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Cognitive perspective of metaphors in Chinese Hua'er folksongs

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The cognitive frame and transferences from sources to targets of metaphor study have been evident in humanities. The present article aims to compare Chinese heritage Hua'er folksongs, Chinese new poetry, Chinese prose, Chinese news reportage, and Chinese news editorials. By adopting the indicator I_1 , the results show that the A = B metaphor is typically representative of Chinese Hua'er folksongs. At a more detailed level of comparison of the *a-index*, heritage folksong Hua'er bears the lowest level of metaphoricity for its repeated use of the metaphorical lexis both in the target domain and source domain. The genre-specific metaphorical expressions in Chinese poetic texts show that the higher *a-index* is, the more metaphoricity and more cognitive the effort will be. The nominalized metaphorical expressions in heritage Hua'er might limit the working memory constraints and the cognitive mastery of source-to-target structure for the singers to create metaphors.

KEYWORDS

Chinese Hua'er, metaphor, cognition, genre, interdisciplinary

Introduction

The influential Conceptual Metaphor Theory (Lakoff, 1993) suggests that people construct the world in large parts through conceptual metaphors, which enable them to understand abstract concepts by using knowledge of more conventionalized concrete concepts. Following the emphasis on the structure of domains in the CMT tradition, researchers view metaphor as an interaction between two concepts, by which one concept is interpreted in terms of the other (Littlemore, 2009; Cameron and Maslen, 2010; Tay, 2023; Zhao et al., 2023). Grammatical metaphor, as an incongruent realization of meanings in a text, involves the transference of grammatical segments from one domain to another. Halliday (1985, p. 352) treatment of grammatical metaphor could be the first attempt at the study of nominalization from the functional perspective, in which nominalization processes and attributes are reworded metaphorically as nouns, instead of functioning in the clauses as processes and attributes. The functions of the stylistic function of nominalization metaphor (Halliday, 1985; Thompson, 1996), as Halliday stated, probably evolved first in the scientific and technical register. Using these perspectives as a theoretical framework, we propose that metaphor's cognitive function facilitates people to understand abstract concepts in terms of seemingly dissimilar concepts that are relatively easier for comprehension while the functional perspective involves the comprehension of the nominalized forms of various genres.

The common ground of metaphor research is that human reasoning is essentially metaphorical. The classical view held by Aristotle sees metaphor as a kind of rhetorical device of a language. In terms of metaphorical expressions in natural language, for example, in Chinese Hua'er folksongs, it is acknowledged that *Bixing* is typical of Chinese Hua'er

folksongs which is hailed as the *Book of Songs* in southwest China. The lyrics of contemporary Chinese Hua'er are constructed by the singers by making use of various forms of metaphor, comparison, and figurative language (Sue, 2018). What Sue says demonstrated is the figurative language of metaphor; indeed, “*Bixing*” rhetorical expressions in Chinese, which usually involves “*bi*” and “*xing*,” is used to compare the similarities between things or concepts, fulfilling the function as that of a metaphor in English. Related studies on the symbolisms of animals, plants, flowers, and rituals of Hua'er (Jinlu, 2007; Du, 2008; Wu, 2008) have laid a solid foundation in this respect. However, the research mainly uses traditional close reading and is confined to the comparison to other folk songs in certain areas within China. Krikmann (1996) thought that Lakoff and Johnson's (1980) classification of the level-to-level frame (varying from the lowest level of inanimate substances and things to the higher level of plants and animals, and to the highest level of human beings) is only suitable for proverbs. However, in folklore, for example, research has involved various folklore texts and touches upon some aspects in this level-to-level frame such as Estonian proverbs (Krikmann, 2001), as well as the bird metaphor in Southern Africa (Dederen and Mokakabye, 2018), metaphors of masculinity in Andalusian (Brandes, 1980), metaphors in English folksongs revival (Sykes, 1993), and metaphors in political discourse (Musolff, 2003; Semino et al., 2013). Obviously, these studies have identified various types of metaphors that pervade folklore discourse on some socially relevant concepts, and separately investigating each metaphor might result in a proliferation of its findings. From a cognitive perspective, if the function of “*Bixing*” in Hua'er is similar to that of metaphors in other languages, an underlying assumption is that the linguistic function of Hua'er “*Bixing*” is still of general cognition and its linguistic categorization is a product of the human mind.

