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Framing Legitimacy in CSR: A Corpus of Chinese and American Petroleum Company CSR Reports and Preliminary Analysis

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Abstract

We examine how Chinese and American oil companies use the gain- and loss-framed BUILDING source domain to legitimize their business in Corporate Social Responsibility (CSR) reports. Gain and loss frames can create legitimacy because they can ethically position an issue. We will focus on oil companies in China and the U.S. because different socio-cultural contexts in these two countries can potentially lead to different legitimation strategies in CSR reports, which can shed light on differences in Chinese and American CSR. All of the oil companies in our data are on the Fortune 500 list (2020). The results showed that Chinese oil companies used BUILDING metaphors more frequently than American oil companies. The most frequent keyword in Chinese CSRs "build" highlights environmental achievements in compliance with governments' policies. American CSRs often used the metaphorical verb "support" to show their alignment with environmental policies and the interests of different stakeholders. The BUILDING source domain was used more often as gain frames in both Chinese and American CSR reports to show how oil companies create benefits for different stakeholders.

Keywords: source domain, legitimacy, Corporate Social Responsibility

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.275). The carbon-intensive sector, particularly the petroleum industry, has a potential legitimacy gap because its business contributes to environmental impacts. This gap might motivate petroleum companies to use a range of legitimation strategies.

Of all types of corporate discourses, Corporate Social Responsibility (CSR) reports serve as an intriguing discourse for exploring how corporations legitimize their environmental performance. Due to more discretion in terms of content and template, CSR reports can exploit various means to construct reality. Therefore, CSR reports can provide more clues regarding how companies legitimize their business operations compared to other corporate documents. This study examines how legitimation strategies are used in the environmental sections of Corporate Social Responsibility (CSR) reports produced by petroleum companies to justify their environmental practice.

1.1 The Source Domain of BUILDING as a Legitimation Strategy

Previous studies on the source domain of BUILDING focus primarily on its usage in political discourse (Ahrens et al., 2021; Charteris-Black, 2004, 2016; Lu and 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 study aims to explore how this domain is used as a legitimation strategy to justify the environmental practice of petroleum companies in CSR reports.

Source domains can be useful in creating legitimacy because they have been found to be effective in persuasion (Charteris-Black, 2005; Chilton and Ilyin, 1993; Goatly, 2007; Kövecses, 2010; Thornborrow, 1993; Van Teeffelen, 1994). Charteris-Black (2011) argued that source domains could be used to create legitimacy by transferring "positive or negative associations of various source words to a metaphor target" (p.13). The source domain of BUILDING can be used for a legitimation purpose because it creates a sense of unity towards a socially-valued goal (Atanasova and Koteyko, 2017b; Charteris-Black, 2004, 2016). In addition, this source domain tends to construct an objective as a long-term goal, requiring patience

against expectations of instant achievements (Charteris-Black, 2004, 2016). The source domain of BUILDING can also be employed flexibly in promoting various world views. Ahrens et al. (2021) observed that the BUILDING source domain was used by the British Governors and the HKSAR Chief Executives differently in terms of their relevant time frames, topics, and references, showing the source domain's utility in representing different world views.

1.2 The Source Domain of BUILDING Used as Gain and Loss Frames in CSR Reports

A variety of previous studies have investigated how source domains are used to frame climate change in different types of discourse (e.g., Atanasova and Koteyko, 2017a, 2017b; Romaine, 1996; Shaw and Nerlich, 2015). However, little research has been conducted to explore how source domains can be used as gain and loss frames.

Gain and loss frames can create legitimacy because they can ethically position an issue. The concepts of gain and loss frames come from the Prospect Theory (Tversky and Kahneman, 1981), which argues that people are biased toward risks. An alternative action framed as regards its related costs (loss frame) or benefits (gain frame) will impact people's perceptions of risks in a different manner (Tversky and Kahneman, 1981). As the environmental efforts of petroleum companies are related to environmental risks, gain and loss frames should be useful to legitimize these efforts. It would be interesting to observe how the source domain of BUILDING is used as gain and loss frames because Charteris-Black (2016) indicated that the BUILDING source domain tends to be positively connotated. It would be intriguing to see if this feature is reflected in its usages as gain and loss frames.

