Original Paper

Corpus-assisted Discourse Analysis of Attitudes Towards Huawei in American and British 5G News Discourse

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Abstract

In recent years, the fifth-generation wireless technology (henceforth 5G) has emerged and gradually occupied an essential position in the development plans of some countries around the globe. The Chinese telecom company Huawei is a prominent participant in this sector and receives much media attention. However, how the company is represented and appraised in Western newspapers is not well investigated. This study probes into 709 American news articles collected from the New York Times and Wall Street Journal and 697 British ones from The Times and The Guardian from January 2018 to June 2020. A corpus-assisted comparative analysis is conducted from the perspective of Appraisal Theory. The study aims to identify specific attitudinal resources used in two countries' news discourses, investigate possible similarities and differences between their attitudes towards Huawei, and finally provide some interpretations and explanations regarding relevant socio-political contexts.

Keywords

5G, Huawei, news discourse, corpus-assisted, appraisal

1. Introduction

5G provides ultrafast wireless speeds, lower latency, and more reliable delivery of signals than earlier cellular networks, with huge potential to change the way people live and work. It will be able to handle more connected devices than the existing 4G LTE network and ushers a new era in which connectivity becomes more fluid and flexible. This transformative technology is expected to lay the wireless foundation for data-heavy technologies and afford a wave of new tech products and wide applications like autonomous vehicles, drones, robotics, and artificial intelligence.

In light of this, countries around the globe have pushed ahead with their 5G deployments early and aggressively. China established the IMT-2020 (5G) project group in 2013 to progressively promote 5G

research in 2016, 5G trials in 2017, 5G construction in 2018, and 5G commercialization in 2020. The United States established a wireless research center in New York in 2012 to specialize in 5G research, and the FCC launched the 5G FAST Plan in 2018 to advance the United States' position among countries that have deployed 5G networks. The United Kingdom issued Next Generation Mobile Technologies: A 5G Strategy for the UK in 2017 and outlined key themes in the 5G rollout. Great achievements on 5G have been made especially in recent years and 5G has entered a phase of widespread industrial applications.

Nowadays, 5G has increasingly become one of the main competitions for supremacy in science and technology globally with most countries putting it in a strategically important position and competing to gain an edge in the race. With great importance attached to this crucial technology, 5G receives extensive media attention, including communications of its promises and limitations and reportages of the latest 5G developments and 5G policies in local and global contexts, as "the popular media has emerged as an important source of scientific information" (Caulfield, 2004).

In the 5G news discourse, the Chinese telecommunication giant Huawei is an unescapable topic as a primary participant in the 5G competition. The company is essentially emblematic of Chinese technological prowess as well as a leading pioneer around the world in 5G wireless networks and has often been embroiled in international disputes and conflicts on these 5G matters in recent years. Hence, it is expected that from exploring the attitudes towards the target, Huawei, in western 5G news discourse, this study can provide an insight into how American and British newspapers converge and diverge in their attitudes and social-political factors behind deeper social, political, economic, and ideological factors behind.

Using a corpus-assisted approach and Appraisal Theory (Martin, 2000; Martin & White, 2005), specific research questions in this study are as follows:

(1)   Which attitudinal resources are more/less used respectively in American and British news discourse to appraise Huawei?

(2)   How are linguistic resources related to those attitudinal resources employed to mediate the attitudes and what are American/British attitudes towards Huawei?

(3)   What are possible social-political factors behind such convergences and divergences between American and British attitudes?

2. Literature Review

Increasing attention in discourse analysis has been paid to news coverage of technological advances and scientific progress. Research mainly concentrates on emerging technoscience movements in society that are usually in development with both promises and uncertainties and those that are still in controversy and debates for applications, like biotechnology (Liakopoulos, 2002; Lundy & Irani, 2004; Ten Eyck, 2005), genetics (DeRosier et al, 2015; O'Mahony & Schäfer, 2005; Zimmermann, 2019), nanotechnology (Donk et al., 2012; Ho et al., 2013; Kjaergaard, 2010), etc. Compared with the

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abovementioned technoscience developments and breakthroughs, telecommunication innovation may concern less moral and ethical issues, but still attracts substantial discourse attention in the contemporary era and exerts abundant and remarkable influences on people's daily lives and other industries. However, not very much attention is paid to advances in the telecommunication sector.

Moreover, previous attitudinal analysis of scientific news discourse usually deals with public attitudes and looks at how news mediates public understanding of science and technology in terms of their benefits and risks. For example, Holmgreen and Vestergaard (2009) explored how Danish reporting of biotechnology frequently used appreciation and metaphors to export a paramount negative attitude towards risks associated with biotechnology. Some studies also adopted a comparative perspective to show how technology is discursively constructed respectively among different sources of news discourse (DeRosier et al., 2015; Liang et al., 2015; Zimmermann et al., 2019).

Another branch of research focusing on attitudes in the press media mainly deals with political issues like racism and immigration (Belmonte et al., 2010; Kim, 2012), sexism and gender (Caldas-Coulthard & Moon, 2010; Jaworska & Krishnamurthy, 2012), human rights (Pan, 2015), representations of in-group and out-group (Li & Xu, 2018; Li & Zhu, 2020). Such a distinctive preference for political topics leaves the attitudes towards science and technology issues in news discourse relatively under-examined. In a nutshell, technological matters in news discourse are not sufficiently researched for attitudinal analysis.

