitimate.

The low mTTR of the source domain of BUILDING in the CCSRs indicates that Chinese petroleum companies use this source domain to focus narrowly on a few aspects of the building concept. As the most prominent category in the source domain of BUILDING is "Functions", and most BUILDING metaphors in this category are used to present building activities, the focus of this source domain in the CCSRs might be the conceptualization of environmental efforts as setting up construction. BUILDING metaphors that present building efforts are used for a legitimization purpose by indicating the goals of these efforts are ethical. The emphasis on metaphorical building activities in the CCSRs might be motivated by the national context in China. According to the report of Asian Infrastructure Finance 2020 (Asian Infrastructure Investment Bank, 2020), China was the country with the highest investment in infrastructure as a percentage of GDP in 2017. In a country with high enthusiasm for infrastructure investment, building activities are largely legitimate, whether they are literal or metaphorical. Chapter 6 indicated that this context was also reflected in the equal presence of literal and metaphorical usages of BUILDING keywords.

7.3.2 The most frequent keyword related to the source domains of WAR, JOURNEY and BUILDING

After understanding the vocabulary richness of the three source domains, the examination of the most frequent keyword related to the source domains of WAR, JOURNEY and BUILDING will shed light on the primary reasons behind choosing each source domain in American and Chinese CSR reports. Cross-examining the most frequent keyword in each source domain also

indicates if different source domains are motivated by similar reasons. Table 7.2 demonstrates the most frequent keyword in different categories of a source domain: "Functions," "Qualities", and "Entities". The metaphorical expression with the highest frequency among all the metaphorical keywords belonging to a source domain is marked in yellow.

Table 7. 2 The Most Frequent Keywords in the Source Domains of WAR, JOURNEY and BUILDING

ACSRs			CCSRs		
WAR Source Domain	JOURNEY Source Domain	BUILDING Source Domain	WAR Source Domain	JOURNEY Source Domain	BUILDING Source Domain
Functions			*Functions*		
deploy *v.* (54)	track *v.* (68)	support *v.* (249)	target *v.* (21)	reach *v.* (96)	build *v.* (133)
Qualities			*Qualities*		
strategic *a.* (96)	direct *a.* (52)	stable *a.* (11)	strategic *a.* (27)	leading *a.* (17), direct *a.* (14)	stable *a.* (31)
Entities			*Entities*		
strategy *n.* (190)	way *n.* (125)	framework *n.* (82)	strategy *n.* (51)	way *n.* (52)	structure *n.* (43)

The most frequent keywords in each source domain provide an insight into why American and Chinese petroleum companies favour particular source domains. In the CCSRs, the source domains of JOURNEY and BUILDINGS are more frequent than the source domain of WAR. In the CCSRs, the most frequent keyword in the source domain of JOURNEY is the verb "reach." The concordances of this metaphor indicate that none of this metaphor is used together with the preposition "for." This usage pattern indicates that the metaphor "reach" is used in the CCSRs to construct achievement rather than conceptualize an environmental issue as an object. The most frequent keyword in the source domain of BUILDING is "build," which could emphasize the building process to achieve a building goal. In this sense, the reasons for choosing the source domains of JOURNEY and BUILDING are similar in the CCSRs: the goal of environmental efforts is emphasized. Examples (3) and (4) can demonstrate how the JOURNEY metaphor "reach" and the BUILDING metaphor "build" are used in the CCSRs.

(3) In 2019, the Company's carbon trading volume <u>reached</u> 2.02 million tonnes and the <u>reached</u> RMB49.57 million, accounting for 3% of the national market. (Sinopec CSR rep., 2019)

(4) The Company always does its business within the framework of international conventions, laws and regulations, and is committed to <u>building</u> itself into an "energy saving, environmental friendly, green energy and low carbon" business. (CNOOC CSR rep., 2014)

In Example (3), the metaphor "reach" is used to indicate the achievements of *Sinopec* in carbon trading. In Example (4), C*NOOC* describes the process of building the company into an environmental one. The metaphors "reach" and "build" in these two examples both conceptualize achievements.

Chapter 5 showed that the metaphorical expression "reach" was used much more often in a past time frame than in a future time frame ("reach" in the past time frame: n=63; "reach" in the future time frame: n=33) in the CCSRs. This usage pattern is counter-intuitive as accomplished achievements in creating environmental interests could involve high financial costs and hereby concern organizational stakeholders. Chapter 5 suggested this concern was accommodated because the usages of "reach" in the CCSRs did not necessarily describe fundamental achievements in coping with climate change. When it comes to the most challenging task of reducing carbon dioxide, the metaphor "reach" was often used in the future tense. The past tense was used more often when discussing less challenging goals, such as market-oriented solutions, natural gas development, deforestation, and reduction of sulphur dioxide. In Example (3), the achievement is in carbon trading, a market-oriented

approach that requires no radical change in an oil company's core business and is thus favourable to organizational stakeholders. Carbon trading is legitimate in China as it is high on the agenda of the Chinese government. In 2020, president Xi Jinping made a pledge to the UN General Assembly that China's CO_2 emissions would peak before 2030 and that China would achieve carbon neutrality before 2060. The Chinese government considers the carbon trading market to be an important mechanism to realize the goal of carbon peak and carbon neutrality. *Sinopec's* active participation in carbon trading demonstrates its determination to follow national policies and helps the company to gain support from regulatory, media, and community stakeholders. Promoting achievement in carbon trading thus may be considered part of its legitimacy strategy.

Like the usages of the JOURNEY metaphor "reach" in the CCSRs, Chapter 6 demonstrated the BUILDING metaphor "build" was also not used to present fundamental achievements in environmental efforts that could concern organizational stakeholders in the CCSRs. Chapter 6 showed that this metaphor was more often in a future-oriented frame, especially when used to conceptualize the construction of a green enterprise or society, as this is the final completion of green construction and may cause high costs for petroleum companies. The BUILDING metaphor "build" was used in the past tense only when describing staged achievement. However, completing the construction is presented as achievable because staged completion has been realized. In Example (4), the goal of building an environmentally-friendly business is presented in a future time frame. Given these findings on the metaphors "reach" and "build", neither of these metaphors are used in the CCSRs to foreground efforts requiring fundamental changes or high costs in petroleum companies' business. Thus, the concerns of organizational stakeholders are accommodated.

In the ACSRs, the most frequent keyword in the source domain of JOURNEY is the noun "way," which emphasizes the manner something is done. The most frequent keyword in the

source domain of BUILDING is "support," which emphasizes the supportive function and attitude of petroleum companies. The most frequent keyword in the source domain of WAR is "strategy," which focuses on plans or methods. The metaphors with the highest frequency in the three source domains indicate that the source domains of JOURNEY and WAR are used with similar motivations in the ACSRs, as both of them emphasize how something is done.

Chapter 5 looked at the top 10 premodifiers of the singular and plural forms of the metaphor "way" and showed that the most frequent left-hand collocate of the metaphor is the indefinite article "a." Checking the concordances of these collocations indicates that the metaphor "way" in these concordances serves as an antecedent, followed by a non-finite or a relative clause to describe its functions, benefits and purposes. In this way, ACSRs can redefine the approach used to address climate change that can reconcile environmental and corporate interests.

In this sub-section, I compared the top 5 premodifiers of the singular and plural forms of the WAR metaphor "strategies" with those of the JOURNEY metaphor "way" in its singular and plural forms to better understand how these two metaphors are used differently and similarly. Only the top 5 instead of top 10 premodifiers are examined in this chapter because the frequency of the WAR metaphor "strategy" is low, and thus including the top 10 premodifiers would not provide insightful information. The premodifiers with the highest frequency are marked in red.

Table 7. 3 Top 5 Immediate Left-hand Collocates of the Metaphorical Expressions "strategy" and "strategies" in ACSRs

Metaphor	"strategy"	"strategies"	"way"	"ways"
1	management (14)	management (20)	a (17)	several (6)
2	business (11)	mitigation (11)	the (11)	innovative(6)
3	our (8)	reduction (6)	of (8)	effective (5)
4	corporate (7)	response (4)	this (5)	new (4)
5	this (5)	business (3)	right (5)	for (4)
Total	45	44	46	25

Table 7.3 shows that the top premodifier of the metaphor "way" is the indefinite article "a", which says little about the specific qualities of this metaphor. In contrast, the top premodifier of the WAR metaphor "strategy" is "management," which explicitly shows that the strategy in the ACSRs is mainly used for management.

The examination of the concordances of the combination of the noun "management" with the WAR metaphor "strategy" shows the metaphor "strategy" or "strategies" is the headword of a variety of phrasal nouns that contain both "strategy/strategies" and "management." The following table demonstrates which words precede the word combination "management strategy" or "management strategies" to form phrasal nouns. In this way, we can have an idea of what kinds of management strategies are highlighted in the ACSRs.

Table 7. 4 Words Preceding the Word Combination "management strategy" or "management strategies" in ACSRs

"management strategy"		"management strategies"	
Freq.	**Phrasal nouns**	**Freq.**	**Phrasal nouns**
5	climate change risk	7	water
4	water	6	environmental
3	environmental	4	site-specific
1	conservation	2	natural land
1	risk	1	fisheries
		1	freshwater
		1	emission reduction
Total: 14		**Total: 22**	

Table 7.4 shows that most of the phrasal nouns are related to environmental issues (n=32). These phrases indicate that the WAR metaphor "strategy" is primarily used in the ACSRs to conceptualize the management of environmental issues as a military plan. Management, however, is used with vagueness when it comes to addressing climate change. Tuggy (1993) made a clear distinction between the concept of "ambiguity" and "vagueness" of a given phonological form. A word form is ambiguous if the two meanings associated with it are distinct or unrelated, whereas this word form is vague if the two specific meanings are united into a single, general meaning. The word "management" is used with vagueness because managing generally means coordinating corporate efforts to accomplish an objective. Nevertheless, having environmental issues managed says little about how corporate efforts cope with environmental impacts. Managing environmental issues may not necessarily mean elimination or massive reduction of environmental impacts. In fact, it may mean they continue to enlist.

Unlike the JOURNEY metaphor "way," the WAR metaphor "strategy" is not often followed with post-modifiers in the ACSRs. The difference might be attributable to the semantic meanings of these two metaphors. The WAR metaphor "strategy" is used in

reference to a plan or method of doing something. The metaphor "way," apart from denoting methods for doing things, can also be used to describe the manner or style a method is used. Given this, the metaphor "way" can specify how a method is conducted. Example (5) is a case in point.

(5) The objective is to connect our scenarios with our climate-related risk <u>strategy</u> in a <u>way</u> that enables comprehensive strategic decision making… This analysis is presented to executive management and the board of directors to assist in strategic decision making. (ConocoPhillips, CSR rep. 2019)

In Example (5), the WAR metaphor "strategy" and the JOURNEY metaphor "way" are used together. The WAR metaphor "strategy" is used to conceptualize the method to address climate-related risks, which aims to accommodate the interests of regulatory, community and media stakeholders. The post-modifier of the JOURNEY metaphor "way" indicates how this method is conducted: "enables comprehensive strategic decision making." As the broader context suggests that organizational stakeholders will involve in this strategic decision making, this way of conducting environmental practice gives more influence to organizational stakeholders. In this way, the concerns of organizational stakeholders can be downplayed.

Findings in Chapter 5 indicated that the metaphor "way" was often utilized in the ACSRs to redefine sustainability and environment-friendliness by using post-modifiers to promote a modest sustainability goal, making it easier to reconcile corporate and environmental interests. The metaphor "way" in Example (5), however, is to accommodate both environmental and corporate interests by determining how to conduct a climate-risk strategy with an aim to involve organizational stakeholders in this environmental practice.

In this sense, compared with the WAR metaphor "strategy," the JOURNEY metaphor "way" can be more easily utilized by petroleum companies to promote their favoured approaches to environmental issues.

The investigation of the most frequent keyword in each source domain in the CCSRs and the ACSRs shows that the motivations behind the choices of the source domains of JOURNEY and BUILDING are similar in the CCSRs. Both of these source domains are used mainly to emphasize the achievement of petroleum companies. Both the JOURNEY metaphor "reach" and the BUILDING metaphor "build" are not used to present achievements of petroleum companies that would require fundamental changes or high costs in their business, whereby accommodating concerns from organizational stakeholders.

In the ACSRs, the source domains of WAR and JOURNEY were chosen for similar reasons. Both of these source domains were used primarily to emphasize the methods of coping with climate change, implying that addressing climate change will be successful if a well-devised plan is used. The most frequent premodifier of the WAR metaphor "strategy" is "management", and the combination of this metaphor with the noun "management" is contained in a variety of phrasal nouns to present military strategies employed for environmental management. However, management is vague about climate change because managing environmental impacts does not necessarily mean eliminating or largely reducing them. In addition, the JOURNEY metaphor "way" is often redefined to suggest a manner that can reconcile corporate and environmental interests. Given this, petroleum companies can make use of the JOURNEY metaphor "way" to promote their approaches to climate change.

The WAR metaphor "strategy" also reconciles the potential incompatibility between the source domain of WAR with the other two source domains. Previous research indicates that the source domain of WAR emphasizes the antagonistic relationship by highlighting two opposing sides (Semino et al., 2017). This antagonistic relationship could backfire in

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my data because failures in petroleum companies' environmental efforts would be regarded as military defeats under an antagonistic relationship, and negative emotions towards petroleum companies would be magnified as a consequence. As such, the legitimacy of petroleum companies might be damaged if they fail to achieve their environmental goals. The WAR metaphor "strategy" has nothing to do with the antagonistic relationship but emphasizes how a war is fought instead. The high frequencies of this metaphor "strategy" in both corpora downplay the antagonistic relationship that the source domain of WAR could have created and make this source domain more compatible with the other two source domains. This compatibility lessens the pressures on petroleum companies to tackle climate change, and thus petroleum companies' legitimacy is less threatened.

Another way to downplay an antagonistic relationship is to marginalize metaphors that present aggressive enemies. Semino (2021, p. 51) observed that aggressive invaders are "the most extreme examples of opponents", and wars are the extreme means to tackle them. The discursive construction of aggressive enemies could produce a "problem" scenario and strong emotional reactions (Semino, 2021). Metaphors that present dealing with aggressive enemies exist in my data, including "combat," "fight", and "war." Yet, these metaphors are used with low frequencies in both corpora such as "combat" (n=3 in the ACSRs, n=9 in the CCSRs), "fight" (n=2 in ACSRs, n=5 in the CCSRs), and "war" (n=1 in the ACSRs, n=0 in the CCSRs) and thus their presence is marginalized. When these metaphors are used, they are often used to describe insignificant impacts generated by petroleum companies or call for collective rather than divisive efforts. A typical and widely-studied WAR metaphor in previous literature is the verb "combat." This metaphor can be used to establish an antagonistic relationship as it implies threat from aggressive enemies. However, the antagonistic relationship created by this metaphor is downplayed in my data. Examples (6) and (7) can give us an idea of how the WAR metaphor "combat" is used in my data:

(6) Robust international cooperation is required to <u>combat</u> climate change. (Petro China CSR rep., 2016)

(7) The partnership involves monitoring, research, measures to <u>combat</u> poaching and illegal extraction, fire prevention and fighting, and environmental education. (Valero CSR, rep., 2017)

In Example (6), the goal of combating climate change is constructed as collective efforts in "international cooperation." In this way, the responsibility of coping with climate change is transferred partially to other participants in this war. Even if this war fails, the responsibility falls on all of the war participants instead of solely on *Petro China*. In Example (7), the enemies to be combated are "poaching and illegal extraction," which are relatively easily managed compared with enemies such as rising temperatures and air pollution. The aggressiveness of these enemies is thus reduced. Failures in combating these enemies are less likely and would not pose a threat to petroleum companies' legitimacy.

The analysis in this section indicates that the frequently-used source domains in CCSRs are JOURNEY and BUILDING, and the most frequent source domain in ACSRs is JOURNEY. The most frequent keywords in these frequently-used source domains indicate that the source domains of JOURNEY and BUILDING are used primarily to emphasize the achievements of petroleum companies, whereas the source domain of JOURNEY is used in the ACSRs mainly to propose methods or manners to cope with climate change. The less focus on achievements in ACSRs could be attributable to higher pressures on American petroleum companies in terms of their environmental practice. American petroleum companies are more internationally visible than their Chinese counterparts and have been under constant public scrutiny and criticism in terms of their environmental attitude and impacts. Therefore, American petroleum companies might be reluctant to elaborate on their

achievements in environmental efforts. Rather, they tend to propose their favoured methods or manners in dealing with climate change via the source domain of JOURNEY. Emphases on approaches to climate change can divert attention from what American petroleum companies have accomplished in their environmental practice.

7.4 Gain and Loss Frames

This section tries to explore how the source domains of WAR, JOURNEY and BUILDING are used as gain and loss frames in the CCSRs and the ACSRs. I will compare gain- and loss-framed source domains of WAR, JOURNEY and BUILDING from three perspectives: 1) the preferences of gain and loss frames of the source domains of WAR, JOURNEY and BUILDING, 2) the time frames of gain- and loss-framed source domains of WAR, JOURNEY and BUILDING, 3) usages of gain- and loss-framed source domains of WAR, JOURNEY and BUILDING to reconcile corporate and environmental interests.