The gain and loss frames in CSR reports differ slightly from those in previous studies because CSR reports are read by different types of stakeholders who care for different types of interests. 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 maximizing 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.

1.3 Petroleum Companies in China and the U.S.

Our study 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 greenhouse gases.

Different socio-cultural contexts in China and the U.S. can motivate differences in legitimation strategies in CSR reports. 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 from dependency on coal and oil (Ji et al., 2018). The energy gap in the U.S. is not as wide as in China. In 2019, total U.S. energy exports exceeded total energy imports (U.S. Energy Information Administration, 2020). Regarding social contexts, most major Chinese oil companies are state-owned, whereas most American oil companies are publicly owned. These different socio-cultural factors can result in differences in legitimation strategies. Differences in legitimation strategies used in Chinese and American CSR reports can shed light on differences in Corporate Social Responsibilities in China and the U.S. because legitimacy is associated with value systems, and CSR are values related to corporate activities. In this study, we will address the following research questions:

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

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

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

2 Corpus

Our study 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.

The Chinese corpus in our 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 our study are demonstrated in Table 1:

ACSRs	CCSRs
American Petroleum Companies	**Chinese Petroleum Companies**
ExxonMobil 2010-2019 (70,789 words)	Sinopec 2010-2019 (35,387 words)
Chevron 2010-2019 (14,122 words)	China National Petroleum 2013-2019 (28,384 words)
Marathon Petroleum 2011-2019 (34,809 words)	China National Offshore Petroleum 2011,2013,2014, 2015, 2016,2017, 2018, 2019 (35,010 words)
Phillips 66 2016-2019 (6,871 words)	Sinochem 2010,2011,2012, 2013, 2014,2015, 2017,2018, 2019 (22,970 words)
Valero Energy 2015-2019 (16,801 words)	
ConocoPhillips 2011-2019 (123,434 words)	
Total 266,826	**Total 121,751**

Table 1. CSR Reports of American and Chinese Petroleum Companies

As shown in Table 1, the corpus consists of two subcorpora for comparative purposes: the American CSR reports subcorpus (henceforth, ACSRs) and the Chinese CSR report subcorpus (henceforth, CCSRs).

3 Source Domain Analysis

This study aims to explore how the BUILDING source domain is used as gain and loss frames to legitimize the environmental practice of petroleum companies in CSR reports. Our 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) identifying the corporate and environmental interests behind gain and loss frames.

The first step of our source domain analysis is to determine potential keywords. Considering the large size of our corpora, we identified potential source domain keywords using Sardinha's (2012) sampling technique. In total, we collected 49 potential keywords for the source domain of BUILDING.

As for the source domain verification, we adopted the method proposed by Ahrens and 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 and Huang, 2010; Gong et al., 2008). As for the online English dictionary, we 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 we adopt in this study.

Since the MIPVU procedure does not cross word-class boundaries when determining the metaphoricality of lexical units, we parsed our data with Part of Speech (POS) tags before the metaphor identification. The computer tool used for POS tagging is the *POS tagging* (Toutanova, et al., 2003) of *Stanford CoreNLP* (Manning et al., 2014). After determining the word classes of the source domain keywords in our study, we will then use MIPVU (Steen et al., 2010) to investigate if a keyword is used metaphorically or not. MIVPU identifies a word as a metaphor if its usage in the text shows a cross-domain mapping from its basic meaning to its contextual meaning (Steen et al., 2010). In other words, if a word's meaning in the dictionary is more basic than its meaning in the context, it is identified as a metaphor. 10% of our data (n=187) were used for the inter-rater reliability test. The result indicates the Kappa value is 0.8145, showing a strong agreement.

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 and Boster, 2008; Gallagher and Updegraff, 2012; Rothman et al., 2006; Rothman and Salovey, 1997). The criteria for identifying gain and loss frames in our study are to decide if the goal of a sentence is perceived as gaining benefits or avoiding losses. 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, we 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.

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

4 Gain- and Loss-framed BUILDING Source Domain

4.1 The Source Domain of BUILDING as a Legitimation Strategy

The first research question to be answered in this study is: "What keywords are used in the source domain of BUILDING in Chinese and American CSR reports and their frequencies of occurrences?" We calculated 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 in Figure 1.

