

Discourse Analysis of Chinese Hoof-shaped Gold Ingots

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Abstract

Chinese hoof-shaped gold ingots are cultural relics excavated from Haihunhou tomb of the Western Han Dynasty in recent years. From the perspective of social cognitive linguistics, this article aims at exploring the discourse essence and discursive construction of hoof-shaped gold ingots. Firstly on the level of discursive types, it is proposed that the ingots fall into the category of multi-modal discourses, and to be more specific, the cognitive category of materialized discourses. Then based on the social cognitive model of strong differentiation advanced by Wang (2019), it is found that the ingots are essentially a kind of materialized power discourses developed on the social cognitive model called strong differentiation model of power. Furthermore, it is discovered that the cognitive premise of the social cognitive model is that bestowals are power, which serves as an immediate motivation for the emergence of the ingots in Chinese history. The findings suggest that the cognitive motivation of power stratification and the natural legitimation of imperial authority in Chinese feudal society.

Keywords: discourse analysis, hoof-shaped gold ingots, materialized power discourse, social cognitive linguistics

1. Introduction

1.1 Research Objects

Haihunhou Tomb is believed to be the best-preserved royal tomb of the Western Han Dynasty in China, from which around 20 000 pieces of artifacts have been unearthed, such as iron,



bronze, silver, gold, jade, bamboo slips, textiles and other cultural relics. According to official statistics, the unearthed gold objects are of the largest quantity and variety discovered in China's Han tombs so far, a total of 478 pieces weighing 115 kilograms (Yang & Xu, 2016; Liu et al., 2017). Among them 73 pieces of hoof-shaped gold ingots received special attention and discussion, they are in different size but with similar circular or elliptical bottom, and generally classified into two types according to their distinguishing features in shapes. As a kind of precious metal currency, Chinese hoof-shaped gold ingots are regarded as a symbolic representation with profound historical, political and cultural connotation.

1.2 Literature Review

Cultural relics studies from the cultural perspective generally regard cultural relics as carriers of cultural memory in specific historical and social contexts, and emphasize the role of cultural relics in national history and cultural identity. Literature review shows that previous studies on hoof-shaped gold ingots of Haihunhou tomb mainly focus on the naming, natural property and social significance from varied disciplines. In the field of history, it is claimed that the common practice that presently a lot of scholars would like to call Niaoti gold ingots with the name of Mati gold ingots does not conform to the historical facts which could be traced down in historic documents, and then the inappropriate way of addressing the two types of hoof-shaped gold ingots should be modified to avoid further misunderstanding (Xin, 2018; Zhao, 2018).

As a kind of currency in Chinese history, the basic characteristics and social significance of hoof-shaped gold ingots as economic symbols are examined by economic experts (Yang, 2017). And from the perspective of theology, it is discovered that the formation of hoof-shaped gold ingots is largely due to the belief in immortals in the Han Dynasty and these ingots are essentially a symbol of immortality (Wei, 2017). However, till now no studies attempted to explore the social cognitive motivation for the discursive construction of hoof-shaped gold ingots from the perspective of linguistics. Hence, based on the theory of social cognitive linguistics, this article aims at exploring the discourse essence and discursive construction of hoof-shaped gold ingots under the theoretical framework of social cognitive linguistics.

2. Theoretical Framework

2.1 New Trend of Discourse Studies

From the perspective of social cognitive linguistics, meaning construction of discourse is largely driven by social cognitive factors for the reason that discourses originate in specific social contexts, which is an important vehicle for human to understand the world. It is claimed that discursive construction studies include three layers: discourse, cognition and society (Van Dijk, 2018). So a social dimension need to be taken into consideration in discursive construction analysis, in which cognitive operation mechanisms play an indispensable role as a bridge between discourse and social reality in the process of meaning construction. The new trend of discourse studies, with the increasingly prominent interdisciplinary features, also shows that discourse, cognition and social studies have finally



converged under the theoretical framework of cognitive linguistics through the formation of new methodology (Romano & Porto, 2016).