7.4.1 Preferences for gain and loss frames in the source domains of WAR, JOURNEY and BUILDING

My last research question in this chapter is, "Are there similarities and differences in preferences for gain and loss frames in Chinese and American CSR reports?" Frequencies of the three source domains used as gain and loss frames can shed initial light on petroleum companies' preferences for using these source domains as gain and loss frames for legitimization purposes. Figure 7.2 can give us a clear idea of the preferences for gain and loss

frames in the CCSRs and the ACSRs:

Figure 7. 2 Gain and Loss Frames of WAR, JOURNEY and BUILDING Source Domains
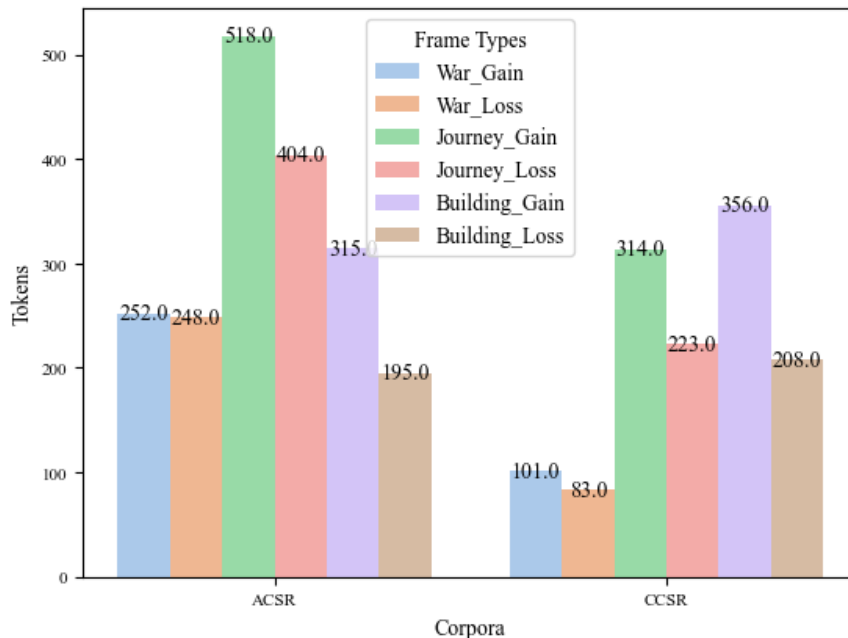
Figure 7.2 shows in both the ACSRs and the CCSRs, the source domains of JOURNEY and BUILDING are used more as a gain frame. The source domain of WAR is used as often as gain and loss frames. The more frequent use of JOURNEY and BUILDING source domains as gain frames in both the ACSRs and the CCSRs could serve as additional evidence for Charteris-Black's (2004, 2016) observation that the JOURNEY source domain and the BUILDING source domain are positively connotated. This positive connotation is one of the major similarities between these two source domains.

The topics frequently associated with gain-framed JOURNEY and BUILDING source domains can shed some light on how these two source domains are used as gain frames to legitimize the environmental practice. Table 7.5 demonstrates top topics associated with gain-framed JOURNEY and BUILDING source domains in my data.

Table 7. 5 Topics Associated with the Gain-framed JOURNEY and BUILDING Source Domains

in the ACSRs and the CCSRs

	ACSRs		CCSRs	
Ranking	JOURNEY	BUILDING	JOURNEY	BUILDING
1	Improvements (116)	Support (112)	Leadership and Management (100)	Building (147)
2	Environment (99)	Change (77)	Change (93)	Management (129)
3	Energy (89)	Environment (70)	Environment (87)	Environment (125)
4	Change (79)	Improvement (59)	Improvement (70)	Improvement (107)
5	Leadership and Management (70)	Places (51)	Gas (58)	Change (95)
6	Technology and Science (65)		Numbers (58)	
Freq.	**518**	**369**	**466**	**603**
Total Freq.	**5090**	**3533**	**4195**	**4794**
Pct.	**10%**	**10%**	**11%**	**13%**

The investigation of topics frequently associated with the source domain of BUILDING and JOURNEY in Chapter 5 and Chapter 6 indicates that the topic of "Improvement" is associated with both of these source domains as gain frames in the ACSRs and the CCSRs. This topic contains some JOURNEY metaphors related to the concept of improvement, such as "progress" as verb and noun, "advancement," "step," and "forward." It would be informative to explore why this topic containing many JOURNEY metaphors is often associated with the gain-framed source domain of BUILDING as well. The examination of concordances in the topic "Improvement" associated with the gain-framed source domain of BUILDING shows that many JOURNEY metaphors co-occur with BUILDING metaphors. Examples (8), (9) and (10) demonstrate how JOURNEY metaphors that present the concept of improvement and BUILDING metaphors are used together as gain frames.

(8) ExxonMobil supports advancement of the scientific understanding of climate change

and is committed to providing affordable energy to <u>support</u> human <u>progress</u> while advancing effective solutions to address the risks of climate change. (ExxonMobil CSR rep., 2015)

(9) We <u>support</u> the Paris Agreement as a <u>step</u> <u>forward</u> and encourage practical actions that deliver tangible results in answering the world's demands, including more energy and a cleaner environment. (Chevron CSR rep., 2019)

(10) In 2014, the Company invested RMB110 million in the <u>reconstruction</u> of more than 30 energy saving projects, saving the energy equivalent of a total of 124,000 tons of standard coal and <u>laying a solid foundation</u> for the long-term and sustained <u>advancement</u> of its energy saving work. (CNOOC CSR rep. 2014)

From the above examples, we can see that the BUILDING metaphors are often used before the JOURNEY metaphors, suggesting how the BUILDING metaphors facilitate the improvement presented by gain-framed JOURNEY metaphors. In Examples (8) and (9), the BUILDING metaphor "support" presents the assistance that enables the realization of improvement conceptualized by JOURNEY metaphors "advancement," "progress", and "step". In Example (10), the BUILDING metaphor "foundation" suggests that this building structure is the basis for the achievement of "long-term and sustained advancement."

The co-occurrences of BUILDING metaphors with JOURNEY metaphors in the above examples demonstrate how the source domain of BUILDING can be connected with the source domain of JOURNEY: The BUILDING metaphors can be used to present how building activities or structures facilitate the improvement presented by JOURNEY metaphors.

When BUILDING metaphors and JOURNEY metaphors are used in this way, the improvement conceptualized by gain-framed JOURNEY metaphors is presented as an upper

structure of a building. As the supporting building structures are essential for the upper structures' stability, the supporting structures' pivotal function is magnified. In the above three examples, the upper structures are improvements in human beings and the environment, and supporting building structures or the builder of the supporting building structures are the petroleum companies. In this way, the legitimacy of petroleum companies is established.

The other similarity between the source domain of JOURNEY and BUILDING is that some metaphors in these source domains of BUILDING and JOURNEY could be used vaguely, according to Tuggy's (1993) definition of vagueness. The BUILDING metaphor "support" is used with vagueness in my data because this metaphor can refer to either tangible or symbolic support. When it comes to supporting a building, central pillars have to carry the primary weight. Some other pillars, however, may not be indispensable in the supporting function. As such, the metaphor "support" could involve no actual activities or high costs. The metaphor "support" could even just present attitudinal or symbolic support.

In Example (8), the actual content of the metaphor "support" for human progress is indicated: providing affordable energy. This effort is part of petroleum companies' main business and thus requires no extra costs from the petroleum company, which accommodates the concerns of organizational stakeholders. The first BUILDING metaphor "support" in Example (8) and the metaphor "support" in Example (9) are vaguely used. There is no specific information regarding how petroleum companies facilitate the improvement, and thus there is no way to know how much effort is involved in this support. This vagueness can reduce the concerns of organizational stakeholders.

According to Charteris-Black (2004), the metaphorical expression "lay the foundation" does not necessarily guarantee solid and valuable policy. In Example (10), although specific information has been offered as regards *CNOOC*'s capital investment in the building efforts, the metaphorical expression "lay the foundation" still projects uncertainties. As has been

discussed in the work of Charteris-Black (2004), even after the foundation has been laid, the construction process could cease if money runs out. There is no guarantee that the capital investment will last until the completion of construction, and organizational stakeholders can make adjustments in the investment when necessary.

On the other hand, Milne et al. (2006, p. 813) state that JOURNEY metaphors conceptualize the concept of progress with "strategic ambiguity" in sustainability reports. This strategic ambiguity can be regarded as the semantic feature of "vagueness" defined by Tuggy (1993). Progress or achievements in environmental efforts might require costs from corporate business, potentially concerning organizational stakeholders. With unspecified destinations for the progress, it is not easy to measure to what extent the progress has shortened the distance between the travelling object and the destination. Chapter 6 has observed that the metaphor "progress" is sometimes used with vagueness when describing an environmental goal. For instance, some petroleum companies fell short of specifying the criteria for determining the degree of progress. In Example (8), the JOURNEY metaphor "advancement" is related to the concept of progress and used with vagueness. As no specific information is provided as regards the destination or the specific goal of the advancement, it is not easy for us to know to which extent the advancement can bring us closer to the environmental goal. In Example (10), the metaphor "advancement" is described as "long-term." As no specific information regarding the destination-the energy conservation level-is provided, we may have no idea how much distance ahead still needs to be covered by the petroleum company.

The above examples also demonstrate that American and Chinese oil companies have different priorities when reporting their environmental efforts. American oil companies emphasize environmental impacts and policies, which may be motivated by social pressures in the U.S. In Example (8), *ExxonMobil* shows its awareness of climate change by indicating its support for improving the "scientific understanding of climate change" and commitment to

pushing forward climate change solutions, which aligns with the interests of regulatory, media and community stakeholders. However, the American oil company juxtaposes its environmental commitment with affordable energy development, underplaying the urgency of coping with climate risks. In this way, the interests of organizational stakeholders are also accommodated.

In Example (9), *Chevron* shows its supportive attitude towards the Paris agreement, addressing concerns from regulatory, media, and community stakeholders. However, this support is juxtaposed with the world's demands: "more energy and a cleaner environment." As "more energy" is presented as one of the world's demands, the status quo of the oil industry can be maintained.

Chinese oil companies tend to prioritize energy saving and energy structure adjustment. In Example (10), the Chinese oil company highlights how energy-saving projects can help reduce the use of coal by indicating that the energy saved is the "equivalent of a total of 124,000 tons of standard coal." Given the constant efforts of the Chinese government to adjust China's energy structure to reduce its dependence on coal (Ji et al., 2018) and fill the domestic energy gap, *CNOOC's* investment in energy-saving projects is legitimate in China. As energy saving can reduce operation costs, these projects are also in compliance with corporate interests.

In contrast with the overuses of source domains of JOURNEY and BUILDING as gain frames, the source domain of WAR is used as loss frames as often as gain frames. This difference might be contributable to the characteristics of the concepts represented by these three source domains. Negative elements such as obstacles are not compulsory in taking a journey or setting up a building. However, a compulsory element in fighting a war is to tackle negatively evaluated enemies. As such, a number of frames related to the source domain of WAR are used to construct enemies and thus loss-framed, which might balance out the gain frames of this source domain.

For instance, the source domain of WAR and JOURNEY can present a focus in a war or journey with different types of frames. The JOURNEY metaphor "follow" can present a course or leader to be focused on in a journey, and the WAR metaphor "target" can present a focus on enemies in a war. Nevertheless, these two metaphors tend to be used in different types of frames. Examples (11) and (12) demonstrate how the JOURNEY metaphor "follow" and the WAR metaphor "target" are used in my data.

(11) With respect to production and operation, the Company strengthened screening and management efforts targeting potential risks and risk assessment of key facilities. (CNOOC CSR rep. 2017)

(12) Sinochem always cultivates HSE model enterprise and establishes model management standards, which were further condensed into the blue sky environment protection "Five-heart Culture" management model, namely classic models in various aspects that could be followed. (Sinochem CSR rep., 2010)

In Example (11), *CNOOC* uses the WAR metaphor "target" to suggest that management efforts are centred on the enemies of potential risks and risk assessment of key facilities. As the targeted issues are potential risks, which could generate hazards to society, management efforts to target these risks are legitimized. In Example (12), the word "model" occurs four times. *Sinochem* shows its ambition to be an HSE (health, security and environment) management model, hence setting a model course to be followed by other enterprises. As such, the oil company presents itself as the leader in a journey towards the model practice of HSE. As HSE can create benefits for different types of stakeholders, the oil company's legitimacy will be supported by various types of stakeholders.

Although both the WAR metaphor "target" and the JOURNEY metaphor "follow" can construct environmental efforts, they differ in how petroleum companies used them for a legitimization purpose. When using the WAR metaphor "target," the legitimacy of a petroleum company is demonstrated by their aiming at the right enemy. Given this, this WAR metaphor is often used as a loss frame. Chapter 4 indicates that in both the CCSRs (8 gain-framed "target" vs 14 loss-framed "target") and the ACSRs (20 gain-framed "target" vs 29 loss-framed "target"), this WAR metaphor is used more often as a loss frame. As for the JOURNEY metaphor "follow," the person or course being followed by others is positively evaluated often the time. When using this metaphor, petroleum companies tend to construct themselves as the leader or the developer of the course to be followed, which suggests this JOURNEY metaphor could be readily used as a gain frame. Chapter 5 indicates that in both the CCSRs (35 gain-framed "follow" vs 21 loss-framed "follow") and the ACSRs (24 gain-framed "follow" vs 16 loss-framed "follow"), this JOURNEY metaphor is used slightly more often as a gain frame.

The investigation of preferences for gain and loss frames of the three source domains indicates that both the source domains of JOURNEY and BUILDING are overwhelmingly used as a gain frame in both corpora. This finding echoes Charteris-Black's (2004, 2016) observation that these two source domains are positively connotated. The source domains of BUILDING and JOURNEY can be used together as gain frames by indicating how building efforts facilitate the improvement presented by JOURNEY metaphors. As the improvements being facilitated are socially-valued, the building efforts provided by petroleum companies are legitimate.

The source domain of WAR, however, is used not significantly more as a gain frame. This difference might be because fighting a war inevitably involves tackling enemies, which often represent negative issues. The WAR metaphor "target" as a verb, for instance, is used consistently as a loss frame in both corpora, which suggests that both Chinese and American petroleum companies tend to use this metaphor to show their intention to deal with negative

issues. When using this WAR metaphor, petroleum companies try to legitimize their environmental efforts by indicating that the right enemies will be eliminated. However, the basic meaning of the verb "target" indicates this verb merely describes aiming a weapon at enemies. This military move does not necessarily mean aggressive actions will happen afterwards. Given this, this WAR metaphor demonstrates more of an intention than concrete efforts made by petroleum companies to deal with climate change.

7.4.2 Preferences for Time frames in Gain- and Loss-framed Source Domains of WAR, JOURNEY and BUILDING

Looking at these gain and loss frames' preferred time frames can shed light on another perspective on how these gain- and loss-framed source domains are used as legitimization strategies. Previous studies suggest that the source domain of JOURNEY is often used to construct a future goal (Charteris-Black, 2004, 2016). The source domain of BUILDING can be used either in a future time frame or a past time frame (Ahrens et al., 2021; Lu & Ahrens, 2008). Little research has examined the preference of time frames of the source domain of WAR. The investigation of time frames of the three source domains in my data can demonstrate the similarities and differences in the preferences of time frames of these three source domains. The previous three chapters have calculated the frequencies of time frames of the gain and loss frames of each source domain in two corpora. Figure 7.3 demonstrates the frequencies of gain and loss frames in two different time frames.

Figure 7. 3 Gain and Loss Frames in Past and Future Time Frames
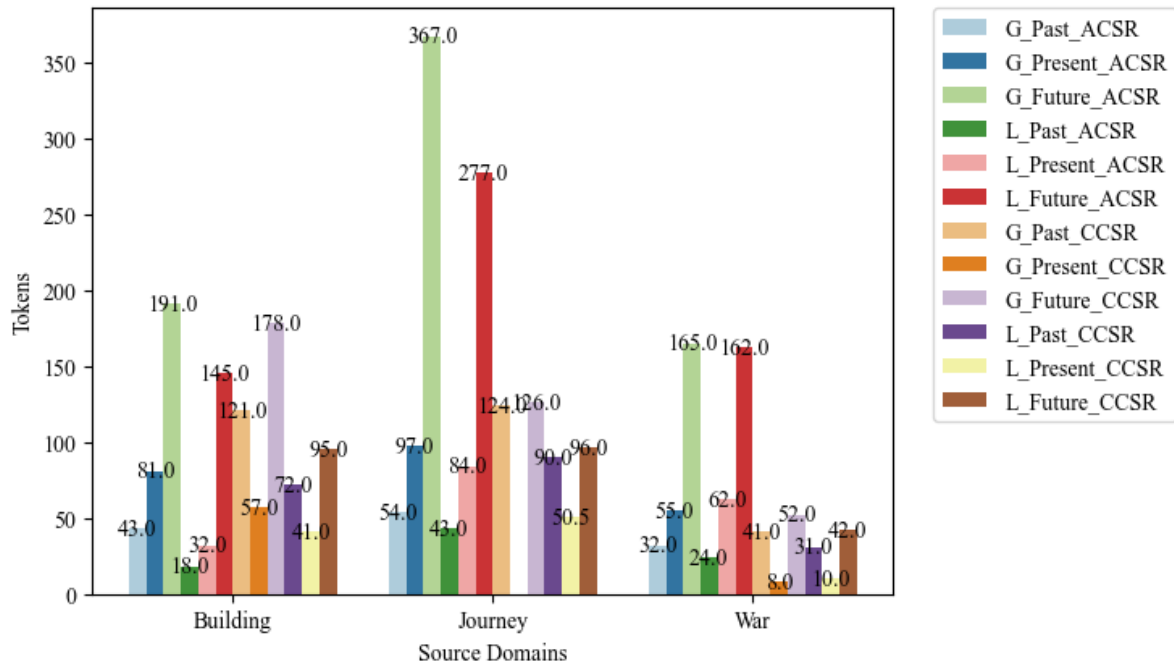
Figure 7.3 shows that both gain and loss frames of source domains of WAR and BUILDING are presented more often in the future time frame. The gain and loss frames of the source domain of JOURNEY in ACSRs are also presented most frequently in the future time frame. The gain and loss frames of the source domain of JOURNEY in CCSRs are presented almost equally in the past and future time frames. The overall preference for future time frames could reduce another potential incompatibility in using the three source domains in my data. Previous research indicates that the source domain of WAR tends to emphasize the urgency of coping with climate change (Atanasova & Koteyko, 2017a, 2017b), whereas the source domains of JOURNEY and BUILDING could underplay a sense of urgency because they tend to construct an issue as an ongoing process with a distant goal (Charteris-Black, 2004, 2016). Using these three source domains with opposing framing effects in terms of urgency in the same data could lead to incompatibility in environmental arguments. In addition, the sense of urgency could increase public concerns about petroleum companies' environmental efforts in dealing with climate

change.