The interdisciplinary study may enhance the growth of the comprehension of metaphors, which involves a focus on corpus linguistics, critical discourse analysis, and statistics education (Tay, 2023; Zhao et al., 2023). Similarly, the adoption of the quantitative method in folklore, indeed, has facilitated the way to process data statistically (Sarapic, 1997; Voigt et al., 1999; Lin and Liu, 2021). Additionally, metaphor studies based on corpora broaden the views of linguistic features of grammatical metaphors as well (Hanks, 2004; Deignan, 2006; Semino et al., 2013). Specifically, Hanks (2004) classified the nouns, adjectives, and verbs of a language according to the occurrence of their participation in metaphorical constructions. Deignan (2006) examined keywords concordance in the source domain, which was aided and complemented by corpus-based methods, showing that the degree of metaphoricity is systematic in the English language. Then, we might ask whether the systematic feature of metaphoricity and Krikmann's (2001) “law of stability” could reflect the features of the rhetorical expressions of a language on a macro level. From this respect, the potential linguistic part of speech (POS) and the metaphorical degree are both interesting research areas that are worthy to be touched upon in the folklore field. More importantly, the density and forms of metaphors in a language vary substantially to the context of use or, more specifically, genre (Goatly, 1997; Zhao and Yang, 2018; He and Guo, 2021). According to Zhao and Yang (2018), both nominalization and verbalization are genre-sensitive. Based on the

data from COCA, nominal group adjectivizations tend to occur in formal academic texts (He and Guo, 2021). The two corpus-based studies have quantified the importance of given lexical items in English. Comparatively, there are only limited studies on the comparison of Chinese “*Bixing*” to that in different genres such as poems, prose, and news reports. Thus, to investigate the metaphorical expressions in Hua'er systematically, it is necessary to compare them with other genres, namely, modern Chinese new poetry, Chinese prose, Chinese news reportage, and Chinese news editorials.

There are still other aspects needed for further examination. It is noted that word class distribution plays an important role in metaphor research as “the unit of metaphor is independent of any grammatical unit” (Kittay, 1987). Koller (2006) investigates the metaphoric type-token ratio (mTTR) of selected magazines and daily newspapers to assess how mTTR varied in terms of the metaphors employed to structure it in target domain-related discourses. However, the corpus-based investigation of metaphors in the business media discourse or the educational discourse does not simply make a hasty conclusion on their word frequency but rather goes further to make generalizations from the exhaustive data analysis. Methodologically, for the frequency of POS distribution in Romanian poems, Popescu et al. (2009a) finds a way into the general evaluation of nominal or dynamic style for nouns and verbs in a text. Zhang and Liu (2017) assess the applicability to different genres of texts written in Chinese and report that *a-index* successfully differentiates the genres including poems, prose, and government work reports. Comparatively, the two mentioned indicators are effective in assessing the general style of the nouns and verbs in a text or in different genres. Based on the two mentioned indicators, it is necessary to put emphasis on the use of metaphor in folksongs and its cognitive influence relating to the use of metaphorical expressions. Taking Hua'er as the major genre and the other four genres, the study attempts to answer the following questions:

- (1) *What is the grammatical feature of metaphorical expressions in different genres in Chinese?*
- (2) *What is the difference in the nominalized metaphorical expressions in different genres in poetic texts in Chinese?*
- (3) *What kind of relationship is between metaphoricity and the genres in poetic texts in Chinese?*

To be brief, this article aims to analyze the frequency distribution of metaphorical expressions in Chinese poetic texts from the cognitive and functional perspective. The materials and methods are covered in the next section. Following will be the results and discussion related to the three questions, after which is a brief conclusion.

Materials and methods

Materials

The present study includes a self-built corpus of Chinese folk songs, Chinese new poetry and prose, news reportage, and news

TABLE 1 An example from Hua'er.