2.2 Theoretical Framework of Social Cognitive Linguistics

The theoretical framework of social cognitive linguistics established on the basis of the social turn of cognitive linguistics in recent years has promoted the emergence of a social cognitive paradigm in discourse studies. It is believed that cognitive linguistics should extend from the classical cognitive linguistics of "conceptualization in mind" to the social cognitive linguistics of "conceptualization in social context" (Schmid, 2016: 554). In this sense, social cognitive linguistics is the inheritance and extension of classical cognitive linguistics, whose basic theoretical assumption is that "language is a central feature of human social interaction" (Croft, 2009: 397). The new research paradigm is a shift from focusing on inside the head to outside the head, which holds the view that language is not only a cognitive ability, but also a social cognitive ability that emphasizes joint action, coordination and regulation. It also argues that four basic principles of cognitive linguistics should be adopted to create social cognitive linguistics:

Grammatical structures and processes in the mind are instances of general social cognitive abilities as well as individual cognitive abilities; grammar consists of a semiotic triangle of the form, the meaning, and the community in which the meaning is conventional; meaning is shared as well as encyclopedic; meaning involves construal for the purpose of communication (Croft, 2009: 425).

On the basis of the basic theoretical assumption of classical cognitive linguistics that meaning is conceptualization, social cognitive linguistics proposes that meaning is essentially social conceptualization, that is, meaning exists in social context (Harder, 2010; Wen, 2019). In view of the current social cognitive studies, the future development of cognitive linguistics may be integrated with cognitive semiotics engaged in the study of thinking and meaning from the perspective of phenomenology (Zlatev, 2016).

3. Discourse Essence of Chinese Hoof-shaped Gold Ingots

Based on the discussion of historical background and main characteristics, the discourse essence of Chinese hoof-shaped gold ingots is explored from the social cognitive approach to discourse analysis in this section.

3.1 Historical Background

According to historic accounts, the unearthed hoof-shaped gold ingots in Hanhuhou Tomb were forged in the period of the Western Han Dynasty, which is an integral part of Chinese feudal society. Replacing the slavery aristocratic politics of the West Zhou Dynasty, the autocratic centralization system of Chinese feudal society began in the Warring States Period, became well-established in the Qin and Han Dynasty, and lasted until the Qing Dynasty. The basic feature of Chinese feudalism is that the state centralized all political power in the hands of emperors and the bureaucracies at all levels under the emperors' command.



3.1.1 The System of Enfeoffment in Ancient China

As an important feudal period, the Western Han Dynasty (206 BC-24 AD) founded by the peasant rebel leader Liu Bang, was regarded as the first unified and powerful empire in Chinese history. At that time, the government was characterized by a combination of feudal hierarchical structures with central bureaucracy. In other words, feudal emperors had total control over all the places of China, who had three councilors of state: The chancellor over Masses, the Imperial Counselor, and the Grand Commandant. During the early years of the Western Han Dynasty, imperial princes were made kings, who were given their own territories that they finally passed on to their sons after their death. It was called the system of enfeoffment, an important political system in ancient China, starting from the Western Zhou Dynasty. Under this system, the princes enjoyed hereditary domination in their own kingdom, meanwhile they also had to take on the responsibility of obeying and carrying emperors' orders, paying tributes regularly, providing military taxes and labor force, maintaining the security of the state, and things alike (Li, 1990).

3.1.2 The Owner of Haihunhou Tomb

Liu He (92-59 BC), the owner of Haihunhou Tomb, was the son of Liu Bo who was the grandson of Emperor Wu of the Han Dynasty. He succeeded Changyi King after his father's death at the age of six, and when Emperor Han Zhao died in 74 BC, Liu He was called up to Beijing and succeeded to the throne. Only after 27 days, he was deposed and degraded to commoner status, returning back to Changyi (Jiang, 2018). In 63 BC, he was conferred the title of Marquis Haihun by the imperial decree and transferred to Xinjian County, far away from his hometown, and later he died of gloom.

In his whole life Liu He experienced four changes of social identities: King, emperor, civilian and marquis. Among them the identity of Changyi King accompanied him for nearly 30 years, that's to say, he mainly lived as a king in his kingdom. He took away a lot of his property with him when he was exiled to Xinjian county, Nanchang city (Wu, 2018). The wealth discovered in Haihunhou Tomb is the accumulation of the two generations of Changyi kings in 24 years, and the unearthed hoof-shaped gold ingots in the tomb is the heritage of the first Changyi King Liu Bo, from the rewards of Emperor Wu (Jiang, 2018). From the historical context, it could be inferred that Chinese hoof-shaped gold ingots symbolize the identity of king in the Western Han Dynasty and they are physical embodiment of the power enfeoffment system in feudal society.