Nowadays, 5G has been acknowledged as one of the critical technological innovations in the world context and already become one of the main strategic battlefields for supremacy in technology. It deserves more attention to investigate how 5G global development is portrayed in news media, and a discursive examination of the attitudes involved in the news reports of 5G is also necessary, whereas there exists little research on its news reporting thus far. News discourse on this theme is expected to reveal attitudes from the national and political level, as technology also pertains to politics and attitude also implies ideologies. Therefore, this study may contribute to this aspect by combining attitudinal analysis and science communication in news discourse.

3. Method

3.1 Corpus-assisted Discourse Analysis

This study adopts the Corpus-assisted Discourse Study (CADS) approach (Partington, 2004), combining Corpus Linguistics (CL) and Critical Discourse Analysis (CDA). This approach features a "methodological synergy" (Baker et al., 2008), i.e., a balanced combination of CL and CDA in analysis. CDA holds a dialectical view of the relationship between language and society (Fairclough, 1992; 1995) and perceives discourse as socially manufactured. It has been acknowledged that CL methods can complement and benefit CDA (Baker et al., 2013; Mautner, 2009). CL affords a quick process of large quantities of language data and a higher degree of objectivity and credibility to identify salient patterns (Baker, 2006; Baker et al., 2008). Therefore, the application of the CL approach is gaining ascending

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popularity in CDA studies, and a large wealth of research has been conducted (Baker & McEnery, 2005; Baker et al., 2008; Koller & Mautner, 2004; Krishnamurthy, 1996; Liu & Li, 2017; Liu & Zhang, 2018; Stubbs, 1994). Therefore, this study also adopts the Corpus-assisted Discourse Study (CADS) approach and informs the study with quantitative analysis to see what insights corpus data can provide.

Furthermore, a comparative perspective is necessary for discourse analysis (Partington, 2015) as it enables analysts to discover distinctive linguistic features specific to a genre, language, or time, etc. Given this, this study carries out a comparative discourse analysis between British and American 5G newspapers. CL analytic tools are employed in the present study to identify frequent and salient collocates of Huawei in American and British 5G news discourse and to further investigate methods of expressing attitudes in different social contexts through close examination of concordance lines. With a critical stance, this study further situates different attitudes in Anglo-American news discourses according to social-political contexts and explores the reasons for such linguistic realizations and attitudinal expressions.

3.2 Appraisal Theory of Attitude

By providing access to semantics of evaluation, this theoretical framework further develops Systemic Functional Linguistics, which traditionally mainly concentrated on the lexico-grammar study of three meta-functions of the language of clauses. The Appraisal System consists of three elements: Engagement, Attitude, and Graduation. Appraisal Theory of Attitude (Martin, 2000; Martin & White, 2005) is primarily applied in this study for qualitative textual analysis. These Attitude resources are subdivided into three categories, and generally, attitudes have two polar dimensions: positive and negative:

•　　Affect, which is defined as semantic resources for expressing emotions and feelings like un/happiness, in/security and dis/satisfaction;

•　　Judgement, which concerns evaluations of behaviors in terms of ethics and morality, i.e. how people should and shouldn't behave, and incorporates two subcategories of social esteem and social sanction; The former has to do with normality, capacity, and tenacity; while the latter, with legal implications, involves veracity and propriety.

•　　Appreciation, which centers on the assessment of products, performances, and naturally occurring phenomena and encompasses three subcategories: reaction, composition, and evaluation.

Under this framework, the present study aims to quantify which attitudinal resources are more/less employed in American and British news discourse, attempts to identify significant discursive patterns and linguistic expressions that reveal their respective attitudes and intends to summarize the general attitudes of two countries towards Huawei. How these resources are respectively applied in American and British press are investigated and exemplified with some typical examples from both the corpora. Finally, possible explanations and interpretations are made based on relevant social and political contexts.

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3.3 Data

To compile two research corpora in this study, two newspapers are selected for data for each country: New York Times (NYT) and Wall Street Journal (WSJ) for building the US corpus; and The Times (TT) and The Guardian (TG), for UK Corpus. These four are chosen and considered able to ensure the representativeness of corpora for the following reasons: first, they all have broad coverage of 5G technology as well as Huawei on this topic; second, they are all American/British mainstream broadsheets enjoying great local and international influences with a wide circulation; third, they are generally evaluated as reliable newspapers that report facts and with relatively less political bias.

News articles from NYT, TT, and TG are obtained from the database LexisNexis, and those from WSJ are retrieved from the database ProQuest. Using the keyword combination 5G and Huawei, all relevant news texts in 2018, 2019, and the first half year of 2020 were respectively collected. Detailed information on the two research corpora is presented in Table 1. Finally, 709 texts of American news discourse and 697 British ones are retrieved to compile two research corpora. A corpus-assisted comparative discourse analysis is conducted on these corpora to discover some possible common and distinctive features in Anglo-American news discourse on this topic. Both quantitative and qualitative approaches are adopted to inform this research.