Chinese character	Chinese pinyin
白杨树树儿万丈高,	bái yáng shù shù ér wàn zhàng gāo
顶梢上落了个凤凰;	dǐng shāo shàng luò le gè fēng huáng
二阿哥是凤凰头顶上旋,	èr ā gē shì fēng huáng tóu dǐng shàng xuán
尕妹像刚开的牡丹。	gǎ mèi xiàng gāng kāi de mǔ dān

editorials. Hua'er is a genre of folk song in Northwest China in Chinese, hailed as "the soul of Northwest China," and registered on the intangible cultural heritage by UNESCO in 2009. For a better understanding of the folk song, an example is presented below in Chinese character and pinyin form in Table 1.

The Chinese character form and their corresponding pinyin form are presented in Table 1. All segmented Chinese words with their corresponding English translations are in Table 2. This word-to-word translation is to show the exact representation and corresponding meaning in English of each single word. For example, "尕妹"(gamei) is the dialect in northwest China which is combined with "尕"(ga) and "妹"(mei) and is used to refer to one's beloved girl. "阿哥"(a-ge) is another one for the young man, in which "阿" only functions to form this word without any content meaning, and "哥" is, in fact, used to refer to one's beloved young man.

When translating this Hua'er into English, it is possible to translate each word into its corresponding English word as in Table 2. However, this word-to-word translation does not make sense in the context. Especially, in the translation of folksongs, a more natural and rhythmic one is: A white poplar stands tall and erect,/On the top, a phoenix sits;/The young man is a phoenix circling low,/And she is a peony just in bloom.

LOVE IS WAR (Lakoff and Johnson, 1980)

SD WAR

TD LOVE

Following Lakoff and Johnson's example LOVE IS WAR, "the young man" is the target domain and "phoenix" is the source domain in "The young man is a phoenix"; "she" is the target domain and "peony" is the source domain in "She is a peony just in bloom." In this folksong, the white peony and phoenix are all the metaphorical source domains, carrying the connotations of beauty and brilliance. "Flowers" appears in Hua'er due to the natural laboring environment and the lifestyle of people who sing Hua'er in the countryside. The girls are compared to the white peony, a symbol of brilliance and beauty in Chinese tradition, in this example. The young man is compared to the phoenix, a kind of abstract imagery animal in Chinese tradition conveying bravery and determination.

The metaphorical data contains 170 pairs of instances in five different genres with 348,828 Chinese characters. There are 23,942 Chinese characters from the self-built corpus Hua'er with 594 lyric scripts. The Chinese new poetry corpus has 170 poems with 45,390 Chinese characters. Fifty metaphorical expressions are obtained from 58,044 Chinese characters in the prose corpus. News

reportage includes 44 Chinese news reports selected from LCMC, and 27 news editorials are taken from LCMC as well.

As shown in Table 3, the five corpora are presented including the genre, the number of tokens, the number of texts, and pairs of SD and TD. The difference can be seen clearly in Figure 1 that both the source domain's and target domain's vocabularies differ from each other drastically, which can be explained in regard to the different genres.

Methods

In the five genres, 170 pairs of instances containing both source and target domain vocabulary are selected. These are especially source expressions for further data extraction. Following the advice "to make metaphor identification as explicit as possible" (Low, 2003, p. 252), this article only identifies A = B metaphors (Cameron, 2003), which contain both source and target domain vocabulary and have been used as a means of identifying metaphors. The data are first segmented by *segtag*¹ and then processed to extract the frequency of metaphorical words. The *a-index* is derived from the concept *h-point*, a fixed point in the rank-frequency distribution of words (Popescu et al., 2009a). Software QUITA² is used to gain the value of *h* of each text. Popescu et al. (2009b) point out that the *a-index* describes textual characteristics of any language, and the text length *N* exerts no effect on the value of *a-index*, which is defined by Popescu et al. (2009b) as $a = N/h^2$ (see Appendix 1).

Words mirror our thoughts and reflect different language "styles". Taking ornamental style into account, the weight of adjectives should be considered. For an active style, the weight of verbs must be first observed because they designate activity. Usually, a certain word class might be opposed to another word class. The concept of "nominal style" can be operationalized in the comparison of the number of nouns and verbs in a text. A nominal style means that the proportion of nouns in the text increases. Possible ways are either taking the relative frequency of nouns in the given text or comparing their absolute frequency with that of some other word class. The formula to characterize the situation proposed by Popescu et al. (2009a) is as follows:

$$I_1 = \frac{S}{S + V}$$

In this formula, *S* is the number of nouns and *V* is that of verbs in a text. *I*₁ here is a simple proportion between <0, 1> (The final calculated value of *I*₁ can be seen in Appendix 2). If *I*₁ ≈ 0.5, then there is an equilibrium between the nouns and verbs; if *I*₁ > 0.5, then the text begins to be more of a nominal style. That is to say, many verbs are replaced by nouns or there are additional nouns in verbal phrases; if *I*₁ < 0.5 significantly, then the nouns would obtain more active predicates and the text gets to be more "active."