As the gain- and loss-framed source domain of War in my data is used more often in a future time frame, the urgency effect generated by this source domain is lessened. Downplaying the urgency of dealing with climate change could reduce external pressures on petroleum companies to cope with climate change. Examples (13) and (14) demonstrate how the source domain of War is used in a future-oriented manner.

(13) In accordance with the Global Gas Flaring Reduction Initiative, of which ExxonMobil is a charter member, and as specified in our Upstream Flaring and Venting Reduction Environmental Standard for Projects, our <u>aim</u> is to avoid routine flaring and venting of produced fluids in new projects. (ExxonMobil CSR rep., 2012)

(14) We are speeding up study on commercial test of CO_2 recovering, in order to reduce GHG emissions and better prepare to <u>combat</u> climate change. (Valero CSR, rep., 2017)

The metaphor "aim" in Example (13) is used typically as a War metaphor to construct environmental activities in a future time frame. In this example, the War metaphor "aim" is loss-framed as its goal is to avoid negative impacts. Before specifying the goal of the petroleum company, *ExxonMobil* emphasizes the alignment of the goal with global environmental rules, which accommodates the interests of regulatory stakeholders. The Global Gas Flaring Reduction Initiative is a collaboration between governments, oil companies, and multilateral organizations with the aim of stopping routine gas flaring at oil production sites. Gas flaring contributes to climate change through GHG emissions. The oil company's goal of avoiding "routine flaring and venting of produced fluids" can reduce emissions and accommodate the interests of regulatory, media, and community stakeholders. The goal is framed in the future, which downplays its urgency and reduces concerns from organizational stakeholders. As

technologies can be used to avoid routine flaring and venting, no radical change in the core business is required.

Atanasova & Koteyko (2017b, p. 458) observed that the source domain of WAR could emphasize the severity of a problem and the need to tackle it by talking about "threat, retreat and fight." The WAR metaphor "combat" is a typical metaphor that emphasizes aggressive military fight and can thus highlight the urgency of tackling climate change. This metaphor in Example (14) is loss-framed as the goal of the sentence is to "reduce GHG emissions and better prepare to combat climate change." GHG emissions and climate change are generally regarded as environmental impacts that require urgent efforts. In Example (14), *Valero*'s commitment to dealing with these issues is demonstrated via the WAR metaphor "combat." Nevertheless, the urgency of coping with these issues is downplayed by the future time frame of this WAR metaphor. The verb "prepare" further implies that the combating efforts are still at the preparatory stage, and thus tackling this issue will happen in the far future. In addition, the way to combat climate change is through CO_2 recovery, a way to reduce CO_2 emissions by recovering carbon dioxide from energy conversion and storing it elsewhere. This climate change mitigation approach is based on technology and thus does not require fundamental changes in an oil company's core business model. In this way, concerns of organizational stakeholders can be accommodated.

Although the gain- and loss-framed source domain of JOURNEY in CCSRs is not most frequently presented in the future time frame, the examination of JOURNEY metaphors in the corpus suggests that many JOURNEY metaphors used in the past and present time frame still indicate that the eventual goals will be achieved in future. This could be attributable to the fact that this source domain is often used to present social efforts as an ongoing process and distant goals (Atanasova & Koteyko, 2017a, 2017b; Charteris-Black, 2004, 2016). Chapter 5 showed that the JOURNEY source domain was often used in describing efforts in dealing with GHG

emissions because this issue poses fundamental challenges to petroleum companies. I thus take the loss-framed JOURNEY and BUILDING source domains in the construction of GHG emission mitigation as examples to demonstrate how these source domains construct GHG emission reduction as an ongoing or staged process. Examples (15) and (16) demonstrate how the metaphors from the source domain of JOURNEY present a process.

(15) The Company also <u>moved</u> <u>forwards</u> with both its Ten Energy Saving Projects and Ten Emissions Reduction Projects. (CNOOC CSR rep., 2019)

(16) Sinochem actively <u>advances</u> energy saving and emission reduction along the whole production process. (Sinochem CSR rep. 2015)

In Example (15), the JOURNEY metaphor "move" is used in the past time frame. In Example (16), the JOURNEY metaphor "advance" is used in the present time frame. Both metaphors are used to describe the process of dealing with GHG emissions. Although they are used in the past and present time frame, the final goal of successfully reducing all emissions is to be achieved in the future. As no specific time has been indicated for finishing the journey, it is unclear when the goal will be achieved.

It is noticeable that the source domains of JOURNEY and BUILDING have subtle differences when constructing environmental practice as an ongoing process. The first difference is that, although both source domains of JOURNEY and BUILDING can indicate progress made in environmental efforts, some JOURNEY metaphors can be used to describe the speed of the progress. Example (17) is a case in point.

(17) In Canada we are sponsoring the NRG COSIA Carbon XPRIZE to incentivize and

accelerate development of technologies that convert carbon dioxide into valuable

products. (ConocoPhillips CSR rep., 2019)

In Example (17), the metaphor "accelerate" suggests that the development of environmental-friendly issues will be sped up. Increasing the development speed can give people hope that the environmental goal can be achieved faster, which can win support from regulatory, media and community stakeholders. The concerns of organizational stakeholders are accommodated as the accelerating vehicle is "technologies," which is a favourable approach for oil companies. Additionally, the way to address carbon dioxide is to turn it into "valuable products," which can generate financial gains for organizational stakeholders.

The second difference is that some JOURNEY metaphors can show that an environmental goal of reducing emissions is yet to be determined, and petroleum companies are constructed as pioneers to find a new course of the journey.

(18) Over the years, CNOOC Limited has been actively exploring effective ways to reduce greenhouse gas emissions. These include adopting new technology, reducing energy consumption and improving energy efficiency in production processes. (CNOOC CSR rep., 2014)

Chapter 5 found that the metaphor "way" in the plural form was often used to suggest that more than one approach is open for selection when it comes to addressing climate change. Innovative or new ways are hereby proposed to reconcile economic and environmental goals. In Example (18), the JOURNEY metaphor "explore" is used together with the plural form of "way" to indicate that the ways for GHG emission reduction are not determined, and the oil company is proactively searching for better ways. The adjective "effective" is used as a

premodifier in front of the JOURNEY metaphor "way" as an implication that the current ways to reduce GHG emissions are not effective enough. Support from regulatory, media and community stakeholders can be gained as the oil company presents itself as a pioneer trying to blaze new ways to reduce GHG emissions more effectively. The second sentence in the above example provides specific information as to what methods can be considered effective. These methods are related to technology, energy consumption and energy efficiency, which would not require fundamental changes in the core business of petroleum companies. Reducing energy consumption and improving energy efficiency can also increase profits for organizational stakeholders because decreasing energy use can lower energy costs and thus reduce expenses. Energy use reduction can also minimize greenhouse gas emissions, which aligns with the interests of the community, media, and regulatory stakeholders. According to the IEA Sustainable Development Scenario, energy efficiency accounts for more than 40% of the emissions reductions needed by 2040 (Fischer, 2021).

7.4.3 Motivations of Gain- and Loss-framed Source Domains of WAR, JOURNEY and BUILDING

The previous three chapters have calculated the frequencies of motivations for each gain- and loss-framed source domain and showed that both gain- and loss-framed source domains are motivated mostly by environmental efforts. The following figure displays the motivations of gain and loss frames of all the three source domains in ACSRs and CCSRs. Figure 7.4 that represent gain and loss frames motivated by environmental interests are coloured in light green (CCSRs) or dark green (ACSRs).

Figure 7. 4 Gain- and Loss-framed WAR, JOURNEY and BUILDING Source Domains Motivated by Different Interests
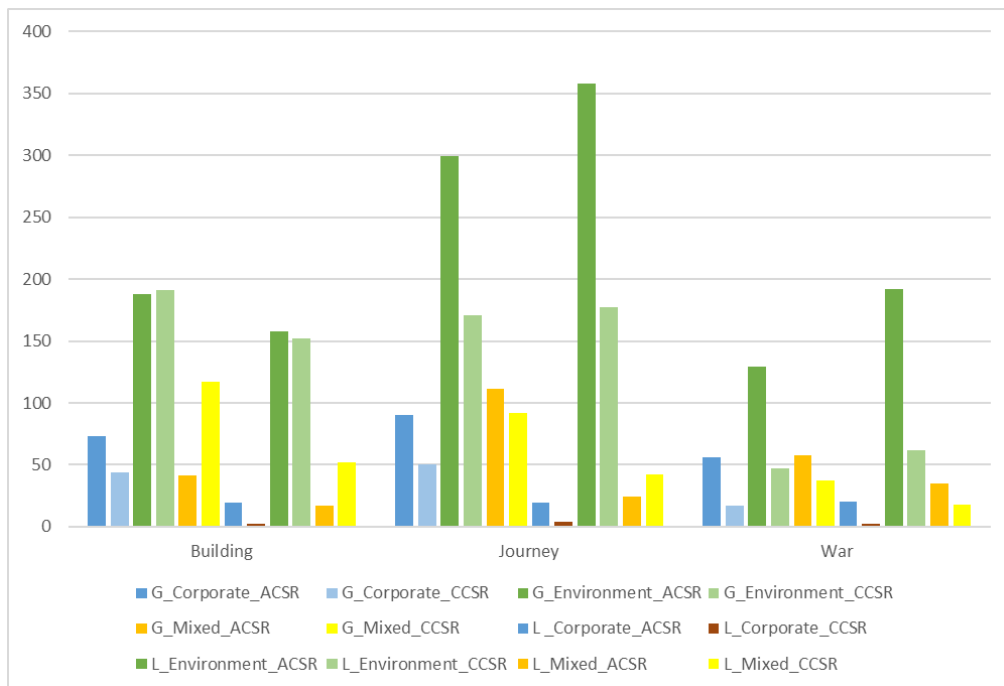
Figure 7.4 shows that environmental interests are the primary motivations for gain and loss frames of all three source domains. As all my data are extracted from the environmental sections of CSR reports, addressing environmental interests is fundamental for attaining legitimacy for petroleum companies. Nevertheless, generating environmental interests could potentially undermine corporate interests. The previous three chapters demonstrated that one way of accommodating corporate and environmental interests was to frame achievements of environmental interests in a future-oriented manner. In this way, the concerns about corporate interests could be lessened. Examination of topics frequently associated with mixed interests of three source domains can also shed light on how these three source domains reconcile environmental and corporate interests. Table 7.6 demonstrates the topics frequently associated with three source domains concerning the generations of mixed interests:

Table 7. 6 Topics Frequently Associated with Mixed Interests that Motivated Gain- and Loss-framed WAR, JOURNEY and BUILDING Source Domains in ACSRs and CCSRs

Ranking	ACSRs			CCSRs		
	WAR	JOURNEY	BUILDING	WAR	JOURNEY	BUILDING
1	Aims and Plans (42)	Energy (39)	Change (23)	Gas (23)	Leadership and Management (73)	Leadership and Management (128)
2	Risks (20)	Technology and Labs (35)	Science and Technology (20)	Safety and Risks (18)	Safety (42)	Emergency (62)
3	Change (19)	Improvement (26)	Support and Help (19)	Leadership and Management (14)	Risks (38)	Safety (64)
4	Leadership and Management (20)	Plans and Aims (21)	Leadership and Management (19)	Change (13)	Equipment and Products (33)	Improvement (58)
5	Examination and Research (18)	Improvement (19)	Risks (16)	Plans (13)	Improvement (24)	System and Framework (56)
	Facilitation (15)			Sea (9)		
Freq.	134	140	97	90	210	368
Total Freq.	959	1284	654	713	1801	2596
Pct.	14%	11%	15%	13%	12%	14%

In the CCSRs, the topic "Leadership and Management" is associated with three source domains. In the ACSRs, the topic "Leadership and Management" is associated with two source domains. In this topic, a keyword occurring with a high frequency is "management," which shows that the CCSRs and the ACSRs regard management as the primary way to reconcile corporate and environmental interests.

The source domains of JOURNEY, BUILDING and WAR have similarities in describing how management can create mixed interests. That is to emphasize management methods.

(19) Sinochem advances safe management covering the whole production process;

comprehensive troubleshooting, hierarchical management, and correction and implementation mechanism were in place; techniques upgrading serves as an important means for enhancing the role of technology in safe production, which is often utilized for assessing safety techniques and avoid major risks. (Sinochem CSR rep., 2015)

(20) Our company is <u>built</u> on the <u>foundation</u> of risk management for everything we do. (ExxonMobil CSR rep., 2014)

In Example (19), the JOURNEY metaphor "advance" is gain-framed and indicates the improvement in the safety management system. Safety management is the travelling object in the journey, and the driving force is *Sinochem*. The oil company highlights the broad scope of its safe management by indicating that it covers "the whole production process," ensuring different stakeholders that safety accidents are under control in *Sinochem*. In Example (20), the BUILDING metaphors "built" and "foundation" are loss-framed, as the goal is to control risks. These two metaphors demonstrate the pivotal role of risk management because the oil company conceptualizes risk management as the foundation for *ExxonMobil*. Just as a building will collapse if its foundation is unstable, the significance of strict risk management is foregrounded. In this way, *ExxonMobil* ensures its various stakeholders that it will spare no effort to control risks.

Despite similarities of using three source domains to describe how petroleum companies generate mixed interests, the source domain of BUILDING has a unique conceptualization function: constructing environmental efforts as a building that can be repaired, amassed, and maintained. By conceptualizing management efforts as a building, the management is presented as a building structure that can be handled as a real object. In this way, the source domain of BUILDING indicates that adjustments can be made to management. Examples (21) and (22) demonstrate how BUILDING metaphors are used in the topic of "Leadership and

Management."

(21) We should consolidate the underline foundation of management, strengthen the building of HSE leadership of leaders at all levels, and do a good job in all-employee training and education. (Sinochem CSR, rep., 2013)

(22) Through the drill, we improved our "three-level" (the Group, the tier-two subsidiaries, and the grassroots companies) emergency response command organizations, amended the emergency management structure and responsibilities in the Group's contingency plan, added emergency response offices, public relations functions, financial functions, logistics functions, legal and insurance functions, and personnel rehabilitation functions to stipulate responsibilities in detail. (Sinochem CSR rep., 2010)

In Example (21), the petroleum company can consolidate the management's BUILDING metaphor "foundation". In Example (22), the BUILDING metaphor "structure" can be "amended." The consolidation and amendment are minor adjustments to the building structure, indicating that the status quo will be largely maintained.

The source domains of JOURNEY, BUILDING and WAR have similarities in describing how management can create mixed interests by emphasizing management methods. Conceptualizing management as plans for taking a journey, constructing a building and fighting a war implies that as long as a plan is well-devised, these efforts will be successful. The unique characteristic of using the source domain of BUILDING to construct environmental efforts is that this source domain can represent them as a real entity, which can be repaired, maintained and amassed. The source domain of BUILDING in my data emphasizes that the status quo of management would be maintained, with only minor adjustments made to the main building

structures.

As has been discussed in a previous sub-section, management is a vaguely used word. As management is part of the main business of all corporations, the word "management" blurs the distinction between corporate and environmental activities. This probably explains why the topic "management" is closely associated with generating mixed interests. To manage is to make use of organizational strategies and to coordinate collective efforts to accomplish its objectives. Nevertheless, it does not necessarily mean the elimination or massive reductions of environmental hazards and impacts.

7.5 Conclusions

In this chapter, I tried to compare the similarities and differences in using three source domains for a legitimization purpose by exploring three aspects: 1) preferences for the source domains of WAR, JOURNEY and BUILDING in the ACSRs and the CCSRs, 2) frequent keywords in each source domain in the ACSRs and the CCSRs, as well as 3) preferences for gain and loss frames of each source domain in the ACSRs and the CCSRs. I examined similarities and differences in using the three source domains as legitimization strategies by addressing all these issues. I will summarize these similarities and differences by demonstrating the findings of each research question. How Chinese and American petroleum companies reconcile the different interests of their different stakeholders will also be discussed along the way.

The first research question is to compare the frequencies of each source domain in the CCSRs and the ACSRs. The comparison results indicated that the source domains of JOURNEY and BUILDING were favoured in CCSRs, and the source domain of JOURNEY was preferred in ACSRs. The reasons behind the preferences were uncovered via examinations in the usages of

metaphorical keywords belonging to these source domains.