3.2 Main Characteristics of Hoof-shaped Gold Ingots

The hoof-shaped gold ingots unearthed from Haihunhou Tomb have unique characteristics in physical shapes, discourse types, historical source and symbolic significance.

3.2.1 Physical Characteristics

Made of gold, they are generally divided into two types in shapes: Niaoti gold ingots and Mati gold ingots. The former is shaped like a long, narrow and pointed boot, hollow and smooth in surface, with a circle of gold filigree texture outside the mouth of the uppermost



cavity, which is similar to the single toe flap of the hoof of deer. The latter is like an irregular cylinder, with oval and hollow bottom and smooth surface (Yang, 2017). The upper cavity mouth also has a gold filigree belt along the outer side, which is similar to the hoof of equine animals as a whole. The hoof-shaped gold ingots are only archaeologically unearthed in Haihunhou Tomb and Liuxiu's tomb (Zhao, 2018).



Pic 1. Niaoti Gold Ingots



Pic 2. Mati Gold Ingots

3.2.2 Discourse Types

In terms of discourse types, the hoof-shaped gold ingots as a kind of multimodal discourses are members of materialized discourses. Postmodernist philosophy claims that languages have transcended the dual existence of ideology and materiality, and are becoming more and more materialized with strong material power (Yang, 2006). From this sense, the categorization of discourses also has been greatly expanded, ranging from non-material fields such as spiritual culture to material fields, encompassing many materialized discourse types such as architecture, landscape, clothing and handiwork.

In the field of discourse studies, the construction of materialized discourses takes specific entities as linguistic symbol system to engage in discourse practice. Their emergence reflects the omnipresent and all-encompassing of languages and plays an important role in the overall construction of social reality (Wang, 2015). Linguists also paid special attention to the materiality of language and advocated that discourse practice should be linked with archaeology and historical relics excavated should be idealized, so that historical relics can be regarded as a form of discourses, narrating historic events and giving clues to people in comprehending the ancient society (Foucault, 2002).

3.2.3 Historical Source

From the angle of discourse power, the hoof-shaped gold ingots could be defined as materialized power discourses in essence. In Book of Han Dynasty, it is recorded that the naming of the hoof-shaped gold ingots originated from the Records of Emperor Wu of the Han Dynasty (Ban, 1992). In BC 95, Emperor Wu claimed to have been instructed by heaven and decided to make worship in Mount Tai, and during the journey he captured a white unicorn and saw a heavenly horse standing near a river. Since unicorns and heavenly horses were auspicious signs, Emperor Wu decided to make hoof-shaped gold ingots and gave them to princes. In fact, gold coins with round or hoof-shaped bottom originally appeared in the Warring States Period. Emperor Wu just followed the suit in order to expand his political

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influence and consolidate his imperial power in the name of auspicious signs. This not only reflected the political significance of hoof-shaped gold ingots, but also embodied the power attribute of hoof-shaped gold ingots as materialized discourses (Yang, 2017).

3.2.4 Symbolic Significance

As materialized discourses, the hoof-shaped gold ingots are products of imperial authority, symbolizing imperial power in Chinese feudal society. Power is inextricably link to the political system, and China's feudal society implemented a strict hierarchy in politics, dividing people into varied groups according to their social status with the hierarchical order of emperors, governors, officials, scholars and civilians (Zhang, 1985). Emperors, as the feudal monarch, had supreme power who took advantage of enfeoffment system to show and consolidate their imperial power. Specifically, emperors divvied up power through divvying up land, and they also endowed power to princes by giving material rewards such as gold, coins, houses, cloth, food, etc. These rewards not only greatly improved recipients' material well-being life, but also played as physical representation of imperial power and consolidated recipients' specific political identities and social status. We could say everything rewarded by emperors in ancient China denoted or represented royal power.