1 <http://cloudtranslation.cc/segtag.html>

2 <https://code.google.com/p/oltk/>

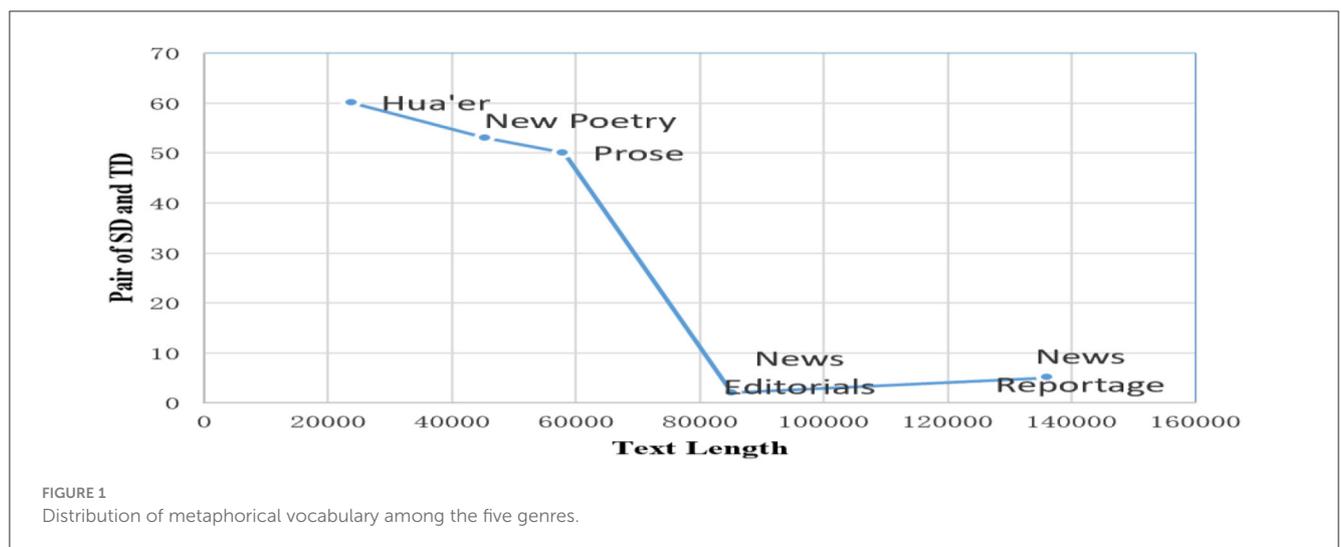
TABLE 2 The segmented words and their English meaning.

C	白	杨树	树	儿	万	丈	高	,
E	White	Poplar	Tree	Exclamation	Thousand	3 1/3 meter	Tall	
C	顶	稍	上	落	了	个	凤凰	;
E	Top	End	Above	Fall	Exclamation	One	Phoenix	
C	二	阿哥	是	凤凰	头	顶	上旋	,
E	The second	Beloved	Is	Phoenix	Head	Top	Above fly	
C	杂妹	像	刚	开	的	牡丹		。
E	Beloved	Is like	Just	Bloom	De	Peony		

“de” is a Chinese function word used before a noun.

TABLE 3 Material structure.