Table 1. General Information about Two Corpora

		US Corpus		UK Corpus	
		NYT	*WSJ*	*TT*	*TG*
Texts	2018	69	59	24	32
	2019	252	173	159	179
	2020 (Jan-June)	83	73	161	142
Total Texts		709		697	
Tokens		739192		1444941	

Software WordSmith was used in this research for corpus analysis. First, collocates of the node word *Huawei* were generated, as "collocation is, therefore, a way of understanding meanings and associations between words which otherwise difficult to ascertain from a small-scale of analysis of a single text" (Baker, 2006, p. 61). A rough comparison of the top 50 collocates in each corpus closely follows and some typical concordances and, if necessary, their contexts are further explored to see how Huawei is differently depicted.

In the next step, an attitudinal analysis is applied. Concordances, where the collocation of 5G and Huawei appear, are particularly extracted in two corpora. Then, the Appraisal Theory of Attitude (Martin, 2000; Martin & White, 2005) is primarily applied here for qualitative textual analysis to

discover some possible distinctive features of American/British attitudes towards Huawei as well as uses of attitudinal resources in each corpus. All concordances are manually coded for types of attitudinal resources, attribution of attitudes, and polarity of attitudes. In the same way, concordances and context are dependent on for close investigation. Finally, possible explanations and interpretations are made based on relevant social and political contexts.

4. Result

4.1 Collocates Analysis

With *Huawei* as the node word, collocates within a word span from L5 to R5 are generated for both corpora. As shown in Table 2, with functional collocates removed, the top 50 collocates in two corpora are listed in descending order of their total frequency.

Table 2. Top 50 Collocates of *Huawei* (L5-R5) in Two Corpora

UK Corpus		US Corpus	
Collocates	**Total Freq.**	**Collocates**	**Total Freq.**
CHINESE	378	CHINESE	541
TECHNOLOGY	252	EQUIPMENT	341
DECISION	249	TECHNOLOGIES	232
EQUIPMENT	243	COMPANIES	216
NETWORK	203	**GIANT**	197
ALLOW	199	TECHNOLOGY	197
TELECOMS	171	TELECOM	184
SECURITY	164	COMPANY	166
COMPANY	158	**SECURITY**	160
GOVERNMENT	131	AMERICAN	153
NETWORKS	128	TELECOMMUNICATIONS	151
ROLE	122	NETWORKS	126
USING	109	GOVERNMENT	123
BUILD	102	CHINA'S	107
BRITAIN'S	98	OFFICIALS	104
BANNED	97	TRUMP	103
RISK	94	BUSINESS	98
GIANT	88	CHINA	98
FIRM	82	GEAR	96
CONCERNS	79	PRODUCTS	88
COMPANIES	78	WORLD'S	88

MOBILE	72	NATIONAL	85
TIME	72	STATES	83
CORE	72	UNITED	82
WHETHER	71	USING	81
SUPPLY	68	BUILD	79
PARTS	67	ALLIES	77
UK'S	67	LARGEST	76
BUILDING	65	DENIED	76
ALLOWING	61	**THREAT**	75
BRITAIN	59	NETWORK	73
BLOCK	58	ALLOW	73
USED	58	SALES	70
JOHNSON	58	LAST	69
TRUMP	58	MAKER	66
ACCESS	57	**CONCERNS**	66
RISKS	56	SPOKESMAN	65
TECH	56	LONG	63
BRITISH	55	EXECUTIVE	62
CHINA	52	MADE	61
INTELLIGENCE	51	CONTINUE	59
INVOLVEMENT	50	DECISION	59
DENIED	48	CAMPAIGN	58
HIGH	48	COUNTRIES	57
INFRASTRUCTURE	48	ADMINISTRATION	56
EXECUTIVE	46	SELLING	55
BORIS	45	EMPLOYEES	55
SUPPLYING	45	TECH	54
ALLOWED	43	INCLUDING	53
AUSTRALIA	43	YEAR	53
		ACCESS	53

A preliminary comparison reveals at least two similarities between both corpora regarding the frequent words associated with *Huawei*. First, *Chinese* tops both lists, which specifies the home country of Huawei. It appears that both news discourses remind and even emphasize the national nature of the company and intend to make an equation between China and Huawei. This act probably pushes this technological topic forward to a discussion from a political perspective. Second, collocate *security*, which naturally invokes an affect of in/security, enjoys a high rank in both news corpora to co-occur

with *Huawei*, which indicates that both America and Britain are highly concerned about national security issues when reporting the Chinese company.

There are two apparent differences as well. The first lies in the rank of the collocate *giant* in two corpora, which is a more salient collocate of *Huawei* in US Corpus. This word inherently incorporates an evaluative meaning and is overtly with a commonly positive association of "being large, powerful and successful" when used to refer to an organization. Therefore, the preliminary collocates comparison implies a stronger American intention to underscore the capacity and competence of Huawei.