3.3 Cognitive Mechanism for Discursive Construction of Hoof-shaped Gold Ingots

The cognitive mechanism for discursive construction of hoof-shaped gold ingots involves systematically metaphorical mapping from power to bestowals since all rewards given by emperors were considered as holy articles in Chinese feudal society.

3.3.1 Conceptual Metaphor Mechanism

From social cognitive linguistic perspective, the construction and interpretation of discourse must activate both linguistic system and conceptual system, which involves the process from conceptual semantics to language expression. The cognitive process is the operation process of cognitive system concerning cognitive mechanisms, and conceptual metaphor is one of the frequently used cognitive tools to aid people to comprehend meaning of abstract concepts (Lakoff & Johnson, 1980; Boroditsky, 2000). Conceptual metaphors converge and produce cultural patterns of human thought, and for human beings metaphorical mapping as a mental construct is an effective cognitive device to comprehend social meanings of abstract concepts and conceptualize the outside world (Lakoff, 2006; Lan & Yun, 2018). As for the discursive construction of hoof-shaped gold ingots, the metaphorical mapping between the source domain POWER and the target domain BESTOWALS is unidirectional, stressing the abstract and metaphorical meaning of the emperor's rewards, that is, a kind of special power endowed by emperors.

3.3.2 Metaphorical Mapping from Power to Bestowals

Based on conceptual metaphor theory, conceptual mapping from power to bestowals constitutes the cognitive operation of the formation of the materialized power discourse of hoof-shaped gold ingots. And it could be concluded that the basic metaphor BESTOWALS ARE POWER is the direct cognitive motivation for the formation of hoof-shaped gold ingots



as materialized power discourse. Since metaphors may create social reality for us (Lakoff & Johnson, 1980), the metaphorical mapping of hoof-shaped gold ingots illustrates that in Chinese feudal society when an object was given as a reward from the emperor, the recipient not only got a particular article, but also a certain kind of supreme power attached to the reward. In the political and cultural context of Chinese feudal society, hoof-shaped gold ingots were invented based on the basic metaphor BESTOWALS ARE POWER which highlighted the aristocratic enfeoffment system that took imperial power as the core in Chinese feudal society.

4. Social Cognitive Model of Hoof-shaped Gold Ingots as Power Discourse

Social cognitive models of discursive construction are inseparable from specific social structure due to the fact that social cognitive models are the combination of social interaction models and cognitive models, and social interaction models refer to the social structure that is shared by a particular social group and influences or controls their social interaction behaviors (Wang, 2019).

4.1 Social Cognitive Model of Strong Differentiation

As materialized power discourses, the hoof-shaped gold ingots are institutional discourses produced by the feudal system, which in essence depended on institutional supports and preferentially enjoyed social possession. From the perspective of discursive construction, the social cognitive model constructed by hoof-shaped gold ingots is a strong differentiation model of power under the jurisdiction of one of the underlying social cognitive models -- the model of strong differentiation. The social cognitive model is based on the classical categorization theory proposed by Aristotle, which holds that there is a clear boundary between the members of a category and the characteristics of each member are distinct, and emphasizes that sufficient and necessary conditions are the core elements for the formation of semantic category (Wang, 2019; Lakoff, 2007). The discourse based on the model of strong differentially destructive to social fairness and justice by setting up artificial discourse barriers, and social hierarchy in the strict sense is also the result of the model.

At the political level of state operation, the social structure is mainly manifested as the social system of a country, which as an important procedure of making and shaping discourses is the guarantee mechanism of the necessary components for discourses to exercise its dominance and power over the society. Therefore, the feudal system in the Western Han Dynasty was the cognitive basis for the formation of the social cognitive model of hoof-shaped gold ingots as materialized power discourse. As mentioned above, the Western Han Dynasty was an important stage of China's feudal society, whose typical feature in the political aspect was the implementation of a highly centralized feudal monarchy system, reflecting strong differentiation in the institution of rigid social hierarchies.

4.2 Social Cognitive Model of Strong Differentiation of Power

Social cognitive model of strong differentiation of power was the most obvious characteristic of the feudal totalitarian dictatorship, that is, the power of the nation was concentrated in the hands of emperors, the division of local power was weakened and the imperial power



continued to strengthen. Emperors, who held the supreme power of the country and issued all instructions in the name of the Son of Heaven, were endowed with sacred and unshakable status. For example, in order to maintain his absolute rule, the first Emperor of Qin Dynasty stipulated that only emperors could be referred to as Zhen in languages and writing, and emperors' orders were specifically called Zhao, all of which highlight the emperor's philosophy of the supremacy of imperial power.