Publication	Tokens	Number of poems/articles	Pairs of SD and TD
Hua'er	23,942	594	60
Chinese new poetry	45,390	170	53
Chinese prose	58,044	60	50
News reportage	136,176	44	5
News editorials	85,276	27	2
Total	348,828	891	170



Results and discussion

The occurrences of metaphorical vocabulary in SD and TD seem to be distinctive of a genre-specific feature in Figure 1. Supposedly, the metaphor is pervasive in all language expressions, and it unconsciously affects our thoughts in various ways. How can this influence be explained in relation to the genre variable shown in Figure 1? The flexibility of the meaning of metaphorical expressions (Cameron, 2003) could be one of the explanations. Figure 1 is plotted based on the data in Table 4. The data of the occurrences of metaphorical expressions among these five genres are distributed unbalanced. Comparatively, the news reportage contains the highest number of raw metaphorical vocabulary of only five metaphorical pairs followed by the two pairs in news

editorials. On the contrary, Chinese folksongs Hua'er has 60 metaphorical pairs followed by 53 pairs in Chinese new poetry and 50 pairs in Chinese prose. For a better understanding of the slight difference among the poetic texts, the study only focuses on three of them for comparison of mPOS and degree of metaphoricity of vocabulary in SD and TD among Hua'er, new poetry, and prose.

Comparison of nominalized metaphors

When examining the dominant word class pairs of SD and TD among the three genres as in Table 4, the nouns are dominated both in SD and TD and they account for almost 99% in the two

TABLE 4 Frequency of nouns, verbs, adjectives, and pronouns.

Hua'er							Chinese new poetry							Chinese prose						
SD			TD				SD			TD				SD			TD			
N	V	A	N	V	A	P	N	V	A	N	V	A	P	N	V	A	N	V	A	P
60	0	0	59	0	0	1	34	2	4	30	0	0	20	50	0	0	47	0	0	3

N, noun; V, verb; A, adjective; P, pronoun.

domains. The percentage of nouns in Chinese prose ranks second with 94% in SD and 88% in TD. Obviously, the mPOS distributions in Chinese new poetry present differently from that of the other two. Nouns turn out to be the dominant word class with 68% in SD and 60% in TD. The percentage of pronouns in TD of Chinese new poetry is different from that of the other two genres. These results corroborate the statement that “nouns, referring directly to things, can more directly evoke images than other parts of speech” (Goatly, 1997). Adjectives whose frequency is four in the SD of new poetry occur in relation to nouns as well. It is accepted that metaphorical adjectives are being used to modify a noun and are not usually associated with the noun. So, an adjective metaphor will be less obvious than a nominal metaphor. The mPOS frequency distribution in Table 4 reveals that the frequency of nouns in the three genres seems to be stable when the source domain is mapped onto the target domain metaphorically.

Breaking down into word classes has suggested a stable tendency of nouns from mapping the source domain on the target domain among the three genres. To explore the general linguistic feature of the noun-dominant trend of mPOS in the three genres, we plot the distribution of I_1 in Figure 2.

Style has to do with genre, while language and thought have to do with language use (Steen, 2016). Steen (1999) seems to suggest that the style of metaphor might be better evaluated among similar registers of the language or other variations associated with them. “Nominal style” designates and characterizes a text according to the weight of nouns in it. The value of I_1 plotted in Figure 2 shows the distributed values of the nominal style among three genres. From a macro point of view, the values of the three genres mostly cluster around 0.5, with only four exceptions in Chinese new poetry, eight in Hua'er, and three in prose. This means that most of the texts in the corpus are of nominal style, namely, the value of $I_1 > 0.5$. That is to say, the verbal phrases in each text contain additional nouns. Thus, we find that the word class, such as nouns, verbs, and pronouns within a sentence expresses the styles of the perceived metaphor.

The comparison of the metaphorical lexis distributed among the five genres indicates that the frequency of the reused metaphors in Chinese folksongs, Chinese new poetry, prose, news editorials, and news reportage decreases with their corresponding text genre. For the first question, the results show that metaphorical expressions are genre-specific. Comparatively speaking, metaphorical expressions are used more in poetic texts like Chinese folksongs, new poetry, and prose than in news editorials and news reportage. There is a prominent nominal style among Hua'er, Chinese new poetry, and prose. The frequently occurring metaphorical nouns in both the SD and TD develop with the general nominal style in Chinese poetic texts.

