

Hallidayean Transitivity Analysis: ChatGPT in the Contrasting Headlines of Two National Newspapers

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Abstract: Conflicting national media positions are often reflected in the discursive patterns used in news headlines. By using the headlines collected from online articles in the Chinese national daily newspaper China Daily and the American national daily newspaper The New York Times, Halliday's transitivity analysis is deployed to analyze these processes in the light of critical discourse studies. The study finds that while China Daily holds a moderate attitude toward ChatGPT, The New York Times tends to view this new technology critically. The results also highlight the cultural values and ideologies of the two newspapers from the choices of their news headlines.

Keywords: ChatGPT, Hallidayean Transitivity, Headlines, Critical Discourse Studies, China Daily, The New York Times.

1. Introduction

ChatGPT is a language model developed by OpenAI that uses deep learning techniques to generate text. It has been a continuously heated topic shortly after its coming out on 30 November 2022.

There have been a large number of reports globally towards this groundbreaking invention. Moreover, several mainstream media outlets in China and America have shown different attitudes. While American media held an open attitude toward ChatGPT, Chinese media tended to wait and see about this new technology.

This study analyses the news headlines about ChatGPT from both Chinese and American media under the Hallidayean transitivity structures. It is hoped to deductively disclose how the ChatGPT is framed within Chinese and American media and explicate the cultural values and ideologies behind the choice of news headlines.

2. Theoretical Background

2.1. News Headlines in Critical Discourse Studies

Fairclough has analyzed the importance of combining and sequencing clauses in news texts [1]. He points out that recontextualization involves the use of transformation in presenting the primary elements of a social practice dependent on different contexts. Van Dijk also points out that the actual formulation of news headlines is controlled by recontextualization as a transformation device in the context model, which is cognitively activated by a journalist's knowledge of an event and his or her social and national ideology [2]. A journalist writes a news article not only to convey a message consistent with a specific ideological context but also to help his or her readers access this context in a seemingly natural way by manipulating its interpretative context [3].

2.2. Hallidayean Transitivity Structures

Halliday suggests that the transitivity system is used to 'construe the world of experience into a manageable set of process types' [4]. Critical discourse analysts suggest this involves clausal representation choices possessing

ideological significance [5]. The process patterns in transitivity representation are here specified as the Material, Relational, Mental, and Verbal processes. Material processes are processes of doing or happening; Relational processes are those of identifying and attributing; Mental processes are those of feeling, thinking, and perceiving; and Verbal processes are those of saying, expressing, or indicating. Moreover, the ideologies and power relations in reporting complex news stories can be unraveled in terms of the transitivity patterns employed in news headlines [6].

3. Data Collection

To analyze the transitivity headline processes, the news reports posted on the website of China Daily in China and The New York Times in America about ChatGPT from 9 December 2022 to 15 March 2023 were collected. Among these, headlines with clausal structures were selected to investigate the use of transitivity structures.

The different transitivity processes help us to elucidate differences in how the two newspapers define, classify, evaluate, and foreground the events and participants involved [3]. Table 1 summarizes the transitivity processes represented in each newspaper's headlines when reporting on ChatGPT. Moreover, the following section will conduct a detailed analysis of China Daily and The New York Times from the 4 transitivity patterns.

Table 1. Frequency of Transitivity Processes in Headlines for China Daily and The New York Times News Reports on ChatGPT.

Transitivity processes	China Daily	The New York Times
Material	7	14
Relational	7	7
Mental	4	3
Verbal	3	1
Total	21	25

4. Analysis

4.1. Material Processes

The Material process is the process of doing something which involves body movements, such as "run", "jump",

“stand”, “catch”, and so on. The process contains an Actor and the Goal of the action. This process accounts for the most significant proportion of the two media outlets, with 7 times (33%) recorded in China Daily and 14 times (56%) in The New York Times. This shows that the Material process plays a crucial role in building experiences, facts, and behaviors, making the Actor of an event clear while highlighting the event’s objectives to the reader. The Material process highlights the behaviors that occur around the ChatGPT, enabling the reader to gain a general understanding of the event through the title.