Another significant divergence lies in that while both corpora encompass some collocates that may arouse an insecure affect such as *concerns*, specific tokens differ in their intensity. Collocates of *Huawei* in American news show a stronger force of insecurity (e.g., *threat*), while those in British news are with relatively less intensity (e.g., *risk, risks,*). As displayed in the following two screenshots of concordance lines, Huawei's participation in Britain's 5G network rollout is typically regarded as a "*security risk*", as suggested in Figure 1. On the contrary, America most often cites Huawei as a "*security threat*" as demonstrated in example Figure 2. Both America and Britain express their insecure feelings towards China. However, "evaluative meanings can be located on a cline of low to high force/intensity" (Bednarek, 2006, p. 44). On the scale of insecurity, "*threat*" is more forceful than "*risk*" as it generally exerts stronger anxiety and is associated more with "danger". Hence, America appears to hold a higher intensity of insecurity and fear towards the Chinese company than Britain.

Figure 1. Concordances of collocation *Huawei/risk* in UK Corpus

Figure 2. Concordances of Collocation *Huawei/Threat* in US Corpus

4.2 Appraisal Analysis

In this part, the analysis particularly zooms in on concordance lines where 5G and Huawei co-occur within a five-word span. WordSmith helps to sort out all these concordances. Then, 576 in the UK Corpus and 319 in the US Corpus are identified. However, not all of them involve expressing some attitudes towards Huawei. Finally, after excluding those without attitudinal implications, 451 concordances in the UK corpus and 270 concordances in the US corpus proceed to manual coding.

In the attitudinal analysis, the attribution of attitudes is first identified. Since some concordances do not clarify their own national attitudinal responses to Huawei but report reactions in other countries to the company, the attribution of attitudes is classified into two types: Self and Others. In other words, a distinguishment between "self as the appraiser" and "others as the appraiser" with Huawei as the definite appraisee is made. The second step is to identify the specific attitudinal resources employed, categorized by affect, judgement, or appreciation. This step intends to identify and quantify which attitudinal resources are more/less used in American and British news discourse. The final step is to clarify the polarity of attitudes. Generally, attitudes are categorized into two polarities: positive and negative. However, in this research, it is found that in addition to these traditional two, there exists a third one in the middle. In this paper, it is defined as "uncertain", which includes the following cases: there is an uncertain or vague attitude towards Huawei, or the national attitude is to be decided.

Figure 3 displays the general information on the attribution and polarity of attitudes in two corpora. From the statistics, it is obvious that different polarities of attitudes—positive, negative, and uncertain—are all present to describe Britain's attitude towards Huawei. It seems that Britain itself holds a quite mixed, complex, and indecisive attitude towards Huawei. Whereas, when expressing America's attitude towards the company, US news discourse tends to hold a rather certain attitude and usually clearly specifies its position as either positive or negative. As suggested by a prevalence of negative attitudes by a remarkable margin over the other two attitudinal preferences, America itself mainly perceives the company negatively.

Figure 3. Distribution of Polarity and Attribution of Attitudes in Two Corpora

Differences in how other countries' attitudes towards Huawei are represented in these two corpora are also prominent, in a different manner from expressing America's/Britain's attitudes. In UK Corpus, a

negative attitude towards the Chinese company essentially prevails among other countries while US Corpus shows a picture of mixed and distinctive attitudinal preferences held by other countries.

Then, a further inquiry into which countries are specifically mentioned for reference of their attitudes in the two corpora is made. It is found that UK news discourse primarily pays attention to EU members, such as Germany and France, as well as its Five Eyes intelligence partners (i.e., the US, Canada, Australia, and New Zealand). However, US Corpus refers to a wider range of countries, to additionally include more European countries like Hungary and the Czech Republic, some Asian nations like India and the United Arab Emirates, and Nordic countries like Norway. In general, British newspapers just concentrate on countries with close or ally relationships with Britain but American newspapers appear to present the world's attitudinal map towards Huawei.

American and British news discourse tries to depict two completely different pictures of attitudes toward Huawei. In UK Corpus, Britain is discursively constructed as facing an internal disunity of attitudes towards Huawei when its intimate friends and allies that share some common interest adopt a negative position towards the company together. On the contrary, America is represented as a firm anti-Huawei opinion leader against the backdrop of the globe diverging and disputing for treatment of Huawei.

The following sections will exclusively focus on concordance lines that illustrate America's/Britain's attitudes towards Huawei and qualitatively analyze some typical cases and relate them to specific attitudinal resources in the appraisal theoretical framework. In total, 146 and 275 concordances lines in US and UK Corpora are further examined to quantify which attitudinal resources are used respectively.

4.2.1 Appraisal Analysis of the UK Corpus

The results of the appraisal analysis of UK Corpus are displayed in Figure 4 below. In UK Corpus, the most frequently used resource is appreciation followed by affect and judgement is the least used. Appreciation is primarily relied on to convey three types of attitudes, while affect for negative appraisal and judgement for positive appraisal.
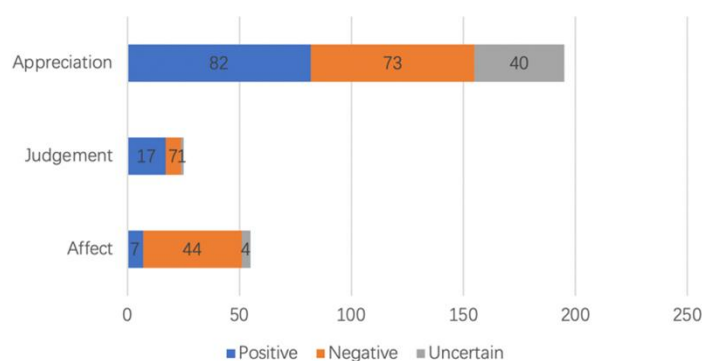
Figure 4. Distribution of Attitudinal Resources in UK Corpus