The finding partly corresponds to Sykes's finding that “the formation of songs is characterized by stability” as in Sykes (1993). This stable noun dominance in SD and TD confirms the role of nouns in metaphorical expressions in Chinese folksongs Hua'er. According to Halliday (1985), nominalizing is the single most powerful resource for creating grammatical metaphor, which plays an important role in the construction of the world through constructing and reconstructing actions as “things.” Nominalization changes processes into nouns, through which it can naturally increase the lexical density and cause the difficulty of reading. According to the adaptability hypothesis, the processing system becomes more efficient in handling certain linguistic patterns in a language because of frequent exposure to those patterns (Levy, 2008, 2013). For the second question, the metaphorical expressions vary in genres as in Chinese poems, prose, and folksongs among which metaphors in folksongs turn out to be the most repeated. This target-to-source repetition in the production of poetic texts has the potential to serve as a creative rhetorical tool that furthermore provides insight into the extent of creators' conceptual mastery. If metaphor is a kind of conceptual device in cognition, in the process of creating a poetic text, the decoding of the meaning with metaphors needs to make inferences from the concrete source domain to the abstract target domain. The nominalized metaphorical expressions might limit the working memory constraints and the cognitive mastery of source-to-target structure to create metaphors.

Comparison of metaphoricity

In terms of word class, “nouns realize entities, verbs realize processes and actions, and adjectives realize states and attributes” (Deignan, 2006). This empirical classification of nouns, adjectives, and verbs in certain texts, meanwhile, helps to find their degree of participation in metaphorical constructions. According to Hanks (2004), when the source domain denotes an abstract entity or an event, the metaphoricity is greater. Accordingly, we classify all the metaphorical lexis of nouns into abstract and concrete items listed in Table 5.

The frequency of abstract nouns in the SD is 3, 38, and 37 in Hua'er, Chinese new poetry, and prose, respectively; that is, Chinese new poetry bears the highest degree of metaphoricity followed by Chinese prose, and Hua'er has the lowest level of metaphoricity. However, Hanks' view supports that more abstract nouns in SD mean a greater degree of metaphoricity. Only with the numbers of concrete nouns both in SD and TD observed in Table 5, we could not simply conclude that Hua'er bears the lowest degree of metaphoricity merely based on the frequency

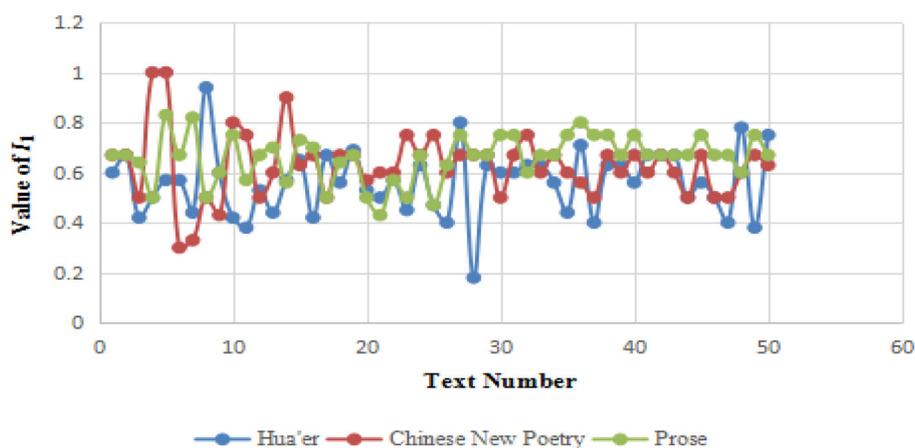


FIGURE 2 Distribution of I_1 in the three genres.

TABLE 5 Abstract nouns and concrete nouns in SD and TD.