More precisely, China's feudal society implemented a pyramid-shaped social hierarchy system, that is, the higher the rank, the more power they had, and the upper class exercises the power to manage, dispatch and dispose of the lower class (Dong, 2003). Emperors at the top had the highest authority in the name of the divine right of kings, who enfeoffed the aristocracy and landlord class to strengthen and consolidate the imperial rule. Since all the nobles and officials got their power from emperors, the owner of Haihunhou tomb, Liu He, his father and his sons, all gained their political power from emperors as royal aristocrats. The hoof-shaped gold ingots, as gifts given to Liu Fu by Emperor Wu, symbolizing an endowed power, are the physical embodiment of the social cognitive model of strong differentiation of power.

4.3 Cognitive Motivation for Discursive Construction

The social cognitive model of strong differentiation of power is also reflected in the hierarchy of materialized power discourses. In feudal society, the noble class received gifts of different values according to their ranks, emperors distributed rewards according to recipients' royal and social statuses. Emperors' rewards included land, gold and silver jewelry, houses, mines, cloth and sick, coins, weapons, grain and other types, which were given to nobles and officials of different standings in accordance with their economic value (Yoo, 2012). Gifts of high value like land, gold and houses, were generally given to the upper class, such as the nobility and the landed gentry. Furthermore, any form of rewards from emperors contained particular political purposes, among which the ultimate one is to maintain the continuous existence of the feudal imperial rule. Under the framework of strong differentiation model of power, the fundamental reason for discursive construction of the hoof-shaped golden ingots as materialized power discourse is the rationalization of power stratification and the natural legitimation of politics of imperial authority in feudal society. The social cognitive source behind it lies the fact that all social systems manage to seek the legitimacy and authority of legislation in the theory of justice or the discourse of truth so as to appeal to the legitimate will of the system to enforce discourses it invents and establish the authoritarianism of the discourse by the legislative will (Wang, 2019).

5. Conclusion

Different from previous studies, this article introduces a social cognitive approach to study cultural relics, which takes relics as one kind of discourses and emphasizes that the discursive construction of cultural relics is based on human's embodied experience. From the perspective of social cognitive linguistics, cultural relics are subjective and contextualized, arising in a specific cultural context, and conceptualized as creatively and subjectively interpretive objects. The article reveals that the discursive essence of hoof-shaped gold ingots



is materialized power discourse and the direct motivation for the fabrication of hoof-shaped gold ingots originates from the basic metaphor BESTOWALS ARE POWER. Through conceptual metaphor mechanism, the dynamics of power is mapped onto bestowals so that the gifts from emperors become physical representation of imperial power. The article further demonstrates that the social cognitive model of the discursive construction of hoof-shaped gold ingots is strong differentiation model of power, which is subordinated to the social cognitive model of strong differentiation.

Since there are a lot of cognitive mechanisms involved in the process of discursive construction of materialized power discourses, the major limitation of the present study is that it mainly focuses on the cognitive tool of conceptual metaphor and pays insufficient attention to other cognitive tools such as frame, prominence and mental space. Therefore, future discourse studies on cultural relics should be undertaken to explore many more cognitive mechanisms participating in the discursive construction of materialized power discourses so as to give a fuller account.

References

Ban, G. (1992). Book of Han Dynasty. Beijing: China Publishing House.

Boroditsky, L. (2000). Metaphoric structuring: Understanding time through spatial metaphors. *Cognition*, 75(1), 1-28. https://doi.org/10.1016/S0010-0277(99)00073-6

Croft, W. (2009). Toward a social cognitive linguistics. In V. Evans & S. Pourcel (Eds.), *New directions in cognitive linguistics* (pp. 395-420). Amsterdam/Philadelphia: John Benjamins. https://doi.org/10.1075/hcp.24.25cro

Dong, P. J. (2003). On the Enfeoffment system of the Western Han Kingdoms. *Journal of Capital Normal University*, *4*, 15-19.