Appreciation is mostly used to clarify Britain's policy to allow Huawei a role in British 5G rollouts and

highlight the advantages of Huawei's products. As suggested by Example (1), the verbal phrase "*allow Huawei*" appears frequently in the corpus, which reflects a positive reaction to Huawei's involvement in Britain's 5G network construction. Then, positive appreciation is also invoked by descriptions of better properties of Huawei's 5G offerings. Expressions with a similar attitude of "approving Huawei" in UK Corpus also include "*gives green light*", "*accept Huawei for 5G*", "*launching 5G with Huawei*", "*would not ban Huawei*", *and "set to give Huawei the go-ahead for 5G network*". These are about official measures taken to handle Huawei, which reveal that Britain welcomes the participation of Huawei in 5G. In the meanwhile, evaluative adjectives "*cheaper*" and "*more advanced*" in their comparative forms underscore the more attractive features of Huawei's equipment than its competing products and also the strengths of Huawei in comparison with its western rivals. However, as suggested by Example (1), Britain's positive attitude towards Huawei is not one-hundred percent positive as there is "*a string of restrictions*". It is found common in UK Corpus that when talking about reactions to Huawei, UK news discourse usually further explains that permission is with a set of conditions. Such patterns in the corpus are several: "*partial access*" "*a limited role*" "*a 35% cap*" "*be allowed to supply 'non-core' parts of the network*", "*banned from the 'sensitive' core of the network*", etc. It appears that Britain allows Huawei a role, but to what extent Huawei can participate is restricted. In other words, Britain is not utterly positive towards Huawei.

Parallel to this, the "Huawei/5G ban" is appreciated negatively by illustrating the undesirable consequences of excluding Huawei. As revealed in Example (2), completely independent of Huawei will increase costs ("*more expensive*") and delay the 5G delivery in Britain ("*delay the implementation*"). Such prediction is attributed to "*industry insiders*", which lends more reliability to the proposition. By explanations of unwanted outcomes from experts, banning Huawei is discursively constructed as unadvisable and unwise behavior that lacks technical grounds.

(1)   The expectation is that the UK will <u>allow</u> Huawei to supply 5G equipment, which phone companies Vodafone and BT say is <u>more advanced and cheaper than its rivals</u> - but with a string of restrictions aimed at placating Washington. (*TG*, 2020-01-27)

(2)   Industry insiders say that excluding Huawei <u>would make 5G services more expensive</u> and could <u>delay the implementation by between 12 and 24 months</u>. (*TT*, 2019-02-28)

Negative appreciation of reaction is also present in UK Corpus. Many concordance cases report British opinions and efforts to exclude Huawei from their national 5G plan like Example (3). Similar patterns with an attitudinal implication of "disapproving" also include "*expel Huawei from our 5G infrastructure plans*", "*extrude Huawei from our 5G network*", "*remove Huawei from UK's 5G network*", "*oppose letting Huawei build 5G*", "*drop Huawei phones*", "*block Huawei from 5G network*", etc. These anti-Huawei attitudes are mainly attributed to British Conservative PMs, which shed light on an internal division in attitudes towards the Chinese telecommunication giant among different parties. Moreover, in Example (3), "*within three years*" also shows that UK's policy to blacklist Huawei from its own 5G deployment is not an immediate ban. In most cases, what is desired by opponents is a firm

timetable for the Huawei/5G ban or a definite deadline for the exclusion of Huawei. Therefore, the advocated Huawei/5G ban is also not an outright ban.

Appreciation of reaction is also used to express an uncertain attitude towards Huawei. In addition to "allowing" and "banning", there is a third reaction to Huawei in Britain—undecided, as explicated by the ambiguous phrase "*remains on hold*" in Example (4). It is found that expressions implicating a "reconsideration" like "*reconsider his decision to allow Huawei*", "*reviewing whether it should continue to let Huawei help*", "*relook at its decision to allow Huawei*", or those with a sense of struggling to decide such as "*the government's indecision on the Huawei question*", "*has been grappling with whether to allow Huawei*", and "*controversy over the involvement of Huawei*" are recurrent in UK Corpus. In this way, whether Huawei should be allowed is discursively constructed as a pending, controversial, and difficult decision for Britain to make, and no definite policy has been given yet.