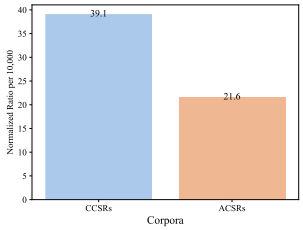

Figure 1. Normalized Rations of BUILDING Keywords in ACSRs and CCSRs

Figure 1 shows that BUILDING metaphors occur much more frequently in CCSRs than in ACSRs. 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.

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. These expressions are presented in three categories: "Functions," "Qualities," and "Entities." All of these expressions are demonstrated in Appendix A.

Table 1 in Appendix A 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 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. 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

usage (n=16). Examples (1) and (2) demonstrate how the metaphor "build" is used in CCSRs:

Example Sentence	Source
(1) 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.	**CCSRs** Sinochem CSR rep., 2014
(2) 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.	**CCSRs** Sinopec CSR rep., 2016

Table 2. Examples (1) and (2) from CCSRs

The BUILDING metaphor in Example (1) 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 an 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 (2), 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 for organizational stakeholders. In Example (2), building a trading team is part of *Sinopec*'s efforts to develop the carbon market. Developing the carbon trading market is one of China's principal ways to achieve the dual national goal of carbon peak and carbon neutrality (Xue, 2022). The regional pilots of the carbon market system started in 2013, which finally led to the debut of the long-awaited national carbon emission trading scheme (ETS) in 2021, featuring the largest carbon market in the world by volume (Reuters, 2021). As Chinese governments show proactive support for carbon market mechanisms, the legitimacy of *Sinopec* can be realized according to China's CSR.

The BUILDING metaphor that occurs with the highest frequency in ACSRs is the verb "support."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. Examples (3) and (4) demonstrated the usages of the verb form of the metaphor "support" in ACSRs:

Example Sentence	Source
(3) We support 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.	**ACSRs** Chevron CSR rep., 2019
(4) In that context, Statpetroleum works with governments, businesses and other stakeholders to support viable worldwide policies and regulatory frameworks encouraging carbon-efficient solutions and the development of low-carbon technology.	**ACSRs** Conoco-Phillips CSR rep., 2011

Table 3. Examples (3) and (4) from ACSRs

In the above examples, petroleum companies used the metaphor "support" to show their compliance with environmental policies and principles. 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 and Dowling, 1986; Suchman, 1995). The metaphor "support" in Example (3) aims to achieve legitimacy by manifesting the petroleum company's alignment with socially valued environmental rules and policies. In Example (3), *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. 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 could be attributable to the fact that the U.S. has been growing into a petroleum exporter and global energy supplier in the past decade. 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 be just modest or symbolic as no information is provided as regards concrete supportive actions.

In Example (4), 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. 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 of organizational stakeholders about potential costs are accommodated. By uniting other stakeholders and the oil industry under a collective goal, the oil industry forms an alliance with stakeholders and fights side-by-side with them in the war against climate change. Potential conflicts between the oil company and its stakeholders are reconciled, and their relationship becomes collaborative.

4.2 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. To this end, we identified all the gain and loss frames in both ACSRs and CCSRs, which yielded 340 gain frames and 197 loss frames in the ACSRs, and 355 gain frames and 209 loss frames in CCSRs. The frequencies of these two frames are shown in Figure 2:

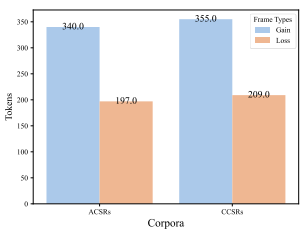

Figure 2. Gain and Loss Frames in ACSRs and CCSRs

Figure 2 shows that both ACSRs and CCSRs have a preference for gain frames. We used the goodness of fit test to confirm this observation statistically 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 = 37.794, df = 1, p-value = 7.861e-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 = 38.08, df = 1, p-value = 6.79e-10). 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 (0.2589 for CCSRs and 0.2663 for ACSRs).