The low mTTR of the source domain of BUILDING in the CCSRs indicated that this source domain focused on particular aspects of the building concept. Chapter 6 showed that the category "Functions" was dominant in the source domain of BUILDING in the CCSRs, and a large number of BUILDING metaphors in this category were related to building activities. This usage pattern indicated that the source domain of BUILDING was used in the CCSRs mainly to present environmental efforts as building activities. The BUILDING metaphors that present building activities legitimized petroleum companies by indicating the goals of these metaphorical building activities are ethical. The emphasis on building activities in the CCSRs is probably attributable to China's national context. As infrastructure projects in China are prosperous and legitimate, building activities are legitimate as well.

The investigation of the most frequent keyword in each source domain in the CCSRs showed that the motivations for using the source domains of JOURNEY and BUILDING were similar. The primary reason for using the source domain of JOURNEY in the CCSRs was that Chinese petroleum companies tended to construct addressing climate change as an achievement because the JOURNEY metaphor with the highest frequency was "reach." This reason was similar to that motivating the usage of the source domain of BUILDING in the CCSRs as the most frequent BUILDING metaphor in the CCSRs was "build," which can also emphasize an achievement. However, neither of these metaphors was used to demonstrate achievements that implicate fundamental changes in petroleum companies' business. Accomplished achievements in creating environmental interests could involve high financial costs and hereby concern organizational stakeholders. Therefore, the JOURNEY metaphor "reach" used in the past tense was frequently used to describe less challenging goals, which would not generate high costs and fundamental changes in petroleum companies' business. The BUILDING metaphor "build" was used in a future-oriented manner when describing achievements in constructing a

green enterprise or society. This type of construction requires high costs and fundamental changes. By framing this construction in a future-oriented manner, the concerns of organizational stakeholders are accommodated.

In ACSRs, the motivations for using source domains of JOURNEY and WAR were similar because the most frequent JOURNEY metaphor "way" and the most frequent WAR metaphor "strategy" both emphasize how environmental practice is conducted. The WAR metaphor "strategy" was often used together with the noun "management" within a variety of phrasal nouns to describe different environmental management strategies. Given this, ACSRs tended to emphasize the importance of well-formulated plans in managing environmental issues. Nevertheless, the word "management" is vague when it comes to environmental issues. To manage is to use corporate approaches to gather collective efforts to accomplish a goal, which does not necessarily mean the elimination or massive reductions of environmental impact. Constructing environmental efforts as management makes it easier to reconcile corporate and environmental interests.

The frequent usages of the WAR metaphor "strategy" in both corpora might partially settle the incompatibility among the source domains of WAR, JOURNEY and BUILDING. Previous research indicated that the source domain of WAR can highlight an antagonistic relationship (Semino et al., 2017), which is not the focus of the source domains of JOURNEY and BUILDING. The antagonistic relationship could generate negative emotions when an effort fails, magnifying negative attitudes towards petroleum companies. The WAR metaphor "strategy" has nothing to do with an antagonistic relationship, and its high frequencies in both corpora can reduce the incompatibility among the three source domains. The potential negative emotions towards petroleum companies are hereby alleviated subsequently. Although a few WAR metaphors in my data implied aggressive enemies and could generate an antagonistic relationship, this relationship created by them was downplayed as they were used to call for

collective efforts or describe enemies with an insignificant threat.

Compared with the WAR metaphor "strategy," the JOURNEY metaphor "way" was more often manipulated by petroleum companies to propose their favoured manner or style a method is used. The easier manipulation of the JOURNEY metaphor "way" is attributable to its semantic meaning. Apart from denoting a method of doing things, this metaphor can also be employed to denote the manner the method is used. A redefined manner of tackling climate change usually makes it easier to reconcile corporate and environmental interests.

The examination of gain and loss frames showed that the source domains of JOURNEY and BUILDING were used more often as gain frames, which might be attributable to their positive evaluations. Examining the topics associated with these two source domains as gain frames showed that BUILDING metaphors sometimes co-occurred with JOURNEY metaphors to indicate how building efforts or functions facilitate improvement presented by JOURNEY metaphors. When BUILDING metaphors and JOURNEY metaphors were used in this way, petroleum companies were constructed as supporting structures or builders of supporting structures of the upper structures. As an upper structure of a building is to benefit society and human beings, the supporting structures and builders of supporting structures are legitimate.

Some JOURNEY and BUILDING metaphors made it easier to legitimize environmental practice as they were used with vagueness. As for the BUILDING metaphor "support," without indicating how much weight the supporting structure carries, there is no way to know how much effort has to be made to "support" an upper structure. Symbolic or attitudinal support was also legitimized via this metaphor. The JOURNEY metaphors related to progress, such as "progress," "advancement", "step", and "forward" were also used with vagueness. It is not easy to know to what extent the progress has shortened the distance between the traveller and the destination with unspecified destinations. This vagueness may lower the concerns of organizational stakeholders as fundamental progress in environmental efforts could mean high

costs for business profits.

Unlike the source domains of JOURNEY and BUILDING, which were often used as a gain frame in my data, the source domain of WAR was used as loss frames as often as gain frames. This difference might be because fighting a war inevitably involves tackling enemies, which represent negative issues. For instance, both the source domains of JOURNEY and WAR were be used to emphasize the importance of a focused point or direction. However, the WAR metaphor "target" was often used as a loss frame and the JOURNEY metaphor "follow" was often used as a gain frame. The WAR metaphor "target" can legitimize petroleum companies' environmental practice by indicating attacking or killing the right enemies. As such, this WAR metaphor was used more often as a loss frame in both the ACSRs and the CCSRs. The JOURNEY metaphor "follow" often legitimized petroleum companies' environmental practice by constructing their actions as the journey leader to be followed by others. This may explain why this JOURNEY metaphor is used slightly more often as a gain frame in both corpora.

All of the gain- and loss-framed source domains of WAR, JOURNEY and BUILDING tended to be used in a future-oriented manner. The urgency associated with the source domain of WAR was downplayed in a future time frame. In this way, pressures on petroleum companies to cope with climate change are lessened. The source domains of JOURNEY and BUILDING were used more often in a future-oriented manner primarily because they can construct environmental efforts as a long-term process with a distant goal. This usage pattern was apparent when petroleum companies used these two source domains to describe efforts in dealing with the most challenging environmental issue for petroleum companies: GHG emissions reduction. The goal of tackling GHG emissions was often constructed as a distant goal or a staged achievement via the usages of JOURNEY and BUILDING source domains with no specific timeline for the final completion of the goal. In this way, the concerns from organizational stakeholders about potential high costs involved in dealing with GHG emissions may be

reduced.

Although both the source domains of JOURNEY and BUILDING are often used to construct a long-term process, the source domain of JOURNEY can describe more dimensions of this process compared with the source domain of BUILDING. Some JOURNEY metaphors can indicate the speed of the process. When the speed of a process is quickened, there is more hope that a goal of addressing GHG emissions can be achieved sooner. However, as no original timeline is indicated, it is unclear to which extent the timeline can be shortened. The JOURNEY metaphor "explore" can suggest the course of a journey is not determined. By constructing a petroleum company as a pioneer in a journey, the petroleum company can largely determine the future course for addressing GHG emissions. The ability of the source domain of JOURNEY to construct a rich scenario of an ongoing process may be explained by the fact that this source domain is motivated by the SOURCE-PATH-GOAL schema, and rich entailments could arise from this schema. The usefulness of the source domain of JOURNEY in elaborating on an ongoing process of tackling environmental issues may also result in the popularity of this source domain in both corpora.

The investigation of motivations behind these gain- and loss-framed source domains of WAR, JOURNEY and BUILDING indicated that all these source domains were motivated primarily by environmental interests. As my data were extracted from environmental sections of CSR reports, elaborations on generating environmental interests were the most effective way to achieve legitimacy. Nevertheless, creating environmental interests could potentially undermine corporate interests and thus threaten legitimacy obtained from organizational stakeholders. One way to settle this conflict was to frame the achievements of environmental interests in a future-oriented manner. Hence, concerns of organizational stakeholders can be lowered. In addition, mixed interests can be generated via an emphasis on corporate management. As management is part of the main business of all corporations, the word "management" used in the

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environmental sections of CSR reports blurs the distinction between corporate and environmental activities. This probably explains why the topic "management" was closely associated with generating mixed interests. Nevertheless, it is potentially dangerous to confuse managing business with managing an environmental practice. Managing environmental practice does not necessarily mean massive elimination or reduction of environmental impacts.

The source domain of BUILDING can achieve a unique function in conceptualizing environmental efforts: presenting them as a real entity. In this way, environmental efforts or achievements are presented as a building that can be repaired, maintained and amassed. When the source domain of BUILDING was used to describe the creation of mixed interests with management, BUILDING metaphors indicated the primary structure of the management would be maintained, with only minor adjustments made as an optimization, implying that a status quo of petroleum companies' business will remain as it is. This stable quality is desirable for organizational stakeholders.

Although the source domains of WAR, JOURNEY and BUILDING were used with some differences in my data, their similarities overrode their differences and created the compatibility of using them in the same data. The first similarity was that none of these three source domains focused on the urgency of dealing with climate change and created an antagonistic relationship. A sense of urgency and an antagonistic relationship could make petroleum companies more vulnerable to public criticism in terms of their environmental efforts. Downplaying urgency and an antagonistic relationship made it easier to achieve legitimacy.

In addition, none of these source domains described fundamental changes in their core business as radical changes that could concern organizational stakeholders. As indicated in Chapter 6, stability was a favourable quality for petroleum companies, despite that this quality may not be ideal for addressing climate change.

Apart from that, these three source domains tended to emphasize collective rather than a divisive force in coping with climate change. Chapters 5 and 6 indicated that the source domains of JOURNEY and BUILDING tended to include different participants in coping with climate change. Likewise, the source domain of WAR was not to create division in my data but to emphasize collective efforts in addressing environmental issues. In this way, the responsibility of addressing climate change will fall on all participants of this common course, and a failure in this course would not be blamed on petroleum companies alone.

Finally, the three source domains can all emphasize the methods used to address climate change. As long as a plan is well-formulated, environmental efforts could be successful. Focusing on environmental approaches can divert attention to what petroleum companies have achieved in their environmental efforts. Petroleum companies tried to propose their favoured approaches towards climate change to enable an easier reconciliation of corporate and environmental interests.

The notion of gain and loss frames stems from the Prospect Theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981), which argues that people would avoid risk when they sense potential gains and take risks when they foresee potential losses. Many researchers observed that the effectiveness of gain and loss frames depends largely on the level of risks involved. Gain frames are more effective for promoting behaviours with low risks, while loss frames are more effective in persuading people into behaviours involving higher risks (Kahneman & Tversky, 1979; Rothman & Salovey, 1997).

The data from my study mainly focused on how petroleum companies prevent environmental risks and protect the environment. Therefore, gain- and loss-framed source domains in my study were used to promote petroleum companies' risk prevention behaviours, which involve low risks. Based on previous studies on the Prospect Theory, gain frames should be more effective in CCSRs and ACSRs

In my study, I found that both the source domains of Journey and Building were used more frequently as a gain frame. The usages of source domains of Journey and Building as gain frames could be effective in gaining support for petroleum companies' environmental efforts. Although addressing environmental risks might generate financial risks to organizational stakeholders, my study found that the conflicts of interest between different stakeholders were well reconciled in both corpora. Therefore, the concerns for the financial risks were also prevented. By using Journey and Building metaphors in an empowering manner, petroleum companies highlighted their agency in creating benefits for both organizational stakeholders as well as regulatory, community and media stakeholders. The Prospect of these potential gains may make stakeholders avoid the risk of delegitimizing petroleum companies as contributors to their benefits. In this way, the legitimacy of petroleum companies was achieved.

8. Conclusion

This chapter will summarize the contributions to the theoretical, methodological and cultural gaps, explain the limitations of this study and provide recommendations for future research.

8.1 Summary of impact

8.1.1 Practical impact

This study investigated how the source domains of WAR, JOURNEY and BUILDING were used as gain and loss frames as legitimization strategies in the environmental sections of CSR reports produced by Chinese and American petroleum companies. China and the US are the two largest petroleum consumers globally (Daojiong, 2006), and petroleum companies in these two countries are viewed as major contributors to climate change. Despite a proliferation of research on how western petroleum companies deal with climate issues (e.g., Breeze, 2012; Dunn, 2014; Hrasky, 2012; Ihlen, 2009b; Livesey, 2002; Skjaerseth & Skodvin, 2003), strategies employed by Chinese petroleum companies to legitimize their environmental business remains under-researched. Legitimation strategies used by these two companies were hypothesized to have some commonalities since they are both from the carbon-intensive industry. However, different national contexts were also hypothesized as potentially influencing their strategies.

The data in this study were extracted from the CSR reports, which need to accommodate the interests of different types of stakeholders. The interests of organizational stakeholders were contradictory with those of media, regulatory and community stakeholders in the climate

change mitigation process. Exploring how petroleum companies reconcile these different interests to achieve legitimacy in the environmental sections of CSR reports was hypothesized to further our understanding of how source domains may create a frame that that promote legitimacy.

In a corpus-based study, I found that different national contexts resulted in divergence in usages of the most frequent source domains as legitimization strategies. Although both Chinese and American petroleum companies frequently used the source domain of JOURNEY as a legitimation strategy, the reasons behind this preference were different. Chinese petroleum companies tended to use this source domain, especially the JOURNEY metaphor "reach," to emphasize their achievements in addressing climate change. However, this metaphor presented less challenging environmental achievements as arrived destinations. The achievements that require fundamental changes or high costs in petroleum companies' business were framed more often in a future-oriented way. In this way, organizational stakeholders' concerns were accommodated.

American petroleum companies preferred to use the source domain of JOURNEY to emphasize the methods or manners they adopted in addressing climate change with the frequent usage of the JOURNEY metaphor "way." This JOURNEY metaphor was primarily used to propose or redefine the methods or manners to cope with climate change. In this way, environmental and corporate interests were accommodated. American petroleum companies diverted attention from what they have achieved in their environmental practice probably because they are more internationally visible in terms of their environmental impacts and have been under constant pressure to make concrete moves to cope with these impacts.

Apart from the source domain of JOURNEY, Chinese petroleum companies also frequently used the source domain of BUILDING to emphasize the achievements they have made in addressing climate change. The focus of this source domain was on how petroleum companies

created interests via building activities. As infrastructure projects are high on the agenda in China, building efforts are largely legitimate in China's context. In order to lessen organizational stakeholders' concerns about costs in construction efforts, the final completion of the construction of an environmentally-friendly enterprise or society was framed in a future-oriented manner. Staged completion of construction efforts was presented in a past time frame to indicate that the final completion of construction is possible.

The focus of Chinese and American oil companies also differs due to their different socio-cultural contexts. Chinese oil companies focus more on energy development and energy structure adjustments. One possible reason is that the energy gap in China is wider than in the United States. Efforts to develop energy align with China's national policies and tend to be supported by regulatory stakeholders. The other reason is that worsening environmental conditions have driven the Chinese government to introduce policies to shift China's dependence away from coal. Natural gas development is deemed to be an important way to meet domestic energy demands and adjust the energy structure. Therefore, constructing oil companies' development of natural gas is an important way to achieve legitimacy in the Chinese context.

The Chinese government also regards the development of carbon market mechanisms as a principal way to achieve the environmental goals of carbon peak and carbon neutrality. China piloted emissions trading systems (ETS) for years prior to launching the world's largest carbon market in 2021. Participating in carbon trading is a favourable way for Chinese oil companies to show their environmental responsibilities because it does not require radical changes in the core business.

Socially speaking, major oil companies in China are state-owned. They are controlled or owned by the government through ownership interests. These companies should have public policy objectives and thus are not purely profit-driven. Therefore, the Chinese oil companies

in my data often legitimize their environmental practice by showing their alignment with national regulations and policies.

The energy gap in the U.S. is not as large as in China. U.S. energy exports went beyond energy imports in 2019 (U.S. Energy Information Administration, 2020), and the U.S. has become an important energy supplier globally. Therefore, when American oil companies justify their business, they often highlight how their energy production can meet the world's energy demands.

Most American oil companies are publicly owned. Maintaining support from different types of stakeholders is essential for these publicly owned enterprises. Given this, American oil companies show more responsiveness to the interests and needs of various types of stakeholders. Some American oil companies promote unity with different stakeholders to achieve the common goal of fighting climate change. In this way, oil companies establish alliances with their regulatory, community, and media stakeholders in a climate war, and potential conflicts between them are reconciled.

American oil companies are under more public scrutiny when it comes to their environmental impacts compared with their Chinese counterparts. As such, American oil companies elaborate more on how they cope with environmental impacts to address concerns from regulatory, community and media stakeholders.

There are also similarities in using the three source domains for a legitimization purpose in American and Chinese CSR reports. Both the source domains of JOURNEY and BUILDING were used more frequently as a gain frame, indicating that Chinese and American petroleum companies tended to emphasize the benefits they created in their environmental practice. As both of these source domains can construct the environmental efforts as a long-term process with a distant goal, the successful mitigation of climate change was framed in the far future. Environmental efforts that would bring about fundamental changes were seldomly mentioned

by petroleum companies. Instead, they tended to use the source domains of WAR, JOURNEY and BUILDING to promote environmental practice that can easily reconcile environmental and corporate interests, including market- and technology-oriented approaches. Many JOURNEY and BUILDING metaphors were used with vagueness to allow for easier reconciliation of different interests. American and Chinese oil companies also reconcile different types of interests through modest environmental goals.

8.1.2 Theoretical impact

Despite extensive studies on the persuasive function of source domains of conceptual metaphors, few previous studies have investigated how source domains can be used as legitimization strategies. Although Charteris-Black (2016) proposed that source domains can create legitimization by contributing to *logos*, *pathos* and *ethos*, his criteria are not easily operationalized because he did not provide a specific procedure that can help determine how metaphors are used for *logos*, *pathos* and *ethos* purposes.