(3)   Meanwhile, the UK has announced its decision to <u>exclude Huawei from its 5G network within three years</u>. (*TG*, 2020-06-02)

(4)   As it stands the UK policy towards Huawei access to Britain's 5G mobile networks <u>remains on hold</u>. (*TG*, 2019-07-02)

As for affect, a sense of insecurity is most frequently aroused in UK Corpus. Example (5), a direct quote from British defense secretary Gavin Williamson, reflects the British government's extreme insecurity with intensifying adverbs "*very*" and adjectives "*grave*" and "*deep*" all contributing to a strong force of utterance. Doubts also exist that the company may be a channel through which the Chinese regime may disrupt communications or conduct spying in a hostile manner ("*in a malign way*"). And in Example (6), two vivid metaphors, "*fox into henhouse*" and "*nest a dragon*", are used by a Conservative MP, which effectively underline the risk Britain will be exposed to if Huawei is permitted to their 5G networks. In addition to being perceived as potentially harmful to national security, Huawei is simultaneously regarded as a risk for Britain's alliance partnership from the perspective of diplomacy. As indicated in Example (7), a British official makes it clear that having Huawei running in British infrastructure risks undermining trust between its allies and is detrimental to maintaining a relationship with them ("*put UK security and our critical security partnerships at risk*"). In this aspect, security partnership is prior to the friendship with China, and modal verbs "*must*" and "*should*" reveal Britain's firm principle of not compromising its alliance partnerships when considering policies towards Huawei. Affect of insecurity contributes to the negativity on Huawei's question.

Judgement is not a main attitudinal resource in UK Corpus with the least concordance lines. These examples often turn out to be positive social esteem of capacity and tenacity to portray Huawei as a capable and dependable supplier. For example, in Example (8), Huawei's performance is explicitly evaluated as "*ahead of Europe's rivals*" in 5G. By virtue of recognizing Huawei's prominent competence in this field, the company's image is positively constructed.

(5)   Mr Williamson expressed "<u>grave, very deep concerns</u>" about Huawei being involved in 5G in

December last year and accused President Xi's regime of sometimes acting "in a malign way". (*TT*, 2019-04-25)

(6)   Letting Huawei build 5G <u>would be letting "fox into henhouse"</u>, senior Tory tells MPs: Tom Tugendhat, the Conservative MP, is responding now. He says there is a <u>risk</u> that this decision <u>could "nest a dragon"</u> within the UK's telecoms infrastructure. (*TG*, 2020-01-27)

(7)   Esther McVey, the former work and pensions secretary, said: "As prime minister I would not be prepared to <u>put UK security and our critical security partnerships at risk</u>. I want the UK to have a positive relationship with China, but <u>this must be balanced alongside security</u>. <u>The inclusion of Huawei in our 5G network is not a risk we as a country should take</u>." (*TT*, 2019-06-03)

(8)   The reason the UK has turned to Huawei to build its 5G mobile network is because the <u>Chinese company is ahead of Europe's rivals</u>: Nokia and Ericsson. (*TG*, 2020-01-31)

4.2.2 Appraisal Analysis of the US Corpus

The US Corpus tends to use three attitudinal resources more evenly and American news discourse displays a conspicuous negative attitude towards Huawei on 5G issues. The most frequently employed resource in US Corpus is affect, with judgement and appreciation respectively as the second and the least. Another finding is that most positive evaluations of Huawei are realized through judgement while the other two attitudinal resources are generally exercised for a negative attitude.
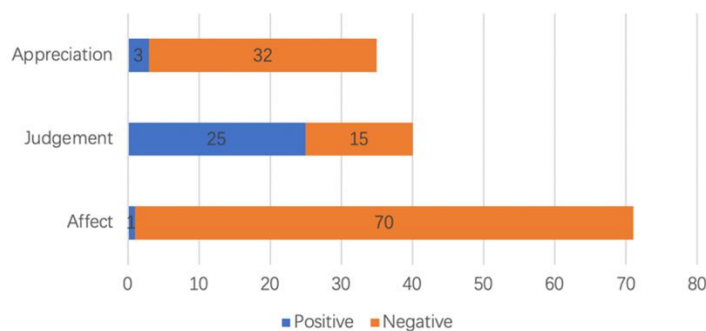
Figure 5. Distribution of Attitudinal Resources in US Corpus

Affect of intense insecurity towards Huawei is employed in the first place to make Americans alert to undesirable outcomes resulting from Huawei's competence in 5G. As suggested in Example (9), American fear consists of ceding the lead to Huawei in the 5G contest ("*losing the 5G race to China"*) and Huawei, as the symbol of China's technology prowess around the globe, is evaluated as "*a threat to national security*". A negative attitude is also expressed through explicit mention of imposing some restrictions on Huawei to hold it at bay (*had better to clamp down on it*). Similar concerns about being surpassed by Huawei are prevalent in US news discourse ("*Huawei threatens to impede America's ambition*", "*we become vulnerable by building our 5G backbone on Huawei equipment*", "*Huawei is determined to lead 5G mobile technology, worrying Washington*"). The tremendous fear of America

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mainly comes from Huawei's possible dominance in the 5G sector. This attitudinal resource is most present in US Corpus probably because feelings are at the core of attitudes and affect can best activate emotional resonance among readers. And by this means, Huawei is discursively represented as extremely dangerous and threatening for America.