Foucault, M. (2002). Archaeology of knowledge. New York: Routledge.

Harder, P. (2010). *Meaning in mind and society: A functional contribution to the social turn in cognitive linguistics*. Berlin/New York: Walter de Gruyter GmbH & Co. KG. https://doi.org/10.1515/9783110216059

Jiang, B. (2018). An investigation of Haihunhou tomb from the perspective of banished royalty system in Han Dynasty. *Journal of Xiangtan University*, *42*(4), 142-146.

Lakoff, G. (2006). *Whose freedom?: The battle over America's most important idea*. New York: Farrar, Straus and Giroux.

Lakoff, G. (2007). *Ten lectures on cognitive linguistics by George Lakoff*. Beijing: Foreign Language Teaching and Research Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lan, C., & Yun, Z. C. (2018). The metaphorical world in the book of songs. *Chinese Foreign Languages*, 15(5), 42-50.



Li, Y. X. (1999). On the function of feudalism in the early Han Dynasty. *Journal of Social Scientists*, *5*, 80-82.

Liu, H. Z., Tian, Z., Guan, Q., & Tan, J. B. (2017). Significance analysis of hoof-shaped gold ingots unearthed from Haihunhou tomb of the western Han Dynasty in Nanchang City. *Journal of The Southern Cultural Relics*, *1*, 112-124.

Romano, M., & Porto, M. D. (2016). *Exploring discourse strategies in social and cognitive interaction*. Amsterdam/Philadelphia: John Benjamins. https://doi.org/10.1075/pbns.262

Schmid, H. J. (2016). Why cognitive linguistics must embrace the social and pragmatic dimensions of language and how it could do so more seriously. *Cognitive Linguistics*, 27(4), 543-557. https://doi.org/10.1515/cog-2016-0048

Van Dijk, T. A. (2018). Socio-cognitive discourse studies. In J. Flowerdew & J. E. Richardson (Eds.), *The Routledge handbook of critical discourse studies* (pp. 26-43). New York: Routledge. https://doi.org/10.4324/9781315739342-3

Wang, F. F. (2015). *Reflective criticism in cognitive linguistics*. Beijing: Foreign Language Teaching and Research Press.

Wang, F. F. (2019). A social cognitive linguistic approach to discursive construction. *Modern Foreign Languages, 42*(3), 306-315.

Wei, Z. (2017). Mati gold ingots, Niaoti gold ingots and belief in immortal in Han Dynasty. *Journal of The Southern Cultural Relics*, *1*, 105-111.

Wen, X. (2019). Social cognitive linguistics based on social cognition. *Modern Foreign Languages*, 42(3), 293-305.

Wu, F. J. (2018). The identity hierarchy of western Han Dynasty and the dilemma of Liu He's identity. *Jiangxi Social Sciences*, *38*(6), 135-144.

Xin, D. Y. (2018). The naming of hoof-shaped gold ingots and the evolution of gold coin form between Warring States, Qin and Han Dynasties. *Literature and History*, *3*, 21-60.

Yang, D.C. (2006). The archaeology of discourse and the materialization of language. *Hunan Social Sciences*, 2, 35-39.

Yang, J. (2017). Textual research on the difference between Niaoti gold ingots and Mati gold ingots. *Journal of China's Coins*, *3*, 3-13.

Yang, J., & Xu, C. C. (2016). Haihunhou tomb of the western Han Dynasty in Nanchang City. *Journal of Archeology*, *7*, 45-62.

Yoo, J. (2012). An analysis of the characteristics of the rewards given by emperors in the Han Dynasty. *Journal of Tang Du*, 2, 50-52.

Zhang, X. D. (1985). On the round gold cakes unearthed in different places. *Journal of Cultural Relics*, *12*, 39-49.



Zhao, M. (2018). On the naming of hoof-shaped gold ingots unearthed from Haihunhou tomb of the western Han Dynasty in Nanchang City. *Study of Ancient History and Cultural Relics*, *11*, 62-73.

Zlatev, J. (2016). Turning back to experience in cognitive linguistics via phenomenology. *Cognitive Linguistics*, *4*, 559-572. https://doi.org/10.1515/cog-2016-0057

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