This thesis can provide new insight into the connection between source domains and legitimacy by proposing that source domains can instead create legitimization by functioning as gain and loss frames. This criterion can be readily applied in source domain analyses. Given this, this thesis contributes to conceptual metaphor theory by demonstrating how source domains function as gain and loss frames for legitimization. This study complements previous studies on the source domains of WAR, JOURNEY and BUILDING by demonstrating the similarities and differences in using these source domains in the environmental sections of CSR reports. Finally, this study contributes to applied metaphor research by demonstrating the role of metaphor in framing value systems, especially in terms of the big challenges that the world

faces.

The notion of gain and loss frames comes from the Prospect Theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981), which argues that people avoid risk when they perceive potential gains and reflect on risks when they recognize potential losses. Many researchers observed that the effectiveness of gain and loss frames is largely contingent on the degree of risks involved. Gain frames are more effective than loss frames for promoting behaviours with low risks, while loss frames are more effective in promoting behaviours involving higher risks (Kahneman & Tversky, 1979; Rothman & Salovey, 1997).

The data from this study were extracted from the environmental sections of CSR reports and thus mainly focused on how petroleum companies address climate change and prevent environmental risks. Therefore, gain- and loss-framed source domains in the data were used to conceptualize petroleum companies' risk prevention behaviours, which involve low risks. Based on previous studies on the Prospect Theory, gain frames should be more effective in promoting these behaviours.

My finding suggests that gain and loss frames play a central role in choosing source domains to achieve legitimacy. In this study, I found that both the source domains of JOURNEY and BUILDING were used more frequently as a gain frame, serving as additional evidence for Charteris-Black's (2004) observation that these two source domains are used in a positive way. The usages of source domains of JOURNEY and BUILDING as gain frames could be effective in promoting petroleum companies' environmental efforts as these efforts are to prevent environmental risks and thus involve low risks. Although addressing climate change might generate financial risks to organizational stakeholders, my study found that the conflicts of interest between different stakeholders were reconciled in ACSRs and CCSRs, and the concerns about the financial risks were also prevented. As JOURNEY and BUILDING metaphors were often used in an empowering manner, petroleum companies emphasized their agency in

creating benefits for both organizational stakeholders as well as regulatory, community and media stakeholders. Perception of these potential gains may have helped stakeholders avoid the risk of losing petroleum companies as contributors to their benefits. In this way, the legitimacy of petroleum companies was achieved.

A number of previous studies have compared the source domains of WAR, JOURNEY and BUILDING in political, media and medical discourse (Atanasova & Koteyko, 2017b; Charteris-Black, 2004, 2016; Semino et al., 2017). Nevertheless, few comparative studies have been conducted to examine these source domains in business discourse. The usages of these three source domains in business discourse were shown to differ from those in political, media and medical discourse.

First and foremost, the source domains of JOURNEY and BUILDING were used to construct addressing climate change as a long-term process and distant goal. The source domain of WAR also downplayed the urgency of dealing with climate change. A sense of urgency could provoke public anger and criticism towards petroleum companies' environmental impact. Downplaying this sense reduced threats to petroleum companies' legitimacy. In this way, the WAR source domain was used compatibly with the source domains of JOURNEY and BUILDING.

In addition, none of the three source domains emphasized the fundamental changes in petroleum companies' core business as radical changes could concern organizational stakeholders. In particular, the source domain of BUILDING was used to emphasize that the quality of stability was desired both in environmental and corporate interests.

Apart from that, these three source domains called for collective efforts rather than a divisive force in coping with climate change. The source domain of WAR was not to create division in my data but to promote collaborations in addressing environmental issues. By constructing climate change as a common course that involves collective efforts from the whole society, the responsibilities were transferred to other social participants in climate change

mitigation. Failures in addressing climate change, as a result, would not be blamed solely on petroleum companies.

The unique function of the source domain of JOURNEY is that this source domain can describe more dimensions of this process compared with the source domain of BUILDING. The source domain of JOURNEY can create a rich scenario of an ongoing process, probably because this source domain is motivated by the SOURCE-PATH-GOAL schema. The rich entailments about the journeying process make this source domain apt for describing an ongoing process of tackling environmental issues, which may explain its popularity in sustainability discourse.

The source domain of BUILDING can achieve a unique function in conceptualizing environmental efforts: presenting them as a real entity. In my data, the usage of the source domain of BUILDING indicated the primary structure of the management would be kept, with only minor adjustments made as an improvement. In this way, the status quo would be maintained. In addition, the BUILDING metaphor "stable" emphasized that the quality of stability is desired in both corporate and environmental interests. Nevertheless, this quality may not be ideal for environmental practice as radical changes might be required to mitigate climate change.

Unlike the source domains of JOURNEY and BUILDING used more frequently as gain frames, the source domain of WAR was used as gain frames as often as loss frames. This usage pattern was probably attributable to the fact that dealing with enemies is essential in fighting a war. The negative impact was often presented as enemies with the source domain of WAR in my data. By indicating the right enemy was targeted, petroleum companies suggested that a war was legitimate.

8.1.3 Methodological impact

As no previous studies have investigated how source domains can be used as gain and loss

frames, my thesis has provided specific criteria for identifying gain- and loss-framed source domains. Considering that gain and loss frames in CSR reports could be motivated by different interests of different stakeholders, the proposed methodology of identifying gain- and loss-framed source domains takes two steps. The first step is to determine whether the goal of a sentence is to generate benefits or avoid losses. After finishing the analysis at this step, analysts will then determine if the gain/loss frame is motivated by environmental or corporate interests. If the gain/loss frame is related to corporate benefits, it is motivated by corporate interests. If the gain/loss frame is associated with environmental benefits, it is motivated by environmental interests. In terms of methodological impacts, this study aims to provide future research with a specific and systematic analytical framework to identify gain- and loss-framed source domains as legitimization strategies.

8.2 Limitations

Due to the large corpora sizes, this study adopted Sardinha's (2012) sampling technique as a metaphor retrieval method to collect potential keywords of WAR, JOURNEY and BUILDING source domains. This technique is to compile a predetermined list of keywords to search for all of them in the whole data. A predetermined list of keywords may not cover all the possible metaphors used in my data. In addition, petroleum companies included in my data are those on the Fortune 500 list generated in 2020, which might exclude a few petroleum companies that used to be on the Fortune 500 list in years other than 2020.

In addition, my study focused only on written language despite that CSR reports feature various semiotic resources. Some scholars found that CSR disclosure is multimodal (O'Halloran, 2009), and various semiotic resources are utilized in this type of report (Rajandran & Fauziah, 2014b, 2014a). The future research on other semiotic resources in CSR reports can

provide a more comprehensive picture of legitimization strategies used in CSR reports.

This study is text-based research on gain- and loss-framed source domains. Their effects on the perception of different types of stakeholders can only be discussed and assumed based on text analysis results. Empirical studies that measure people's reactions are needed to verify the influences of gain- and loss-framed source domains on people's perceptions.

8.3 Future work

In the future work, I will look at how modes other than written language are used for legitimization purposes in Chinese and American CSR reports. This research will enable us to see how strategies in different modes are used interactively to achieve legitimacy. In addition, I will apply the criteria for identifying gain- and loss-framed source domains in genres other than business discourse to find out how other types of genres achieve legitimacy with gain- and loss-framed source domains.

In order to verify the effects of gain- and loss-framed source domains on persuading different types of stakeholders into accepting oil companies as contributors to their benefits, experimental studies have to be conducted in the future to measure people's reactions to the metaphorical language used as gain and loss frames. Gain- versus loss-framed source domains will be experimented with different types of stakeholders from China and the U.S. to verify their effectiveness. Quantitative surveys will be carried out in these experiments to justify the effectiveness of applying PT to explain the reception of a certain group of readers of CSR reports.

Collaborations can be made with researchers in the business field to explore how to develop effective CSR reports. For instance, the differences in the legitimization strategies used by American and Chinese oil companies can guide American and Chinese oil companies in writing

their CSR reports for expanding into overseas markets.

Notes:

The full corpora can be available via the link:

https://osf.io/3jk9y/?view_only=82900507bd094848b83d9d4cd8240740

Appendix 1: Environmental sections in each CSR report

CSR Reports of Chinese Oil Companies

Table 1. Environmental Sections of CSR Reports of CNOOC

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2011	Environmental Responsibility	/	1,354
2013	Environmental Protection	Combating Climate Change	2,762
		Energy Conservation and Emission Reduction	
		Ecological Diversity Protection	
		Special Topic: Dream Realizing in Blue Sea and Sky	
2014	Safety and Environmental Protection	HSE Philosophy	4,907
		Management System	
		Operational Safety	
		Environmental Protection	
		Response to Climate Change	
2015	Safety and Environmental Protection	HSE Commitment	5,709
		Management System	
		Operational Safety	
		Environmental Protection	
		Response to Climate Change	
2016	Safety and Environmental Protection	HSE Commitment	4,844
		Management System	
		Operational Safety	
		Environmental Protection	
		Response to Climate Change	
2017	Safety and Environmental Protection	HSE Philosophy	5,196
		HSE Management System	
		Production Safety	
		Equipment and Facility Integrity Management	
		Enhance Emergency Response Capability	
		Environmental Protection	
		Response to Climate Change	
2018	Safety and Environmental Protection	HSE Philosophy	5,584
		HSE Management System	
		Production Safety	
		Equipment and Facility Integrity Management	
		Enhance Emergency Response Capability	
		Cyber Security	
		Environmental Protection	
		Response to Climate Change	
2019	Environmental Protection	Environmental Management	4,654
		Response to Climate Change	
		Emissions Management	

		Ecological Protection	
			35,010

Table 2. Environmental Sections of CSR Reports of Petro China

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2013	Safe And Clean Production and Operation	Improving HSE Management	3,337
		Enhancing Operational Safety	
		Promoting Energy Saving and Emissions Reduction	
		Ecological Protection	
		Response to Climate Change	
2014	Safe and Clean Production and Operation	Improving HSE Management	3,587
		Enhancing Operational Safety	
		Ecological Protection	
		Promoting Energy Saving and Emission Reduction	
		Response to Climate Change	
2015	Safe and Clean Production and Operation	Improving HSE Management	3,547
		Enhancing Operational Safety	
		Ecological Protection	
		Promoting Energy Conservation	
		Response to Climate Change	
2016	Safe and Clean Production and Operation	Improving HSE Management	3,770
		Enhancing Operational Safety	
		Ecological Protection	
		Promoting Energy Conservation	
		Response to Climate Change	
2017	Safety And Clean Production And Operation	Improving HSE Management	4,204
		Enhancing Operational Safety	
		Ecological Protection	
		Promoting Energy Conservation	
		Response to Climate Change	
		Special Report: Curbing Methane Emissions	
2018	Energy and the Environment	Energy and the Future	4,291
		Response to Climate Change	
		Clean Energy	
		Environmental Protection	
2019	Energy And the Environment	Energy Transition	5,648
		Topic: Technological Innovation, Meeting Energy Challenges	
		Response to Climate Change	
		Clean Energy	
		Environmental Protection	
Total			28,384

Table 3. Environmental Sections of CSR Reports of Sinochem

Year	Environmental Section(s) of Each Year	Subsections	Word Count

2010	Conducting HSE Management to Reach Harmony with Nature	Further Improving our HSE Management System	2,462
		Occupational Health and Safe Production	
		Environmental Protection	
		Tackling Climate Change	
2011	Practicing HSE Management to Achieve Safe, Green and Harmonious Development	Improving Our HSE Management Mechanism	2,572
		Occupational Health and Production Safety	
		Ecological Environmental Protection	
2012	Practicing HSE Management to Achieve Safe, Green and Harmonious Development	Enhancing HSE Leadership	2,414
		Enhancing HSE Management	
		Occupational Health	
		Safe Production	
		Emergency Management	
		Environmental Protection	
2013	Guarantee Safety and Protect the Environment to Reach Harmony with Nature	Enhancing HSE Management	2,829
		Occupational Health	
		Safe Production	
		Emergency Management	
		Environmental Protection	
2014	Guarantee Safety and Protect the Environment to Reach Harmony with Nature	Strengthen HSE Management Capacity	2,249
		Occupational Health	
		Safe Production	
		Emergency Management	
		Environment Protection	
2015	Practice Safety and Environment Protection, in Harmony with the Nature	Strengthen HSE Management	2,885
		Materialize Safety Actions	
		Dedication to Environment Protection	
2017	Safe and Clean Production and Operation	Improving HSE Management	2,475
		Enhancing Operational Safety	
		Ecological Protection	
2018	Health, Safety and Environment	Upgrading the HSE Management Model	1,428
		Building a Safe Sinochem	
		Strengthening Environmental Protection	
2019	Safety and Environment First	HSE Management System	3,656
		Improving Intrinsic Safety	
		Strengthening Environment Management	
Total			22,970

Table 4. Environmental Sections of CSR Reports of Sinopec

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2010	Making Every	Safe and Green Operation	3,898

	Drop Count	Low-Carbon Development	
2011	Our Stakeholders	Green and Low-Carbon Growth	2,702
2012	Construction of Ecological Civilization	Promote Green Business	1,637
		Clean Production	
		Provision of Clean Products	
		R&D of Sustainable Energy Sources	
		Biodiversity Conservation	
2013	Supply of Clean Energy	Refined Oil Products Quality Upgrading	3,822
		Green Energy	
	Construction of Ecological Civilization	Management of Carbon Assets	
		Strengthened Environmental Monitoring	
		Clean Production	
	Special Show Cases	Clean Water & Blue Sky Campaign	
		11.22 Accident of Dongying-Huangdao Crude Oil Pipeline Leakage and Explosion	
		Approval Limited by the Ministry of Environmental Protection	
		Sinopec Corp. in Africa	
		Caring for Climate China Summit	
2014	Our Action	Sustainable Energy Supply	2,055
		Green and Low-Carbon Development	
2015	Responsibility Leads the Future	Green Development Leads to a Beautiful Future	2,638
2016	Pursuing Green Development	Constructing a Safe and Green Enterprise	1,774
2017	Promoting Green Development	Progressing in Safety, Ecological and Environmental Protection	3,720
2018	Green Enterprise Campaign		6,311
	Green Energy and Products		
	Climate Change	Climate-Related Risks	
		Improving Energy Efficiency	
		Natural Gas	
		Using Alternative Energy Sources	
		GHG Emission Management	
	Environment	Environment-Related Risks	
		Air Emissions	
		Water Resources	
		Solid Waste	
		Land Resources	
		Oil Spills	
		Biodiversity	
2019	Featured Stories	Topic 1: Green Enterprise Campaign	6,830
		Topic 2: Supply of Green Energy and Chemical Products	
	Low-Carbon Development	Climate Change	
		Energy Transition	
	Environmental	Environmental Management	

	Protection	Air Emissions	
		Solid Waste	
		Water Resources	
		Land Resources	
		Oil Spills	
		Biodiversity Conservation	
Total			35,387

CSR Reports of American Oil Companies

Table 1. Environmental Sections of CSR Reports of Chevron

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2010	Australia: A Natural Partnership	Climate Change	423
	California, United States: Finding common Ground in Richmond	The Environment	
	Indonesia: Cultivating Gotong Royong	Renewable Energy	
2011	Indonesia: Partnership in Conservation and Preservation	Renewable Energy	252
	US Northeast: Unlocking Potential in Pennsylvania	The Environment	
2012	Environmental Stewardship	Our Approach to Minimizing Environmental Impacts	1,769
2013	Environmental Stewardship		1,279
2014	Protecting the Environment		1,024
2015	Advancing Environmental Stewardship		1,592
	Addressing Climate Change and Energy Efficiency		
	Managing Water Resources		
2016	Addressing Climate Change Risks		2,429
	Advancing Environmental Stewardship		
	Managing Water Resources		
2017	Addressing Climate Change		1,511
	Protecting the Environment and Community Health		
	Managing Water Resources		
2018	Protecting the Environment		1,608
	Addressing Climate Change		
	Managing Water Resources		
2019	Focusing on Environmental Issues		2,235
	Addressing Climate Change		
	Stewarding Responsible Water Management		
Total			14,122

Table 2. Environmental Sections of CSR Reports of ConocoPhillips

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2011	Climate and environment		8,191
	Water Management in Statoil		
	Sustainable shipping strategy		
	Natural gas: Low-carbon energy		
	Carbon efficiency leader		
	Low-carbon technologies		
	Sustainability & oil sands		
2012	Environment	Exploration	4,431
		Climate Change	
		Biodiversity	
2013	Environment		14,466
2014	Environment	Life Cycle Thinking	13,815
		Biodiversity	
		Water	
		Using Material Resources Wisely	
		Climate Change	
2015	Environmental Performance	Climate Change	7,958
		Water	
		Biodiversity	
		Spills	
2016	Environmental Performance	Climate Change	9,032
		Water	
		Biodiversity	
2017	Managing Local Environmental Risk	Water	4,406
		Biodiversity	
2018	Managing Climate-Related Risks	Chairman and CEO Letter Reporting Climate Change	28,898
		Introduction	
		Governance Framework	
		Strategy	
		Risk Management	
		Performance Metrics & Targets	
		External Collaboration	
		Public Policy Engagement	
		Climate Change Position	
		Cautionary Statement	
	Water	Assessing Risks	
		Risk Register & Action Plan	
		Water Management Priorities	
		Integrating Technology	
		External Collaboration	
		Water Position	