In China Daily, the Actors involved in this process are relatively comprehensive. Participants like the country *China*, the city *Beijing*, social factor enterprise *SenseTime*, *iFLYTEK* and *ChatGPT* itself are recorded as Actors. On the other hand, the Goals of the Material process is interestingly simple, with *ChatGPT* (4/7) and *AI models* (2/7) being the most frequent participants. The actions of the Actors can be divided into three categories. The first category involves neutral actions such as *unveil*, *launch*, *plan*, and *benchmark*. The second type is more optimistic, with *enrichment* and *support* recorded as examples. The third type is more pessimistic and least frequent, with only one action, namely *combat* in the Material process. Regardless of the negative voice, China Daily’s attitude towards ChatGPT is relatively objective and rational.

As for The New York Times, *ChatGPT* (7/14) appears as the most frequent Actor. There are also many Actors related to artificial intelligence (3/14), such as *AI search engines*, *AI’s ease at spinning deception*, and *AI’s future*. Most Actors’ acts have neutral colors. This is due to their actions such as *has*, *gets*, *kick off*, *raise* and so on (8/14). However, some actions, such as *battle*, *disappoint*, and *convulse* (3/14), reflect the negative impact of ChatGPT.

Meanwhile, the Goals of the Actors are surprisingly negative. Examples like *an underwhelming debut*, *alarms about AI chatbots* and *glitches* suggest the negative attitudes towards ChatGPT (7/14, 50%). Therefore, both the advantages and disadvantages of ChatGPT have been reported in the American media.

4.2. Relational Processes

The Relational is a process that reflects the relationship between things, which can be divided into two categories: Attributing and Identifying. The participants in Attributing are Carrier and Attribute, and the participants in Identifying are Identified and Identifier. The Relational process can describe external and internal experiences, such as the Material process. Its main feature is that to establish a Relationship, at least two subjects must participate to achieve this function.

The Relational process occupies the second place in China Daily (7/21, 33%) and New York Times (7/25, 28%). This discourse belongs to the category of news report language, which is bound to describe the original appearance and process of events and inevitably involves description and judgment. Therefore, readers can understand the actual situation in the experiential world and the relationship between events and people.

In China Daily, Attributes such as *the rise of AI regulation*, *the future of education* and *ChatGPT-like service* (3/7) reflect how ChatGPT might help in later life (43%). This is because the Chinese media prefer to focus on the practical use of ChatGPT. In the China Daily, we can find that some media mention the relationship between *ChatGPT* and *the metaverse*

(2/7). It is noted that ChatGPT cools the frenzy of the metaverse (see TABLE II). The reason Chinese media tend to focus on ChatGPT’s prospects is probably because this will help Chinese people better understand it and help reduce the backlash of this new technology [7]. This action might also benefit the introduction of other technology in the future.

In The New York Times, the Attributes such as *no soul*, *creating disinformation*, *puzzle* etc. (4/7) tend to reflect a negative outlook of ChatGPT (56%). American media state that AI tools are adept at creating disinformation and are likely to bring about legislative troubles. New York Times’ detailed elaboration of ChatGPT from various aspects and possible problems might help the American people to view the advantages and disadvantages of ChatGPT more objectively.

Table 2. Relationals in Headlines for China Daily News Reports on ChatGPT.

N	Date	Carrier	Relational	Attribute
1	8/3	Metaverse	frenzy	cool as ChatGPT gains steam
2	3/2	The rise of ChatGPT	call for	AI regulation
3	3/1	Abolition	created	ChatGPT
4	22/2	ChatGPT’s arrival	provokes	future of education
5	17/2	Chinese tech giants	gravitate	ChatGPT
6	14/2	ChatGPT	replace	humans
7	14/2	Jidu partners	offer	ChatGPT-like services

4.3. Mental Processes

The Mental process expresses perception, reaction (also known as emotional process), cognition and other Mental activities. The Mental process includes two participants. One is the subject of the Mental activity, namely the Sensor, and the other is the object, namely the perceived Phenomenon. The Mental process expresses the attitude and view of different subjects, and the Mental verb can reflect the news reporter’s emotional attitude and value orientation.