The presence of loss frames in both corpora could be motivated by corporate intentions to demonstrate their transparency to achieve effective CSR communication, which requires reporting both good and bad aspects of CSR activities. Kim and Ferguson (2016, 2014) identified transparency as one of the six important communication factors expected by consumers for CSR communication. 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. Examples (5) and (6) demonstrate how the BUILDING source domain is used as gain frames in CCSRs and ACSRs:

Sentence Examples	Source
(5) 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.	**CCSRs** Sinopec CSR rep., 2018
(6) 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 support for this significant resource.	**ACSRs** Exxon-Mobil CSR rep., 2011

Table 4. Example (5) from CCSRs and Example (6) from ACSRs

In Example (5), 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 the "petroleum production technology," favourable for organizational stakeholders as petroleum is the core product of oil companies. Developing energy is a way to alleviate the domestic demand for energy in China and thus is legitimate according

to China's CSR. 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 Example (6), 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.

4.3 Gain and Loss Frames Motivated by Different 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. We 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 3 displays the motivations of gain and loss frames in ACSRs and CCSRs.

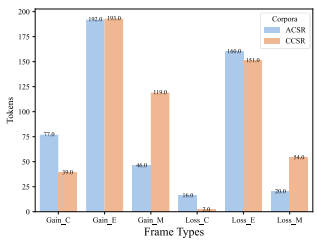

Figure 3. Gain and Loss Frames Motivated by Different Interests

Figure 3 shows that both gain and loss frames in CCSRs and ACSRs are motivated mostly by environmental interests. The above analysis results indicate that both ACSRs and CCSRs attend primarily to environmental interests. This observation is also confirmed by statistical test results (gain frames in ACSRs : X-squared = 112.7, df = 2, p-value < 2.2e-16, loss frames in ACSRs : X-squared = 205.88, df = 2, p-value < 2.2e-16, gain frames in CCSRs : X-squared = 101.4, df = 2, p-value < 2.2e-16, loss frames in CCSRs : X-squared = 165.77, df = 2, p-value < 2.2e-16). 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 exploration of topics associated with different interests may indicate how petroleum companies reconcile the various interests of different stakeholders. In order to find out these topics, we 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." We 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 5.

ACSRs			**CCSRs**		
Environ-ment	**Corpo-rate**	**Mixed**	**Environ-ment**	**Corpo-rate**	**Mixed**
Support and Help (98)	Support and Help (33)	Leader-ship and Manage-ment (25)	Environ-ment (134)	Busi-ness: General-ly (12)	Leader-ship and Manage-ment (134)
Change (96)	Busi-ness General-ly (15)	Change (21)	Building (120)	Stability (10)	Safety (64)
Environ-ment (81)	Money and Stake-holders (14)	Science and technolo-gy (20)	Change (100)	Structur e(11)	Emergen-cy (64)
Reducti on (54)	Improve-ment (12)	Support and Help (19)	Leadersh ip and Manage-ment (86)	Improve-ment (11)	System and Frame-work (59)
Emissio n (49)	Change (12)	Risks (18)	Energy (73)	Gas (11)	Improve-ment (56)
Location s (48)	Commui-ty (10)				
426 (Freq.)	**96 (Freq.)**	**103 (Freq.)**	**513 (Freq.)**	**55 (Freq.)**	**377 (Freq.)**
3474 (Total)	**868 (Total)**	**713 (Total)**	**4083 (Total)**	**431 (Total)**	**2620 (Total)**
12% (Pct.)	**11% (Pct.)**	**14% (Pct.)**	**13% (Pct.)**	**13% (Pct.)**	**14% (Pct.)**

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

Table 5 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 (7) illustrated how the metaphor "platform" is used to conceptualize management in CCSR:

Sentence Examples	Source
(7) 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.	**CCSRs** CNOOC CSR rep., 2016

Table 6. Example (7) from CCSRs

In Example (7), the environmental protection management information is conceptualized as a platform to generate environmental 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. 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 according to China's CSR.

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. Example (8) demonstrates how the metaphor "support" is used in the topic "Support and Help."

Sentence Examples	Source
(8) We support 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. •Supports appropriate state-level regulations.	**ACSRs** Conoco-Phillips CSR rep., 2019

Table 7. Example (8) from ACSRs

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 (8). *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.