	Biodiversity	Assessing Risks	
		Risk Register & Action Plan	
		Mitigating Risks	
		Conservation Partnerships	
		External Collaboration	
		Biodiversity Position	
	Air Emissions		
	Spill Prevention & Performance		
2019	Managing Climate-Related Risks	Chairman and CEO Letter	32,237
		Introduction	
		Governance Framework	
		Strategy	
		Risk Management	
		Performance Metrics and Targets	
		External Collaboration	
		Public Policy Engagement	
		Climate Change Position	
	Water	Local Risk Management	
		Managing Water Risks	
		Water Performance Metrics	
		Integrating Technology	
		External Collaboration	
		Water Position	
	Biodiversity	Risk Management Framework	
		Biodiversity Management	
		Biodiversity Performance Metrics	
		Conservation Partnerships	
		Biodiversity Position	
	Spills		
	Air Emissions		
	Waste		
Total			123,434

Table 3. Environmental Sections of CSR Reports of ExxonMobil

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2010	Environmental Performance	Managing to reduce environmental impacts	8,604
		Assessing our surroundings	
		Protecting biodiversity	
		Designing our facilities and operations	
		Spill prevention	
		Air emissions reductions	
		Freshwater management	
		Waste management	
		Environmental expenditures	
		Site remediation	
	Case study: Natural Gas		
	Managing Climate Change	Operational GHG emissions	

		Flaring	
		Efficiency improvements	
		Oil sands	
		Cogeneration	
		Carbon capture and storage	
		Consumer efficiency	
		Science and technology	
		Renewable biofuels	
		Public policy debate	
2011	Environmental Performance	Environmental stewardship	9,623
		Biodiversity and ecosystem services	
		Freshwater management	
		Spill performance	
		Emissions and waste	
		Site remediation	
	Case study: technology		
	Managing Climate Change Risks	Mitigating GHG emissions in our operations	
		Energy Efficiency	
		Cutting-edge technology	
		Responsible product use	
		Public policy debate	
2012	Environmental Performance	Conducting Impact Assessments	10,704
		Freshwater Management	
		Spill Prevention	
		Restoring the Environment	
	Case study: unconventional natural gas development		
	Case study: employing new technology to unlock Canadian oil sands		
	Managing Climate Change Risks	Greenhouse gas emissions	
		Energy efficiency	
		Cutting-edge technology	
		Public policy debate	
	Case study: sustainable products in the chemical business		
2013	Environmental Performance	/	166
		/	
		/	
2014	Environmental performance	Environmental management	9,219
		Biodiversity and ecosystem services	
		Water management	
		Spill performance	
		Air emissions	
		Environmental compliance	
		Rehabilitating the environment	
	Managing climate change risks	Engaging on climate change policy and planning	
		Mitigating greenhouse gas emissions in our operations	

		Developing future technology	
		Case study: Innovation drives sustainability in Downstream and Chemical businesses	
2015	Managing Climate-Related Risks	Engaging on climate change policy	14,417
		Developing future technology	
		Mitigating greenhouse gas emissions in our operations	
		Developing solutions that reduce greenhouse gas emissions for customers	
	Case study: ExxonMobil's research and development initiatives		
	Environmental performance	Environmental management	
		Biodiversity and ecosystem services	
		Water management	
		Spill performance	
		Air emissions	
		Environmental compliance	
		Rehabilitation and decommissioning	
2016	Managing Climate Change Risks		7,062
	Environmental Performance		
2017	Managing the risks of climate change		3,606
	Environmental performance		
2018	Environment	Managing climate change risks	3,495
		Developing innovative products and technology	
		Waste management	
2019	Natural gas		3,893
	Emissions		
	Pursuing a 2oC pathway		
Total			70,789

Table 4. Environmental Sections of CSR Reports of Phillips66

Year	**Environmental Section(s) of Each Year**	**Subsections**	**Word Count**
2016	Environmental Commitment		195
2017	Environmental Progress		2,585
2018	Environmental Commitment		254
2019	Environmental Stewardship		3,837
Total			6,871

Table 5. Environmental Sections of CSR Reports of Valero

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2015	Environment		1,793
2016	Environmental Stewardship	Environment	2,661
2017	Planet		10,656
2019	Environment		1,691
Total			16,801

Table 6. Environmental Sections of Marathon CSR Reports

Year	Environmental Section(s) of Each Year	Subsections	Word Count
2011	Environmental Stewardship		2,632
2012	Environmental Stewardship	Air pollutant emissions	1,091
		Greenhouse gas emissions	
		Toxic release inventory	
		Waste generation and recycling	
		Energy use	
		Spills	
		Designated Environmental Incidents	
2013	Environment		3,491
	Air Emissions Management		
	Emissions Overview, Methodology and Mitigation Strategies		
	Water Management		
	Spills and Releases		
	Waste Management		
	Biodiversity		
2014	Environment		4,819
	Air Emissions Management		
	Emissions Overview, Methodology and Mitigation Strategies		
	Water Management		
	Spills and Releases		
	Waste Management		
	Biodiversity		
2015	Living Our Values to Protect the Environment		2,291
	Climate Change and		

	Air Emissions Management		
	Managing Risks		
	Waster Management		
	Spills and Releases		
	Waste Management		
2016	Environment	Environment	2,574
		Climate Change and Emissions Management	
		Emissions Overview and Methodology	
		Water Management	
		Oilfield Spill Prevention and Response	
		Land Stewardship	
		Decommissioning	
2017	Environment		4,103
	Climate change and Emissions Management		
2018	Environment		4,350
	Renewable Energy and Products		
2019	Environment	Environment Overview	9,386
		Climate Change	
		Emissions Management	
		Land Stewardship and Biodiversity	
		Water Stewardship	
		Spill Prevention and Response	
		Hydraulic Fracturing	
		Seismicity	
		Waste	
Total			34,809

Appendix 2: Previous studies from which potential keywords were retrieved

Journey Metaphor
Cameron, L. J. (2007). Patterns of metaphor use in reconciliation talk, *Discourse & Society*, 18(2), 197-222.
Charteris-Black, J. (2011). *Politicians and rhetoric: The persuasive power of metaphor*. Springer.
Freeman, D. C. (1995). "Catch [ing] the nearest way": Macbeth and cognitive metaphor. *Journal of pragmatics*, *24*(6), 689-708.
Forceville, C. (2011). The journey metaphor and the source-path-goal schema in Agnès Varda's autobiographical gleaning documentaries. In M. Fludernik (Eds.), *Beyond cognitive metaphor theory: Perspectives on literary metaphor* (pp.281-297). London: Routledge
Lakoff, G. (1986). A figure of thought. *Metaphor and symbol*, 1(3), 215-225.
Ritchie, L. D. (2008). X is a journey: Embodied simulation in metaphor interpretation. *Metaphor and Symbol*, 23(3), 174-199.
Sebera, J., & Lu, W. L. (2018). Metaphor as a (de-) legitimizing strategy in leadership discourse: The language of crisis in Winston Churchill's Cold War speeches. In *Persuasion in Public Discourse* (pp. 65-84). John Benjamins.
Semino, E., Demjén, Z., Demmen, J., Koller, V., Payne, S., Hardie, A., & Rayson, P. (2017). The online use of Violence and Journey metaphors by patients with cancer, as compared with health professionals: a mixed methods study. *BMJ supportive & palliative care*, 7(1), 60-66.
Tay, D. (2011). THERAPY IS A JOURNEY as a discourse metaphor. *Discourse Studies*, 13(1), 47-68.
War metaphor
Atanasova, D., & Koteyko, N. (2017). Metaphors in Guardian Online and Mail Online opinion-page content on climate change: War, religion, and politics. *Environmental Communication*, 11(4), 452-469.
Arrese, Á., & Vara-Miguel, A. (2016). A comparative study of metaphors in press reporting of the Euro crisis. *Discourse & Society*, 27(2), 133-155.
Asplund, T. (2016). Metaphors in climate discourse: an analysis of Swedish farm magazines. *Public Communication of Science and Technology*, 25, 11.
Charteris-Black, J. (2011). *Politicians and rhetoric: The persuasive power of metaphor*. Springer.
Semino, E., Demjén, Z., & Demmen, J. (2018). An integrated approach to metaphor and framing in cognition, discourse, and practice, with an application to metaphors for cancer. *Applied linguistics*, 39(5), 625-645.
Semino, E., Demjén, Z., Demmen, J., Koller, V., Payne, S., Hardie, A., & Rayson, P. (2017). The online use of Violence and Journey metaphors by patients with cancer, as compared with health professionals: a mixed methods study. *BMJ supportive & palliative care*, 7(1), 60-66.
Building metaphor
Ahrens, Kathleen, Menghan Jiang, & Winnie Huiheng Zeng. (in press). BUILDING metaphors in Hong Kong Policy Addresses. In M. Degani & M. Callies (Ed.), *Metaphors in Englishes around the world*. London: Bloomsbury Academic.
Charteris-Black, J. (2011). *Politicians and rhetoric: The persuasive power of metaphor*. Springer.

Appendix 3: List of potential source domain keywords

Table 1. Potential Source Domain Keywords belonging to the Source Domains of BUILDING, JOURNEY and WAR

Potential Keywords of Source Domain of BUILDING	Potential Keywords of Source Domain of JOURNEY	Potential Keywords of Source Domain of WAR
Functions		
tear down *phrasal verb*	track *v.*	deploy *v.*
collapse *v.*	step forward *phrasal verb*	defend *v.*
build up *phrasal verb*	wander *v.*	siege *v.*
ruin *v.*	impede *v.*	ravage *v.*
erect *v.*	toil *v.*	aim *v.*
repair *v.*	step up *phrasal verb*	retreat *v.*
construct *v.*	march *v.*	target *v.*
support *v.*	stray *v.*	attack *v.*
underpin *v.*	meander *v.*	conquer *v.*
build *v.*	drift *v.*	hit *v.*
set up *phrasal verb*	move on *phrasal verb*	defeat *v.*
	embark on *phrasal verb*	surrender *v.*
	hobble *v.*	wipe out *phrasal verb*
	arrive *v.*	defence *v.*
	navigate *v.*	shoot *v.*
	travel *v.*	struggle *v.*
	chase *v.*	fight *v.*
	run *v.*	combat *v.*
	move *v.*	shield *v.*
	exit *v.*	
	approach *v.*	
	pass *v.*	
	lead *v.*	
	return *v.*	
	go *v.*	

accelerate *v.*

stop *v.*

take the lead *phrasal verb*

end *v.*

keep pace with *phrasal verb*

guide *v.*

walk *v.*

reach *v.*

come *v.*

explore *v.*

face *v.*

follow *v.*

re-direct *v.*

advance *v.*

push forward *phrasal verb*

leave *v.*

proceed *v.*

speed up *phrasal verb.*

step up *phrasal verb*

slow down *phrasal verb*

direct *v.*

Qualities		
stable *a.*	hobbled *a.*	aggressively *adv.*
structural *a.*	bumpy *a.*	strategic *a.*
supporting *a.*	lost *a.*	strategically *adv.*
	stuck *a.*	
	on track *pp.*	
	on the road *pp.*	
	back *a.*	
	forward *a.*	
	straightforward *a.*	
	smooth *a.*	
	slow *a.*	

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ahead *a.*

direct *a.*

back *adv.*

indirect *a.*

leading *a.*

unimpeded *a.*

against *pp.*

Entities

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façade *n.*	gridlock *n.*	flag-waver *n.*
bedrock *n.*	deadlock *n.*	weapon *n.*
buttress *n.*	obstacle *n.*	hostage *n.*
doorstep *n.*	highway *n.*	officer *n.*
bridge *n.*	alley *n.*	fight *n.*
barrier *n.*	explorer *n.*	ally *n.*
threshold *n.*	crossroad *n.*	battlefield *n.*
builder *n.*	high-road *n.*	armor *n.*
home *n.*	turn *n.*	artillery *n.*
house *n.*	twists and turns *phrase*	squadron *n.*
building *n.*	distance *n.*	fleet *n.*
door *n.*	journey *n.*	explosion *n.*
construction *n.*	route *n.*	bomb *n.*
base *n.*	passenger *n.*	bazooka *n.*
foundation *n.*	course *n.*	soldier *n.*
framework *n.*	pace *n.*	fighter *n.*
pillar *n.*	direction *n.*	casualty *n.*
wall *n.*	trajectory *n.*	troop *n.*
window *n.*	way *n.*	deployment *n.*
cornerstone *n.*	step *n.*	strategy *n.*
structure *n.*	path *n.*	sector *n.*
reconstruction *n.*	map *n.*	battle *n.*
platform *n.*	roadmap *n.*	retreat *n.*
stability *n.*	pathway *n.*	attack *n.*
collapse *n.*	distance *n.*	invasion *n.*

journey *n.*

track *n.*

march *n.*

speed *n.*

movement *n.*

advancement *n.*

guidance *n.*

pace *n.*

exploration *n.*

progress *n.*

war *n.*

combat *n.*

Appendix 4: Definitions of SUMO nodes related to the concepts of journey and war

Table 1 SUMO Nodes Determined as Directly Related to the Source Domain of JOURNEY

SUMO Nodes	Definitions
Road	A path along which vehicles travel. It is typically, although not necessarily, paved and intended for cars
Roadway	Roadway is the subclass of LandTransitways that are areas intended for surface travel by self-powered, wheeled vehicles, excluding those that travel on tracks. Roadways have been at least minimally improved to enable the passage of vehicles. Roadways include dirt and gravelled roads, paved streets, and expressways.
Transitway	Transitway is the broadest class of regions which may be passed through as a path in instances of Translocation. Transitway includes land, air, and sea regions, and it includes both natural and artificial transitways.

Table 2 SUMO Nodes Determined as Directly Related to the Source Domain of WAR

SUMO Nodes	Definitions
Battle	A Violent Contest between two or more military units within the context of a war. Note that this does not cover the metaphorical sense of 'battle', which simply means a struggle of some sort.
Military Assault	close fighting during the culmination of a military attack.
War	A military confrontation between two or more Geopolitical Areas or Organizations whose members are Geopolitical Areas
War State	a legal state created by a declaration of war and ended by official declaration during which the international rules of war apply, war was declared in November but actual fighting did not begin until the following spring
Soldier	This Attribute describes someone serving in the armed forces of a Nation.
Fighter	Any high-speed Military Aircraft whose purpose is to destroy enemy Military Aircraft

Appendix 5: Tags of the English Taggers of the POS Tagging of Stanford CoreNLP

Tags	Definitions
CC	conjunction, coordinating
CD	numeral, cardinal
DT	determiner
EX	existential there
FW	foreign word
IN	preposition or conjunction, subordinating
JJ	adjective or numeral, ordinal
JJR	adjective, comparative
JJS	adjective, superlative
LS	list item marker
MD	modal auxiliary
NN	noun, common, singular, or mass
NNS	noun, common, plural
NNP	noun, proper, singular
NNPS	noun, proper, plural
POS	genitive marker
PRP	pronoun, personal
PRP$	pronoun, possessive
RB	adverb
RBR	adverb, comparative
RBS	adverb, superlative
RP	particle
SYM	Symbol
TO	"to" as a preposition or infinitive marker
UH	interjection
VB	verb, base form
VBD	verb, past tense
VBG	verb, present particle or gerund
VBN	verb, past participle
VBP	verb, present tense, not 3rd person singular

VBZ	verb, present tense, 3rd person singular
WDT	WH-determiner
WP	WH-pronoun
WP$	WH-pronoun, possessive
WRB	Wh-adverb

References

ABBYY. (2014). Abbyy FineReader 12. Retrieved from
https://www.abbyy.com/company/news/abbyy-finereader-12-greatly-speeds-up-
recognition-and-quotation-of-text-from-scans-and-photos/

Ahrens, K. (2010). Mapping principles for conceptual metaphors. In C. Lynne, A. Deignan,
G. Low, & Z. Todd (Eds.), *Researching and applying metaphor in the real world* (pp.
185–207). Amsterdam: John Benjamins.

Ahrens, K., Chung, S. F., & Huang, C. R. (2004). *From lexical semantics to conceptual
metaphors: Mapping principle verification with WordNet and SUMO* (pp. 99–106).
Singapore: Recent Advancement in Chinese Lexical Semantics: Proceedings of 5th
Chinese Lexical Semantics Workshop.

Ahrens, K. (2002). When Love Is Not Digested: Underlying Reasons for Source to Target
Domain Pairings in the Contemporary Theory of Metaphor. *Proceedings of the
Cognitive Linguistics Conference*, 273–302.

Ahrens, K., & Jiang, M. (2020). Source Domain Verification Using Corpus-based Tools.
Metaphor and Symbol, *35*(1), 43–55.

Ahrens, K., Jiang, M., & Zeng, H. (2021). building Metaphors in Hong Kong Policy
Addresses. In M. Deganni & M. Callies (Eds.), *Metaphors in Englishes around the
world*. London: Bloomsbury Academic.

Alexandrescu, L. (2014). Mephedrone,assassin of youth: The rhetoric of fear in contemporary
drug scares. *Crime,Media,Culture*, *10*(1), 23–37.

Amer, M. M. (2009). Thomas Friedman's discourse. *Discourse & Society*, 5–31.

Andolina, C. (1980). Syntactic maturity and vocabulary richness of leaning disabled children
at four age levels. *Journal of Learning Disabilities*, *13*, 372–377.

Anthony, L. (2012). AntConc (Version 3.3.5). Tokyo, Japan: Waseda University. Retrieved

from http://www.antlab.sci.waseda.ac.jp/

Archer, D., Mcenery, T., Rayson, P., & Hardie, A. (2003). *Developing an automated semantic analysis system for Early Modern English*.(pp.22-31). *Proceedings of Corpus Linguistics 2003*.