Such negative attitude towards Huawei is made transparent also through the affect of a strong inclination to corral allies to adopt preventive policies towards Huawei, as suggested in Example (10) ("*have applied pressure on Britain, Germany, Poland and others*"). Other words that indicate such a desire to push allies in US Corpus are overt, such as "*encourage*", "*pressure*", "*persuade*", "*demand*", "*convince*", "*lobby*", "*press*", and "*ask*". Another noteworthy discovery is that America positions itself as a leader in decision-making on approaches to the risks posed by Huawei equipment in the 5G network and it appeals other countries to "*follow its lead*". Relating to its determination to hit Huawei, it is easy to infer that America attempts to ensure a cohesive, widespread, and restrictive policy towards Huawei and also to achieve uniform efforts in cyberspace that are all led by itself.

(9)   We're losing the 5G race to China, Huawei's dominance in the technology around the globe is a threat to national security, and we had better clamp down on it. (*NYT*, 2019-07-12)

(10)   For more than a year, American officials have applied pressure on Britain, Germany, Poland and others to follow its lead in banning Huawei from new 5G networks. (*NYT*, 2019-12-20)

Moreover, there are more judgements of Huawei in the US Corpus. First, negative judgement of social sanction is employed to describe the immoral and unfair behaviors of Huawei in the 5G race. In Example (11), Huawei is negatively portrayed as having always been breaching the rightful code of conduct ("*Huawei's long history of reported stealing of intellectual property*"). There is suspicion and fear that the company's ties to the Chinese government may open the door to possible surveillance of China ("*open to much greater Chinese espionage*"). In Example (12), the speedy advances of Huawei in 5G technology are ironically regarded as a result of massive government support ("*it creates opportunities for Huawei*"). Through such criticism, Huawei is depicted as a dishonest player in the 5G competition who also illegally gives Beijing access to spy on critical data of other countries.

(11)   The reasons were Huawei's long history of reported stealing of intellectual property and the fear that if our allies bought Huawei's 5G telecommunication system it would open them and us to much greater Chinese espionage. (*NYT*, 2019-06-04)

(12)   The Chinese government is not handcuffed by such concerns. By declaring "let there be 5G," it creates opportunities for Huawei and other Chinese companies speedily to climb the learning curve in developing equipment for the new networks. (*WSJ*, 2020-02-08)

Many concordance lines in US Corpus also commit to illustrating the achievements of Huawei in the 5G industry with repeated use of social esteem of capacity. In Example (13) of reports from the chairman of Huawei's board of directions, Huawei has secured extra 5G deals ("*11 additional 5G contracts*") despite an explicit boycott in America. Concrete statistics in the concordance line accentuate the prominent presence of Huawei in the global arena to establish cooperative relationships.

In Example (14) capability of Huawei is highly recognized as it effectively influences the industrial standards ("*playing a major role in shaping global standards and preparing new equipment*"). Other cases of social esteem also include mentioning good 5G products introduced by Huawei ("*developed the world's leading 5G products*", "*Huawei have already introduced 5G phones*") and explicating Huawei's determination and ambition to further develop 5G ("*Huawei was ramping up its research and patenting efforts*", "*Huawei Pushes Further Into 5G*").

Although the use of judgement in US news discourse appears to be polarized, a further holistic review of these concordances and their broader context shows a convergent purpose behind them. Such descriptions about Huawei seem to be positive at first sight. However, the deeper intention appears to be the opposite. A further investigation of the broader context shows America's inclination, or desire, for leadership in the 5G race ("*the American government wants the country to be a leader in 5G technology*"). Therefore, in the context of a global technological race and America's great inclination to remain dominant in 5G and its standards-setting, these discourses finally turn out to construct Chinese rivals more as "threatening" rather than "great" and present a powerful adversary in the competition. In the first phase of collocates analysis, a higher tendency to label Huawei as a "giant" also echoes this finding. The actual purpose is that they are inviting readers to make a judgment about the possible impacts of Huawei's performances in 5G development on America. The greater Huawei is, the more dangerous and unfavorable position the U.S. is in. Therefore, these discourses potentially and further invoke America's deeper insecurity of being surpassed by the Chinese company.

(13)　In fact, he said, Huawei has signed 11 additional 5G contracts since the May blacklisting, bringing its total to 50, across 30 countries. (*NYT*, 2019-07-30)

(14)　Today, with the development of the next wave of wireless technology, or 5G, both ZTE and Huawei are playing a major role in shaping global standards and preparing new equipment. (*NYT*, 2018-06-09)

Similar to UK Corpus, appreciation is relied on to specify Americans' reactions to Huawei. In the aspect of actual measures against Huawei, America's regulatory and restrictive actions towards Huawei are elaborated in a detailed and straightforward manner. In Example (15), any involvement of Huawei in American companies' 5G business is outlawed ("*can no longer do business with China's biggest phone equipment company*"). Vocabularies with a semantic prosody of "to exclude", such as "*ban*", "*block*", "*bar*", "*prevent*", "*blacklist*", and "*keep out of*", and those with a sense of "to weaken" like "*beating*", "*thwart*" and "*undermine*" are frequent in US Corpus, which all contribute to a negative attitude towards the Chinese telecom giant.