5 Conclusions

In this study, we explored 1) usages of keywords in the source domain of BUILDING in ACSRs and CCSRs, 2) frequencies in gain and loss frames in ACSRs and CCSRs, and 3) motivations for gain and loss frames in ACSRs and CCSRs. The topics frequently associated with various interest types were also studied. By addressing all of these issues, we have identified the following legitimation strategies of petroleum companies in Chinese and American CSR reports as well as differences in CSR in China and the U.S.

The first legitimation strategy is to use the source domain of BUILDING in different time frames so that the construction of an environmental enterprise or society is presented as a staged process. The finding of the first research question indicated that the most frequent building keyword in CCSRs was the verb "build." This BUILDING metaphor was often used by CCSRs to construct a petroleum company as an architect to create environmental achievements in compliance with government policies, such as "beautiful China" and the carbon market. The metaphor "build" was employed in the past tense

to show that a specific construction stage has been completed, such as building a trading team for carbon emission trading. When the metaphor was used to conceptualize an ambitious goal, such as creating a green enterprise or society, the statement was often future-oriented. In this way, the completion of the ambitious construction was framed as a distant goal. As completion in a specific building stage has been realized, completing the ambitious construction was achievable.

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 energy goals. The absent information about concrete supportive actions can render an oil company's support symbolic.

ACSRs also used the verb "support" to indicate that the supporting power for environmental solutions comes from governments, businesses, and other stakeholders. In this way, part of the responsibilities of addressing climate change can be transferred to stakeholders and other social groups. By constructing dealing with climate change as a common goal for the oil industry as well as its stakeholders, the potential conflicts between them are reconciled.

The fourth 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, we found that the source domain BUILDING was used more often as gain frames. The nominal metaphor "support" was often used as gain frames in ACSRs and CCSRs. This metaphor can present the support provided by petroleum companies and the support petroleum companies received as real and necessary. CCSRs tended to use adjectives related to technology to emphasize the technology-oriented approaches to climate change, which were favourable approaches for petroleum companies. Some ACSRs used the nominal metaphor "support" to show closer attention to stakeholders' support, which could be attributable to their publicly-owned nature.

The investigation of topics frequently associated with different interests in CCSRs and ACSRs also indicated how petroleum companies achieve legitimacy by accommodating 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 thus legitimate according to China's CSR.

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.

Both Chinese and American oil companies legitimize their core business by juxtaposing climate goals with energy demands. However, Chinese oil companies tend to emphasize developing energy to meet domestic demands, as the energy gap in China is relatively wide. American oil companies focus more on global energy demands because the U.S. has become a global energy supplier. These differences also demonstrate different emphases in Chinese and American CSR.

6 Future Work

This study demonstrates the similarities and differences in usages of the BUILDING source domain as gain and loss frames in Chinese and American CSR reports, which paves the way for future research on American and Chinese Corporate Social Responsibility. We also proposed a specific method for identifying gain and loss frames in CSR reports, facilitating the manual annotation of training data for developing an NLP model to automatically detect gain and loss frames in an unlabelled CSR corpus.

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Appendix A.

ACSRs	**CCSRs**
Metaphorical Keywords	**Metaphorical Keywords**
Functions	*Functions*
build *v*. (60), set up *phrasal verb* (4), support *v*. (249), construct *v*. (6), underpin *v*. (3), build up *phrasal verb* (2)	build *v*.(133), set up *phrasal verb* (37), support *v*.(38), construct *v*.(10), repair *v*.(1), build up *phrasal verb* (9)
Qualities	*Qualities*
stable *a*.(11), structural *a*. (2)	stable *a*. (31), structural *a*. (10), supporting *a*.(11)
Entities	*Entities*
support *n*. (70), construction *n*.(3), base *n*. (5), cornerstone *n*.(2), structure *n*. (26), window *n*.(3), home *n*.(4), foundation *n*.(17), door *n*.(1), platform *n*.(3), framework *n*.(82), pillar *n*.(11), building *n*. (2), threshold *n*.(8), barrier *n*.(3)	construction *n*.(36), base *n*.(1), cornerstone *n*.(2), structure *n*.(43), reconstruction *n*.(1), home *n*.(13), foundation *n*.(18), door *n*.(1), platform *n*.(37), framework *n*.(14), pillar *n*.(1), building *n*.(1), support *n*.(28)
Total: 577	**Total: 476**

Table 1. Metaphorical Expressions in the Source Domain of BUILDING