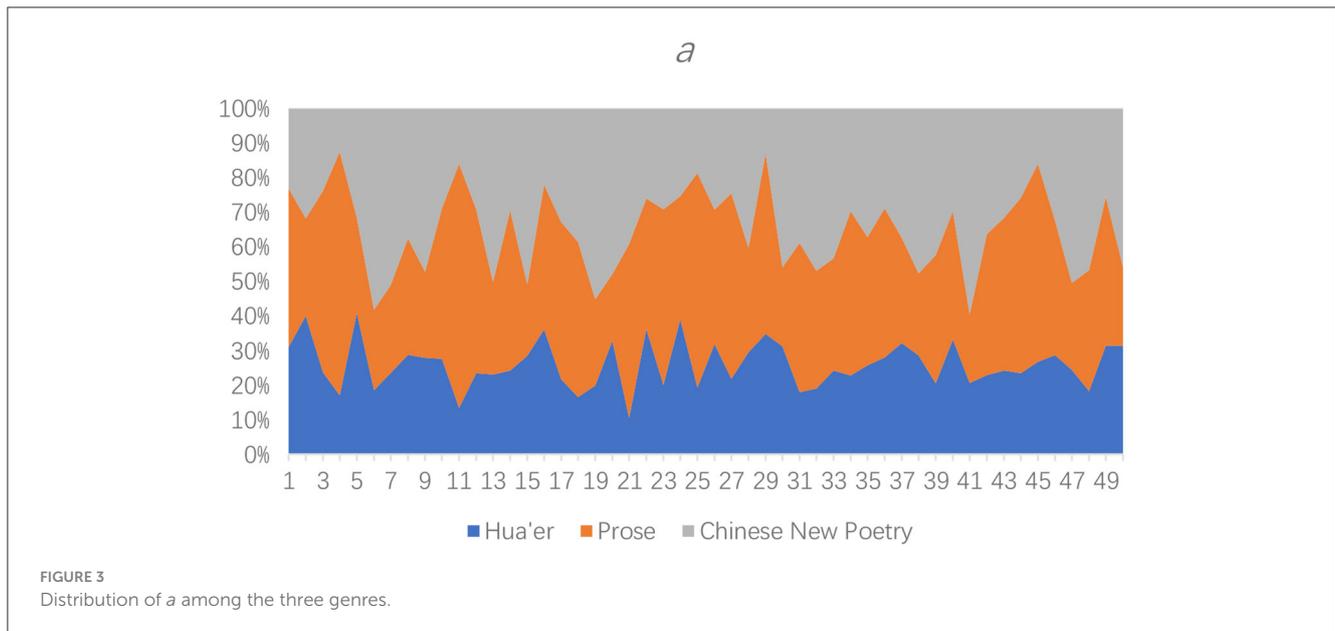
Hua'er		Chinese new poetry				Chinese prose					
SD		TD		SD		TD		SD		TD	
A	C	A	C	A	C	A	C	A	C	A	C
3	57	8	52	38	16	9	36	37	17	14	39

A, abstract noun; C, concrete noun.

of abstract nouns in SD. Prominently, the concrete nouns in SD and TD of Hua'er possess an advantage over that of Chinese new poetry and prose. A detailed comparison of concrete nouns among the three genres is provided in Appendix 3. It can be seen clearly that the frequency of concrete nouns in SD ranks first in Hua'er. In particular, the concrete nouns used in TD of Hua'er mainly focus on "the beloved girl" ("尕妹" in Chinese folk songs) and "the young man" ("阿哥" in Chinese folk songs). The former occurs 37 times and the latter 19 times, and they turn out to be the top two repeated metaphorical words among the three genres. The conceptual metaphor framework provides a complementary insight aiding people to form a general tendency to avoid complexity and abstractness. Ontological metaphors invite us to pick out parts of the physical objects from the experience as discrete entities or substances, which provide the base for ontological metaphors. Accordingly, metaphors represent the entities or substances that help us identify our experiences with nature including ways of viewing events, activities, emotions, and ideas. With any agent or external cause, both "the beloved girl" ("尕妹") and "the young man" ("阿哥") achieve the effect of suggesting a self-generated process by comparing one's beloved man or woman to a real entity such as a flower or phoenix in nature. From a theoretical perspective, these observations in heritage folksongs lend support to the view that the real-world metaphor use might be a more dynamic and important driver than substantive similarity in analogy creation and perception (Blanchette and Dunbar, 2000; Tay, 2021). Contrary to Cameron's (2003) use of metaphor in a corpus of educational discourse

as an "atypical feature of nominal examples," the nominal metaphorical example in our study is representative of the diversity of use in Chinese naturally occurring data. Therefore, we can see that nominalization used in the Hua'er interaction context emphasizes the active process of nature and the external agent or participant.