Asian Intrastructure Investment Bank. (2020). *Asian Infrastructure Finance 2020, Investing Better, Investing More*. Retrieved from https://www.aiib.org/en/news-events/asian-infrastructure-finance/2020/_common/pdf/AIIB_AIF2020_16April2020.pdf

Asplund, T. (2011). Metaphors in climate discourse: An analysis of Swedish farm magazines. *Journal of Science Communication*, *10*(4). https://doi.org/10.22323/2.10040201

Atanasova, D., & Koteyko, N. (2017a). Metaphors in Guardian Online and Mail Online Opinion-page Content on Climate Change: War, Religion, and Politics. *Environmental Communication*, *11*(4), 452–469.

Atanasova, D., & Koteyko, N. (2017b). Metaphors in Online Editorials and Op-Eds about Climate Change, 2006–2013. In K. Fløttum (Ed.), *The Role of Language in the Climate Change Debate* (1st ed., pp. 71–89). Routledge.

Babcock, H. (2009). Global climate change: a civic republican moment for achieving broader changes in environmental behavior. *Pace Environmental Law Review*, *26*(1), 1–18.

Baker, P., Gabrielatos, C., & McEnery, T. (2013). Sketching muslims: A corpus driven analysis of representations around the word "Muslim" in the British press 1998-2009. *Applied Linguistics*, *34*(3), 255–278.

Bansal, P., & Kistruck, G. (2006). Seeing Is (Not) Believing: Managing the Impressions of the Firm's Commitment to the Natural Environment. *J Bus Ethics*, *67*(2), 165–180.

Bebbington, J., Larrinaga, C., & Moneva, J. M. (2008). Corporate social reporting and reputation risk management. *Accounting, Auditing & Accountability Journal*, *21*(3), 337–361.

Beck, U. (1995). *Ecological Politics in an Age of Risk*. Cambridge: Polity Press.

Bhatia, A. (2012). The corporate social responsibility report: The hybridization of a "confused" genre (2007-2011). *IEEE Transactions on Professional Communication*, *55*(3), 221–238.

Bhatia, A. (2013). International genre, local flavour: Analysis of petrochina's corporate and social responsibility report. *Revista Signos*, *46*(83), 307–331.

Billig, M. (2008). The language of critical discourse analysis: the case of nominalization. *Discourse & Society*, *19*(6), 783–800.

Bondi, M. (2016). The future in reports. *Pragmatics and Society*, *7*(1), 57–81.

Bortree, D. S., Ahern, L., Smith, A. N., & Dou, X. (2013). Framing environmental responsibility: 30 years of CSR messages in National Geographic Magazine. *Public Relations Review*, *39*(5), 491–496.

Boykoff, M. (2008). The cultural politics of climate change discourse in UK tabloids. *Political Geography*, *27*, 549–69.

Breeze, R. (2012). Legitimation in corporate discourse: Oil corporations after deepwater horizon. *Discourse and Society*, *23*(1), 3–18.

Brei, V., & Böhm, S. (2014). "1L=10L for Africa": Corporate social responsibility and the transformation of bottled water into a "consumer activist" commodity. *Discourse and Society*, *25*(1), 3–31.

Bullis, C., & Ie, F. (2007). Corporate environmentalism. In S. K. May, G. Cheney, & J. Roper (Eds.), *The debate over corporate social responsibility* (pp. 321–335). New York: Oxford University Press.

Cadez, S., & Czerny, A. (2016). Climate change mitigation strategies in carbon-intensive firms. *Journal of Cleaner Production*, *112*, 4132–4143.

Campbell, D., Craven, B., & Shrives, P. (2003). Voluntary social reporting in three FTSE

sectors: A comment on perception and legitimacy. *Accounting, Auditing and Accountability Journal*, *16*(4), 558–581.

Carvalho, A., & Burgess, J. (2005). Cultural circuits of climate change in U.K. broadsheet newspapers, 1985-2003. *Risk Analysis*, *25*(6), 1457–1469.

Charteris-Black, J. (2005). *Persuasion, legitimacy and leadership. In Politicians and rhetoric: The persuasive power of metaphor*. Hampshire/New York: Palgrave Macmillan.

Charteris-Black, J. (2011). Myth, metaphor and leadership. In *Politicians and Rhetoric* (pp. 311–329). London: Palgrave Macmillan.

Charteris-Black, J. (2004). *Corpus approaches to critical metaphor analysis*. Houndmills, Basingstoke, Hampshire : Houndmills, Basingstoke, Hampshire .

Charteris-Black, J. (2016). *Politicians and Rhetoric: The Persuasive Power of Metaphor*. London: Palgrave Macmillan UK.

Chilton, P., & Ilyin, M. (1993). Metaphor in political discourse: The case of the 'common european house.' *Discourse & Society*, *4*(1), 7–31.

Cho, H, & Boster, F. . (2008). Effects of gain versus loss frame antidrug ads on adolescents. *Journal of Communication*, *58*(3), 428–446.

Cho, H., & Choi, J. (2010). Predictors and the role of attitude toward the message and perceived message quality in gain- and loss-frame antidrug persuasion of adolescents. *Health Communication*, *25*(4), 303–311.

Chung, S.-F., & Huang, C.-R. (2010). Using collocations to establish the source domains of conceptual metaphors. *Journal of Chinese Linguistics*, *38*(2), 183–223.

Chung, S. F. (2007). *A corpus-driven approach to source domain determination*. National Taiwan University.

Chung, S. F., & Ahrens, K. (2006). *Source domain determination: WordNet-SUMO and*

collocation (pp. 1–4). München, Germany: Proceedings of the 2nd International Conference of the German Cognitive Linguistics Association.

Chung, S. F., Ahrens, K., Cheng, C.-P., Huang, C. R., & Šimon, P. (2007). *Computing thresholds of linguistic saliency* (pp. 126–135). Seoul, Korea: Proceedings of the 21st Pacific Asia Conference on Language, Information and Computation (PACLIC).

Chung, S. F., Ahrens, K., & Huang, C. R. (2005). Source domains as concept domains in metaphorical expressions. *International Journal of Computational Linguistics & Chinese Language Processing, Special Issue on Selected Papers from CLSW-5*, *10*(4), 553–570.

Chung, S. F., Huang, C. R., & Ahrens, K. (2003). E*conomy is a transportation-device: Contrastive representation of source domain knowledge in English and Chinese*. (pp. 790–796). Beijing, China: International Conference on Natural Language Processing and Knowledge Engineering Proceedings.

Clancy, J. J. (1989). *The invisible powers: The language of business*. Lexington, MA: Lexington Books.

Cohen, M. J. (2011). Is the UK preparing for "war"? Military metaphors, personal carbon allowances, and consumption rationing in historical perspective. *Climatic Change*, *104*(2), 199–222.

Coombs, W. T., & Holladay, S. . (2011). *Managing corporate social responsibility: A communication approach*. Malden: Wiley.

Cramblit, N.S.,& Siegel, V. M. (1977). The verbal environment of a language-impaired child. *Journal of Speech and Hearing Disorders*, *42*, 474–482.

Daojiong, Z. (2006). China's energy security: Domestic and international issues. *Survival*, *48*(1), 179–190.

Davis, J. J. (1995). The Effects of Message Framing on Response to Environmental

Communications. *Journalism & Mass Communication Quarterly*, *72*(2), 285–299.

Deegan, C. (2014). An overview of legitimacy theory as applied within the social and environmental accounting literature. In J. Unerman, J. Bebbington, & B. O'Dwyer (Eds.), *Sustainability Accounting and Accountability* (pp. 248–272). New York: Routledge.

Deegan, C. (2002). Introduction: The legitimising effect of social and environmental disclosures – a theoretical foundation. *Accounting, Auditing & Accountability Journal*, *15*(3):282-311

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and Business Research*, *26*(3), 187–199.

Deegan, C., Rankin, M., & Voght, P. (2000). Firms' Disclosure Reactions to Major Social Incidents: Australian Evidence. *Accounting Forum*, *24*(1), 101–130.

Deignan, A. (2015). MIP, the corpus and dictionaries: What makes for the best metaphor analysis? *Metaphor and the Social World*, *5*(1), 145–154.

Deignan, A., Semino, E., & Paul, S. A. (2019). Metaphors of climate science in three genres:Research articles,educational texts,and secondary school student talk. *Applied Linguistics*, *40*(2), 379–403.

Domenec, F. (2009). The "greening" of the annual letters published by Exxon, Chevron and BP between 2003 and 2009. *Journal of Communication Management*, *16*(3), 296–311.

Dong, D. Z.,Cheng,K.M.,Wang,Y.M.,Li,X.J.,Wang,S.J. & Huang,J.L. (2010). Formation conditions and properties of Lower Paleozoic shale gas in Upper Yangtz Region. *Oil & Gas Geology*, *31*(3), 288–299.

Du, S., Bhattacharya, C. B., & Sen, S. (2010). Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication. *International Journal of Management Reviews*, *12*(1), 8–19.

Dunn, S. (2014). Down to Business on Climate Change. *Greener Management International*, *2002*(39), 27–41.

Elwood, W. N. (1995). Declaring war on the home front: Metaphor, presidents, and the war on drugs. *Metaphor and Symbol*, *10*(2), 93–114.

Erkama, N., & Vaara, E. (2010). Struggles over legitimacy in global organizational restructuring: A rhetorical perspective on legitimation strategies and dynamics in a shutdown case. *Organization Studies*, *31*(7), 813–839.

Feinberg, M., & Willer, R. (2013). The Moral Roots of Environmental Attitudes. *Psychological Science*, *24*(1), 56–62.

Filimon, I. A. (2009). Kyosei : an example of cultural keyword argumentatively exploited in corporate reporting discourse. *Studies in Communication Sciences : Journal of the Swiss Association of Communication and Media Research*, *9*(2), 131-151.

Fischer, A. (2021). *How Energy Efficiency Will Power Net Zero Climate Goals*. Retrieved from https://www.iea.org/commentaries/how-energy-efficiency-will-power-net-zero-climate-goals

Flusberg, S. J., Matlock, T., & Thibodeau, P. H. (2017). Metaphors for the War (or Race) against Climate Change. *Environmental Communication*, *11*(6), 769–783.

Flusberg, S. J., Matlock, T., & Thibodeau, P. H. (2018). War metaphors in public discourse. *Metaphor and Symbol*, *33*(1), 1–18.

Forceville, C., & Fludernik, M. (2011). The Journey metaphor and the Source-Path-Goal schema in Agnès Varda's autobiographical "gleaning" documentaries. In *Beyond cognitive metaphor theory: Perspectives on literary metaphor* (pp. 281–297). Routledge.

Fowler, R. (1991). *Language in the News*. London: Routledge.

Freeman, R. E. (2010). *Strategic Management: A Stakeholder Approach*. Cambridge University Press.

Friedman, A. L., & Miles, S. (2006). *Stakeholders: Theory and Practice*. New York: Oxford University Press.

Fuoli, M. (2012). Assessing social responsibility: A quantitative analysis of appraisal in BP's and IKEA's social reports. *Discourse and Communication*, *6*(1), 55–81.

Fuoli, M. (2018). Building a Trustworthy Corporate Identity: A Corpus-Based Analysis of Stance in Annual and Corporate Social Responsibility Reports. *Applied Linguistics*, *39*(6), 846–885.

Fuoli, M., & Hart, C. (2018). Trust-building strategies in corporate discourse: An experimental study. *Discourse and Society*, *29*(5), 514–552.

Fuoli, M., & Paradis, C. (2014). A model of trust-repair discourse. *Journal of Pragmatics*, *74*, 52–69.

Gallagher, K.M., & Updegraff, J. A. (2012). Health message framing effects on attitudes, intentions, and behavior: A meta-analytic review. *Annals of Behavioral Medicine*, *43*(1), 101–116.

Goatly, A. (2007). *Washing the brain : metaphor and hidden ideology*. Amsterdam Philadelphia: John Benjamins Publishing Co.

Goatly, A. (1997). *The Language of Metaphors*. London/New York: Routledge.

Gong, S. P., Ahrens, K., & Huang, C. R. (2008). Chinese word sketch and mapping principles: A corpus-based study of conceptual metaphors using the BUILDING source domain. *International Journal of Computer Processing of Languages*, *21*(1), 3–17.

Gray, R., Kouhy, R., & Lavers, S. (1995). Constructing a research database of social and environmental reporting by UK companies. *Accounting, Auditing and Accountability Journal*, *8*(2), 78–101.

Green, S.E. (2004). A rhetorical theory of diffusion. *Academy of Management Review*, *29*(4), 653–669.

Green, S. E., Li, Y., & Nohria, N. (2009). Suspended in self-spun webs of significance: A rhetorical model of institutionalization and institutionally embedded agency. *Academy of Management Journal*, *52*(1), 11–36.

Halderen, M., Bhatt, M., Berens, G., Brown, T., & Riel, C. (2016). Managing Impressions in the Face of Rising Stakeholder Pressures: Examining Oil Companies' Shifting Stances in the Climate Change Debate. *J Bus Ethics*, *133*(3), 567–582.

Halliday, M. A. K., & Martin, J. R. (1993). *Writing Science*. London: Falmer Press.

Halliday, M. A. K. (1994). *An Introduction to Functional Grammar*. London: Edward Arnold.

Hansen, A., & Machin, D. (2008). Visually branding the environment: climate change as a marketing opportunity. *Discourse Studies*, *10*(6), 777–794.

Hansson, S. (2015). Discursive strategies of blame avoidance in government: A framework for analysis. *Discourse and Society*, *26*(3), 297–322.

Hardisty, D. J., Johnson, E. J., & Weber, E. U. (2010). A dirty word or a dirty world? attribute framing, political affiliation, and query theory. *Psychological Science*, *21*(1), 86–92.

Hart, C. (2014). *Discourse, Grammar and Ideology: Functional and Cognitive Perspectives*. London: Bloomsbury.

Hauser, D. J., & Schwarz, N. (2015). The war on prevention: Bellicose cancer metaphors hurt (some) prevention intentions. *Personality and Social Psychology Bulletin*, *41*(1), 66–77.

Herlin, H., & Solitander, N. (2017). Corporate social responsibility as relief from responsibility: NPO legitimizations for corporate partnerships in contested terrains. *Critical Perspectives on International Business*, *13*(1), 2–22.

Hrasky, S. (2012). Carbon footprints and legitimation strategies: Symbolism or action? *Accounting, Auditing and Accountability Journal*, *25*(1), 174–198.

Huang, C. R., Chung, S. F., & Ahrens, K. (2007). An ontology-based exploration of knowledge systems for metaphor. In R. Kishore, R. Ramesh, & R. Sharman (Eds.), *Ontologies: A handbook of principles, concepts and applications in information systems* (pp. 489–517). Berlin, Germany: Springer.

IEA. (2021). *Net Zero by 2050: A Roadmap for the Global Energy Sector*. Retrieved from https://www.iea.org/reports/net-zero-by-2050

Ihlen, Ø. (2009a). Business and Climate Change: The Climate Response of the World's 30 Largest Corporations. *Environmental Communication*, *3*(2), 244–262.

Ihlen, Ø. (2009b). The Oxymoron of 'Sustainable Oil Production. *Business Strategy and the Environment*, *18*(1), 53–63.

Ihlen, Ø., & Roper, J. (2014). Corporate reports on sustainability and sustainable development: "We have arrived." *Sustainable Development*, *22*(1), 42–51.

Jaworska, S. (2018). Change But no Climate Change: Discourses of Climate Change in Corporate Social Responsibility Reporting in the Oil Industry. *International Journal of Business Communication*, *55*(2), 194–219.

Ji, Q., Fan, Y., Troilo, M., Ripple, R. D., & Feng, L. (2018). China's natural gas demand projections and supply capacity analysis in 2030. *The Energy Journal*, *39*(6), 53–70.

Johnson, W. (1944). Studies in language behaviour:I.A program of research. *Psychological Monographs*, *56*, 1–15.

Jose, A., & Lee, S. M. (2007). Environmental reporting of global corporations: A content analysis based on Website disclosures. *Journal of Business Ethics*, *72*(4), 307–321.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*, 263–291.

Kendall, J. E., & Kendall, K. E. (1993). Metaphors and methodologies:Living beyond the systems machine. *MIS Quarterly*, *17*(2), 149–171.

Kim, H. J. (2012). The Effects of Gender and Gain Versus Loss Frame on Processing Breast Cancer Screening Messages. *Communication Research*, *39*(3), 385–412.

Kim, S, & Ferguson, M. (2016). Dimensions of effective CSR communication based on public expectation. *Journal of Marketing Communications*.24(6), 549-567.

Kim, S., & Rim, H. (2019). The Role of Public Skepticism and Distrust in the Process of CSR Communication. *International Journal of Business Communication*. https://doi.org/10.1177/2329488419866888

Kolk, A., & Pinkse, J. (2004). Market strategies for climate change. *European Management Journal*, *22*(3), 304–314.

Koller, V. (2007). 'The World's Local Bank': Glocalisation as a Strategy in Corporate Branding Discourse. *Social Semiotics*, *17*(1), 111–131.

Koller, V. (2008a). dentity, image, impression: Corporate self-promotion and public reactions. In R. Wodak & V. Koller (Eds.), *Handbook of Communication in the Public Sphere* (pp. 155–180). Berlin: Mouton de Gruyter.

Koller, V. (2008b). Of critical importance: Using electronic text corpora to study metaphor in business media discourse. In *Corpus-Based Approaches to Metaphor and Metonymy* (pp. 237–266). De Gruyter Mouton.