In China Daily, Chinese media’s value orientation towards ChatGPT is more questioning and uncertain (2/4). Phenomenon like *A boon or bane* suggests doubts about this new technology. One of the Sensors’ acts, *backfire*, also indicates the emotional concerns about the rapid development of such technology. Regarding emotional recognition of ChatGPT, Chinese media prefer to wait and see for now. This attitude also reflects Chinese people’s value of moderation towards the Western cultural and technological wave [8].

In The New York Times, some Americans also express skepticism and rejection of ChatGPT (1/3). However, many people still hold an attitude of approval and support. Phenomenon like *Up the ante* and *make this podcast* suggest the optimism and support from the Americans (see TABLE III). In the face of novelties, American people are more open and eager to find business opportunities from them. ChatGPT has cutting-edge technology and numerous possibilities; in Americans’ eyes, the advantages might outweigh the disadvantages. So, they are probably more willing to take risks and experiment.

Table 3. Mentals in Headlines for The New York Times News Reports on ChatGPT.

N	Date	Sensor	Mental	Phenomenon
1	7/2	Google	hopes	'Bard' will outsmart ChatGPT, Microsoft in AI
2	14/3	OpenAI	plans to	up the ante in tech's AI race
3	12/9	ChatGPT	can	make this podcast

4.4. Verbal Processes

The Verbal process represents verbal actions. Commonly used verbs are “say”, “tell”, “announce”, “talk,” etc. It involves three participants: the Sayer, the Receiver and the Verbiage. The Sayer is typically but not necessarily conscious; the Receiver is the participant to whom the saying is directed, and the Verbiage is realized by nouns expressing verbal behavior, like a question, story report, direct projection, or indirect projection. This process accounts for the most minor proportion of the two media, with only 3 times (14%) in China Daily and 1 time (4%) in The New York Times. Most reports use direct quotes to show the objectivity of the news and enhance its credibility. The words of official or representative figures are often cited to express the views of various parties on ChatGPT.

In China Daily, the Sayers are mostly government representatives such as *Shanghai delegates*, *NPC (National People's Congress) deputy*, and *ministers* (3/3). The representativeness and credibility of these Sayers highlight the authority of discourse. When looking at the Receivers of the Sayers, they are all about appeals to strengthen research in ChatGPT. It is noted that China still lags behind the United States regarding talent and relevant models for this new technology. AI would profoundly impact future world competition as a revolutionary technology and a critical force in the future industry and economic and social development [9]. China is undoubtedly quite aware of such circumstances. Therefore, relevant government personnel have suggested promoting China's growth in appropriate fields.

In The New York Times, the Sayers are technical experts with enough credibility. As the only Receiver in the Verbal process, *jobs* indicate America's worry about whether ChatGPT would lead to unemployment.

5. Conclusion

This analysis finds that Materials and Relationals are the

most salient processes in both China Daily and The New York Times. While China Daily reflects an objective and rational attitude towards ChatGPT, The New York Times holds a critical view of this emerging technology.

News reports about ChatGPT tend to represent and reaffirm the ideologically-based choices and practices of the different national newspapers. Chinese media suggests a moderate attitude toward ChatGPT during the Verbal and Mental processes. However, plenty of government officials are noticed to call for the in-depth development of ChatGPT lest China would lag in the practice of AI technology. On the other hand, the American media tends to be more open and proactive to this technology. But, voices of concern about the unemployment caused by AI still exist.

Building on this type of analysis, future research might aim to examine the forms of ideological selection that guide the figurative strategies, speech patterns, and intertextual relations embodied in the microstructures of newspaper body texts.

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