As Hanks (2004) says, the more frequently an expression is used, the less it is recognized as figurative. In other words, it is accepted that the occurrence of a given metaphor increases the likelihood that the same metaphor will be used again in the immediately subsequent discourse. What is the relationship between this repetition and the degree of metaphoricality? In order to find the answer to the phenomenon of repetition, we plot the distribution of *a-index* in each metaphorical expression in SD and TD as shown in Figure 3. In Figure 3, the distribution of *a-index* ranks first in Chinese prose and second in Chinese new poetry. The overall value of *a-index* of Hua'er is the lowest. Popescu et al. (2009b) propose that a "smaller *a-index* is a symbol of analytism," that is, if there are fewer word forms in the text, the word forms are more likely to be repeated. From the typological perspective, Krikmann (2001) reports that changes in the substitution of the lexical element in longer texts are less disastrous for its typological self-preservation compared to shorter texts. With fewer words and a smaller range of discretion, the substitution of each lexical element in shorter texts (the Chinese folksongs Hua'er and new poetry in the study) turns out to be different from the longer text (Chinese prose in the study). Visually, this difference is easily observed by the distribution



of the value of *a*-index in their dominated area as shown in Figure 3.

The interaction between people and nature is constructed through lexical metaphoricity which lays a foundation for people to shape their basic concepts and share views and understandings of the world. In Figure 3, the key metaphorical lexis in SD and TD are repeated by singers or writers in different genres in Chinese. Comparatively speaking, Chinese new poetry has the highest degree of metaphoricity than prose and Chinese folksongs Hua'er. Obviously, more metaphorical lexis repeated in SD and TD of Hua'er results in Hua'er's metaphorical expressions, as well as the lowest level of metaphoricity. Whereas, metaphor is reflected in language, it is primarily a cognitive tool that people use to understand abstract concepts in terms of superficially dissimilar concepts that are relatively easier to comprehend (Gibbs, 1994; Lakoff and Johnson, 1999). Metaphorical patterns vary in a specific discourse of communication, which can be accounted for the foundation is firmly grounded. Taking the genres into consideration, their metaphorical usages link to their various frequencies related to the lexical and grammatical elements. The influences of word frequency on the speed and accuracy of lexical processing (Stuart and Hulme, 2000) is indicative of overall lower activation levels for low-frequency words that require greater cognitive resources to access from the lexicon compared to high-frequency words (Berglund-Barraza et al., 2019). The metaphors used in the Hua'er folksongs community present their particular channel of communicating repeated normalized lexis with lower metaphoricity; this has made researchers look at how certain groups of people in northwest China interact with the physical surroundings to generate repeated ones and why people characteristically use the metaphors that require less cognitive effort. Therefore, for the third question, the use of metaphor is genre-specific in Chinese poetic texts in that

the higher the *a*-index, the higher the metaphoricity will be. The heritage Hua'er bears the lowest *a*-index and requires less cognitive effort.

Conclusion

Heritage Hua'er folksongs exhibit a level of genre-specific variation, especially in its rhetorical language use "Bixing" which is typically observed in the comparison to other genres like Chinese new poetry, Chinese prose, news reportage, and news editorial. Comparatively speaking, the metaphorical expressions occur more frequently in poems, prose, and folksongs than in news reportage and news editorials. The present research focuses on why heritage folksongs diverge from other poetic texts as well as adopts the indicator I_1 and *a*-index, which provide quantitative methods for the empirical verification concerning the presentation of nominalization and degree of metaphoricity of the use of metaphor. The methodological issues have been tackled systematically and exhaustively. Typically, the dominant use of nouns in the representative $A = B$ metaphor type develops with a general linguistic nominal style $I > 0.5$ among Hua'er, Chinese new poetry, and prose. Among the three, Hua'er bears the lowest level of metaphoricity with the smallest *a*-index. Nominalization of metaphor in the Hua'er interaction context emphasizes the active process of nature and the external agent or participant. To a large extent, it is the repeated metaphorical lexis used in SD and TD that makes Hua'er a type of folksong in Chinese as well as a more special heritage song shared by people all around the world. Therefore, the higher the *a*-index, the more metaphoricity and more cognitive effort will be. The metaphorical expressions found in naturally occurring heritage folksongs Hua'er are a type of evidence that signifies the theoretical and empirical development in metaphor and linguistics from the cognitive perspective.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

Author contributions

XZ: Data curation, Resources, Writing – original draft.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fcomm.2023.1274622/full#supplementary-material>

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