(15)　The export blacklist takes full effect on Nov. 19, which will mean that Google, whose Android operating system sits on every Huawei phone; Microsoft, whose Windows operating system sits on every Huawei computer; and Intel, whose chips run Huawei's 5G networks, can no longer do business with China's biggest phone equipment company. (*NYT*, 2019-09-10)

5. Discussion

As analyzed above, firstly, both America and Britain address China as a risk factor for their own 5G development plans with the affect of insecurity. Both countries' responses are out of great concern for their national security as they commonly stress the importance of having independent 5G networks free from outside interventions. However, while British newspapers regard Huawei as a "risk", American news discourse shows a more intense insecurity towards Huawei, evaluating it as a "threat". America's fear additionally originates from Huawei's lead in the technology to dominate the 5G global standard. Moreover, through judgement of Huawei's behaviors in 5G competition, America strongly condemns dishonest cyberespionage and unfair advantages from the Chinese government on the one hand and foregrounds its accomplishments and progress on the other hand. Then, America holds an essentially negative attitude towards Huawei and straightforwardly announced legislation and policies to banish Huawei. On the contrary, Britain appears to face an internal division on whether to allow Huawei into their own 5G rollouts, and various attitudes, positive, negative, and uncertain, co-exist in the country. Finally, when reporting other countries' reactions to Huawei, America is concerned about a wider range of countries and districts around the world, while Britain concentrates on those with close relationships with itself.

This section attempts to explain the socio-political factors behind different ways of expressing attitudes in American and British news discourse. News discourse does not simply play an indispensable role in disseminating scientific knowledge and fostering public understanding of technologies but also communicates the attitudes of the speakers/writers that reflect their value systems and those of their community (Thompson & Hunston, 2000).

Firstly, this shared suspicion of China as dangerous for national security reflects a consistent "anti-China" ideology that has long been present in Anglo-American media (Stone & Xiao, 2007). This tradition is more obvious as suggested by strong persuasion in American news to convince other western nations of the illegal interference of the Chinese government. The attitude towards Huawei on this technology issue is largely subject to ideological confrontation.

Secondly, different attitudes in American and British news discourse both adhere to the local prism of national interests. Britain's ambivalence and America's straightforward insistence on the Huawei/5G decision mirror the two countries' respective orientations in their consideration of national interests.

Britain hesitates on a clear and final decision on whether to allow Huawei equipment in 5G networks. And its permission is with specific restrictions and its ban is tolerantly delayed. Britain narrows its focus to intimate allies and pools together their reactions towards Huawei for reference. Its primary focus appears to be considering how to construct its own secure 5G networks which policy is most beneficial for 5G development and maintaining the present diplomatic status quo without undermining cooperation with allies. The orientation of British national interest mainly concentrates on technology development and its national security is more associated with information security and stable diplomatic ties.

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America perceives 5G more from a competitive perspective and the most prevalent concern is about the leadership shift in the 5G technology race. Therefore, in American news discourse, Huawei is discursively constructed as an ill-behaved but powerful rival. The competence of Huawei is constructed as threatening and China is regarded as an adversary. The primary national interest in 5G issues for America is to win the race and beat China. In addition, it is constructed as a firm advocate of anti-Huawei policies when the world is in dispute on how to treat Huawei. America embraces a strong desire for a uniform ban led by itself among its allies on Huawei. It is potentially constructed as an opinion leader who pays attention and is concerned about the world while others are thought to be proper followers. This conduct is not only to achieve attitudinal consensus within the international community but further indicates America's intention to maintain hegemony in the political sphere. In summary, America's definition of its national security is to maintain both technological and political leadership.

6. Conclusion

The present paper conducts a corpus-assisted comparative study of attitudes towards Chinese company Huawei in American and British 5G news discourse. It examines what attitudinal resources are employed, and what kind of attitudes the two countries hold towards Huawei. It is found that both categories of newspapers convey attitudes through a wide application of attitudinal resources of affect, judgement, and appreciation. However, British news discourse uses appreciation most frequently and rarely relies on judgement. It values Huawei as a "risk" on national security grounds and presents divergent and even uncertain attitudes in Britain in contrast to an almost agreement among its allies to exclude Huawei from 5G development. On the contrary, the full attitudinal repertoire of affect, judgement, and appreciation is employed in American news discourse. American newspapers arouse intense affect of insecurity by evaluating Huawei as a "threat" not only to America's national security but also to its technological leadership in the 5G race. Judgement is also used to construct the Chinese giant as a dishonest and dangerous competitor. Besides, America overtly insists on canceling Huawei's participation in the 5G against the world's different responses to Huawei's emergence in 5G and the country desires allies to accede to its call to together take a hard line against Huawei. In general, America shows great resolution to compete for the technology leadership; while Britain tends to be more cautious and conservative, still considering whether to include Huawei in its own 5G construction.

Such differences in appraising Huawei reveal different inclinations for different national interests. While Britain expresses concerns about information risks brought by Huawei and worries about upsetting its alliance partnerships, America holds a more intense fear of the alternation of technological dominance. British representations of Huawei and ambivalence in taking the stance towards Huawei are subject to concerns for national security, domestic 5G development, and stable diplomacy. However, America deals with the issues essentially from a competitive perspective. 5G is constructed as a crucial

race for technological supremacy and such a conspicuous hostile attitude towards Huawei may be primarily attributed to America's aspiration to maintain technological leadership and political hegemony around the globe. These divergences in attitudes just reflect their adherence to different national interests.

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