Koller, V. (2009). Corporate self-presentation and self-centredness: A case for cognitive critical discourse analysis. In H. Pishwa (Ed.), *Language and Social Cognition: Expression of the Social Mind* (pp. 267–287). De Gruyter Mouton.

Kornprobst, M. (2008). *Metaphors of globalization : Mirrors, magicians and mutinies*. Baskingstoke: Palgrave Macmillan.

Koteyko, N. (2010). Mining the internet for linguistic and social data: An analysis of "carbon compounds" in web feeds. *Discourse and Society*, *21*(6), 655–674.

Koteyko, N., Thelwall, M., & Nerlich, B. (2010). From carbon markets to carbon morality:

Creative compounds as framing devices in online discourses on climate change mitigation. *Science Communication*, *32*(1), 25–54.

Kövecses, Z. (2010). *Metaphor: A practical introduction* (2nd ed.). New York: Oxford University Press.

Krennmayr, T. (2015). What Corpus Linguistics Can Tell Us About Metaphor Use In Newspaper Texts. *Journalism Studies (London, England)*, *16*(4), 530–546.

Kristina, K., Dan, K., Christopher, M., & Yoram, K. (2003). *Feature-rich part-of-speech tagging with a cyclic dependency network* (pp. 252–259). Conference of the North American Chapter of the Association for Computational Linguistics & Human Language Technologies (NAACL-HLT).

Lakoff, G. (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and thought* (pp. 202–251). Cambridge University Press.

Lakoff, G, & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh : the embodied mind and its challenge to Western thought*. (M. Johnson, Ed.). New York: Basic Books.

Lakoff, G., & Turner, M. (1989). *More Than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago: University of Chicago Press.

Levy, D., & Kolk, A. (2001). Winds of Change : Corporate Strategy , Climate Change and Oil Multinationals. *European Management Journal*, *19*(5), 501–509.

Lischinsky, A. (2011). The Discursive Construction of a Responsible Corporate Self. *Tracking Discourses: Politics, Identity and Social Change*, 257–285.

Lischinsky, A., & Sjölander, A. E. (2014). Talking green in the public sphere: Press releases, Corporate voices and the environment. *Nordicom Review*, *35*, 125–140.

Livesey, S. M. (2002). The Discourse of the Middle Ground: Citizen Shell Commits to

Sustainable Development. *Management Communication Quarterly*, *15*(3), 313–349.

Lu, L. W. L., & Ahrens, K. (2008). Ideological influence on BUILDING metaphors in Taiwanese presidential speeches. *Discourse and Society*, *19*(3), 383–408.

Manning, C. D., Surdeanu, M., Bauer, J., Finkel, J. R., Bethard, S., & McClosky, D. (2014). The Stanford CoreNLP natural language processing toolkit. *Proceedings of 52nd Annual Meeting of the Association for Computational Linguistics: System Demonstrations*, 55–60.

Manschreck, T. C., Maher, B. A., & Ader, D. N. (1981). Formal though disorder, the type-token ratio, and disturbed voluntary motor movement in schizophreania. *British Journal of Psychiatry*, *139*, 7–15.

Matlock, T., Coe, C., & Westerling, A. L. (2017). Monster wildfires and metaphor in risk communication. *Metaphor and Symbol*, *32*(4), 250–261.

McArthur, M. (1981). *Longman Lexicon of Comtemporary English*. Harlow : Longman.

McDonnell, J. J., & Bartlett, J. L. (2009). Marketing to change public opinion on climate change: a case study. *International Journal of Climate Change: Impacts and Responses*, *1*(3), 63–74.

Merkl-Davies, D. M., & Koller, V. (2012). 'Metaphoring' People out of this World: A Critical Discourse Analysis of a Chairman's Statement of a UK Defense Firm. *SSRN Electronic Journal*,*36*(3), 178-193.

Milne, M. J., Kearins, K., & Walton, S. (2006). Creating adventures in wonderland: The journey metaphor and environmental sustainability. *Organization*, *13*(6), 801–839.

Milne, M. J., & Patten, D. M. (2002). Securing organizational legitimacy: An experimental decision case examining the impact of environmental disclosures. *Accounting, Auditing & Accountability Journal*,*15*(3),372-405.

Molla, A. (2009). Exploring the extent of green IT adoption and its driving and inhibiting

factors. *Journal of Information Science and Technology*, *6*(4), 3–21.

Morsing, M., & Schultz, M. (2006). Corporate social responsibility communication: Stakeholder information, response and involvement strategies. *Business Ethics: A European Review*, *15*(4), 323–338.

Morsing, M., Schultz, M., & Nielsen, K. U. (2008). The '"catch 22"' of communicating CSR: findings from a Danish Study. *Journal of Marketing Communications*, *14*(2), 97–111.

Nahapiet, J., & Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, *23*(2), 242–266.

NDRC. (2017). *13th FYP development and utilization plan for geothermal energy*. Retrieved from https://policy.asiapacificenergy.org/sites/default/files/13th Five-Year Plan for the Geothermal Energy Development %28EN%29.pdf

Newman, C. L., Howlett, E., Burton, S., Kozup, J. C., & Tangari, A. H. (2012). The influence of consumer concern about global climate change on framing effects for environmental sustainability messages. *International Journal of Advertising*, *31*(3), 511–527.

Ng, E. (2020a, November 22). China turns increasingly to unconventional energy production such as shale gas. *South China Morning Post*.Retrieved from https://www.scmp.com/news/china/article/1363225/china-turnsincreasingly-unconventional-energy-production-such-shale-gas

Ng, E. (2020b, April 24). Sinopec leads China's shale gas revolution with successful drilling. *South China Morning Post*. Retrieved from https://www.scmp.com/business/commodities/article/1495391/sinopec-leads-chinas-shale-gas-revolution-successful-drilling

Niles, I., & Pease, A. (2003). *Linking Lixicons and Ontologies: Mapping WordNet to the Suggested Upper Merged Ontology* (pp. 412–416). Proceedings of the International Conference on Information and Knowledge.

Nisbet, M. C., & Kotcher, J. E. (2009). A two-step flow of influence?: Opinion-leader campaigns on climate change. *Science Communication*, *30*(3), 328–354.

O'Connor, A., & Gronewold, K. L. (2013). Black Gold, Green Earth: An Analysis of the Petroleum Industry's CSR Environmental Sustainability Discourse. *Management Communication Quarterly*, *27*(2), 210–236.

O'Donovan, G. (2002). Environmental disclosures in the annual report: Extending the applicability and predictive power of legitimacy theory. *Accounting, Auditing & Accountability Journal*, *15*(3), 344–371.

O'Halloran, K. (2009). Historical changes in the semiotic landscape. In C. Jewitt (Ed.), *The Routledge handbook of multimodal analysis* (pp. 98–113). London: Routledge.

Oddo, J. (2011). War legitimation discourse: Representing "Us" and "them" in four US presidential addresses. *Discourse and Society*, *22*(3), 287–314.

Oh, J., & Ki, E.-J. (2019). Factors affecting social presence and word-of-mouth in corporate social responsibility communication: Tone of voice, message framing, and online medium type. *Public Relations Review*, *45*(2), 319–331.

Olausson, U. (2009). Global warmingâ€"global responsibility? Media frames of collective action and scientific certainty. *Public Understanding of Science*, *18*(4), 421–436.

Ongkrutraksa, W. Y. (2007). Green marketing and advertising. In S. K. May, G. Chene, & J. Roper (Eds.), *The Debate over Corporate Social Responsibility* (pp. 365–378). New York: Oxford University Press.

Palazzo, G., & Scherer, A. G. (2006). Corporate Legitimacy as Deliberation: A Communicative Framework. *J Bus Ethics*, *66*, 71–88.

Patten, D. M. (1991). Exposure, legitimacy, and social disclosure. *Journal of Accounting and Public Policy*, *10*(4), 297–308.

Patten, D. M. (1992). Intra-industry environmental disclosures in response to the Alaskan oil

spill: a note on legitimacy theory. *Accounting, Organizations and Society*, *17*(5), 471–475.

Perelman, C., & Olbrechts-Tyteca, L. (1969). *The New Rhetoric: A Treatise on Argumentation*. Notre Dame: University of Notre Dame Press.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.

Pollach, I. (2018). Issue Cycles in Corporate Sustainability Reporting: A Longitudinal Study. *Environmental Communication*, *12*(2), 247–260.

Pragglejaz Group. (2007). MIP: A Method for Identifying Metaphorically Used Words in Discourse. *Metaphor and Symbol*, *22*(1), 1–39.

PwC. (2016). *State-Owned Enterprises Catalysts for Public Value Creation?* Retrieved from https://www.pwc.com/gx/en/psrc/publications/assets/pwc-state-owned-enterprise-psrc.pdf

Quick, B. L., & Bates, B. R. (2010). The use of gain- or loss-frame messages and efficacy appeals to dissuade excessive alcohol consumption among college students: A test of psychological reactance theory. *Journal of Health Communication*, *15*(6), 603–628.

Rajandran, K., & Fauziah, T. (2014a). Disclosing compliant and responsible corporations: CSR performance in Malaysian CEO statements. *GEMA Online Journal of Language Studies*, *14*(3), 143–157.

Rajandran, K., & Fauziah, T. (2014b). The representation of CSR in Malaysian CEO statements: A critical discourse analysis. *Corporate Communications*, *19*(3), 303–317.

Raymond, W., & Gibbs, J. (2008). The psychological status of image schemas. In *From perception to meaning* (pp. 113–136). De Gruyter Mouton.

Rayson, P. (2008). Wmatrix: A Web-based Corpus Processing Environment. Computing Department, Lancaster University. Retrieved from http://ucrel.lancs.ac.uk/wmatrix/

Reuters. (2021,July 20). China's carbon trading scheme makes debut with 4.1 mln T in turnover. Retrieved from https://www.reuters.com/business/sustainable-business/chinas-national-carbon-emission-trading-opens-48-yuant-chinese-media-2021-07-16/

Reyes, A. (2011). Strategies of legitimization in political discourse: From words to actions. *Discourse and Society*, *22*(6), 781–807.

Richardson, A. J., & Dowling, J. B. (1986). An integrative theory of organizational legitimation. *Scandinavian Journal of Management Studies*, *3*, 91–109.

Robins, S., & Mayer, R. E. (2000). The metaphor framing effect: Metaphorical reasoning about text-based dilemmas. *Discourse Processes*, *30*(1), 57–86.

Romaine, S. (1996). War and Peace in the Global Greenhouse: Metaphors We Die By. *Metaphor and Symbolic Activity*, *11*(3), 175–194.

Rose, A. (2016). China's solar capacity overtakes Germany in 2015, industry data show. *Reuters*. Retrieved from https://www.reuters.com/article/china-solar-idUSL3N15533U

Rothman, A. J., Bartels, R. D., Wlaschin, J., & Salovey, P. (2006). The strategic use of gain- and loss-framed messages to promote healthy behavior: How theory can inform practice. *Journal of Communication*, *56*(SUPPL.), 202–220.

Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: The role of message framing. *Psychological Bulletin*, *121*(1), 3–19.

Rundell, M. (2002). Macmillan English dictionary for advanced learners. Oxford: Macmillan.

Sardinha, T. B. (2012). An assessment of metaphor retrieval methods. In F. MacArthur, J. . Oncins-Martínez, S.-G. M., & A. M. Piquer-Píriz (Eds.), *Metaphor in use context, culture, and communication* (pp. 31–44). Amsterdam ; Philadelphia, Pa: John Benjamins Pub. Co.

Scherer, A. M., Scherer, L. D., & Fagerlin, A. (2015). Getting ahead of illness: Using metaphors to influence medical decision making. *Medical Decision Making*, *35*(1), 37–

45.

Schlegelmilch, B., & Pollach, I. (2005). The perils and opportunities of communicating corporate ethics. *Journal of Marketing Management*, *21*, 267–290.

Semino, E. (2021). "Not Soldiers but Fire-fighters"–Metaphors and Covid-19. *Health Communication*, *36*(1), 50–58.

Semino, E., Demjén, Z., & Demmen, J. (2018). An integrated approach to metaphor and framing in cognition, discourse, and practice, with an application to metaphors for cancer. *Applied Linguistics*, *39*(5), 625–645.

Semino, E., Demjén, Z., Demmen, J., Koller, V., Payne, S., Hardie, A., & Rayson, P. (2017). The online use of Violence and Journey metaphors by patients with cancer, as compared with health professionals: A mixed methods study. *BMJ Supportive and Palliative Care*, *7*(1), 60–66.

Sethi, S. P. (1977). The Role of Advocacy Advertising in External Communications. *Journal of General Management*, *4*(3), 3–14.

Sethi, S. P. (1979). A Conceptual Framework for Environmental Analysis of Social Issues and Evaluation of Business Response Patterns. *Academy of Management Review*, *4*(1), 63–74.

Shaw, C., & Nerlich, B. (2015). Metaphor as a mechanism of global climate change governance: A study of international policies, 1992-2012. *Ecological Economics*, *109*, 34–40.

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, *52*(2), 737-783.

Skjaerseth, J. B., & Skodvin, T. (2003). *Climate change and the oil industry: Common problem, different strategies*. Manchester: Manchester University Press.

Skulstad, A. (2008). Creating a green image in the public sphere: Corporate environmental

reports in a genre perspective. In R. Wodak & V. Koller (Eds.), *Handbook of Communication in the Public Sphere* (pp. 181–201). Berlin: De Gruyter Mouton.

Specter, M. (2008). A reporter at large: Big Foot. *The New Yorker*, *84*(2), 44.

Steen, G. J., Dorst, A. G., Herrmann, J. B., Anna, K., Krennmayr, T., & Pasma, T. (2010). *A method for linguistic metaphor identification from MIP to MIPVU*. Amsterdam: Amsterdam.

Stefanowitsch, A. (2006). Corpus-based approaches to metaphor and metonymy. In Stefanowitsch & Gries (Eds.), *Trends in linguistics studies and monographs* (pp. 1–16). Berlin, Germany: Mouton De Gruyter.

Suchman, M.C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *Academy of Management Review*, *20*(3), 571–610.

Suddaby, R., & Greenwood, R. (2005). Rhetorical Strategies of Legitimacy. *Administrative Science Quarterly*, *50*(1), 35–67.

Sun, Y., Jin, G., Yang, Y., & Zhao, J. (2018). Metaphor Use in Chinese and American CSR Reports. *IEEE Transactions on Professional Communication*, *61*(3), 295–310.

Talcott, P. (1960). *Structure and process in modern societies*. United States: University of Michigan.

Tang, K., & Yeoh, R. (2007). *Cut carbon, grow profits : business strategies for managing climate change and sustainability*. London: Middlesex University Press.

Tay, D. (2011). THERAPY is a journey as a discourse metaphor. *Discourse Studies*, *13*(1), 47–68.

Thibodeau, P. H., & Boroditsky, L. (2011). Metaphors we think with: The role of metaphor in reasoning. *PLoS ONE*, *6*(2). e16782. doi:10.1371/journal. pone.0016782

Thibodeau, P. H., & Boroditsky, L. (2013). Natural Language Metaphors Covertly Influence Reasoning. *PLoS One*, *8*(1), e52961. doi:10.1371/journal.pone.0052961

Thibodeau, P. H., Hendricks, R. K., & Boroditsky, L. (2017). How Linguistic Metaphor Scaffolds Reasoning. *Trends in Cognitive Sciences*, *21*(11), 852–863.

Thornborrow, J. (1993). Metaphors of security: A comparison of representation in defence discourse in post-cold-war france and britain. *Discourse & Society*.

Tuggy, D. (1993). Ambiguity, polysemy, and vagueness. *Cognitive Linguisitcs*, *4*(3), 273–290.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*, 453–458.

U.S. Energy Information Administration. (2018). Today in Energy. Retrieved from https://www.eia.gov/todayinenergy/detail.php?id=37821

U.S. Energy Information Administration. (2020). Today in Energy. Retrieved from https://www.eia.gov/todayinenergy/detail.php?id=43395

Unerman, J. (2008). Strategic reputation risk management and corporate social responsibility reporting. *Accounting, Auditing & Accountability Journal*, *21*(3).362-364.

Vaara, E., Tienari, J., & Laurila, J. (2006). Pulp and paper fiction: On the discursive legitimation of global industrial restructuring. *Organization Studies*, *27*(6), 789–813.

Van Leeuwen, T. (2007). Legitimation in discourse and communication. *Discourse & Communication*, *1*(1), 91–112.

Van Teeffelen, T. (1994). Racism and metaphor: The Palestinian-Israeli conflict in popular literature. *Discourse & Society*. *5*(3). 381-405.

Waddock, S., & White, A. (2007). On CERES, the GRI and Corporation 20/20. *Journal of Corporate Citizenship*, *26*, 38–42.

Weber, M. (1978). *Economy and society: An outline of interpretive sociology*. London: University of California Press.

Weber, Max. (1991). *From Max Weber : essays in sociology*. London: Routledge.

Woods, R., Fernández, A., & Coen, S. (2012). The use of religious metaphors by UK newspapers to describe and denigrate climate change. *Public Understanding of Science*, *21*(3), 323–339.

Xue, Y. (2022, Feb 2). China's carbon neutral goals: turnover under emissions trading scheme expected to reach US$15 billion in 2030. *South China Morning Post*. Retrieved from https://www.scmp.com/business/article/3165590/chinas-carbon-neutral-goals-turnover-under-emissions-trading-scheme

Zou, C., Chen, Y., Kong, L., Sun, F., Chen, S., & Ding, Z. (2019). Underground coal gasification and its strategic significance to the development of natural gas industry in China. *Petroleum Exploration and Development*, *46*(2), 205–215.