The Model Construction of Knowledge Organization System in Terminography — Taking Chinese Linguistic Terminology as an Example

Jie Zheng[1,2,*]

[1]School of Foreign Languages, Northwest University, Xi'an, Shaanxi 210127, China
[2]School of Foreign Studies, Nanjing University, Nanjing, Jiangsu 210023, China
[*] *Corresponding author. Email: bilex_jiezheng@163.com*

ABSTRACT

Chinese linguistic terminology has the characteristics of a combination of systematicity and hybridity, which brings challenges and opportunities to the research and practice of terminography, and makes the integration of interdisciplinary theories inevitable. Combining the theoretical perspectives of knowledge organization and contrastive terminology, this research focuses on classical Chinese semantics terms, describes the characteristics of knowledge organization of Chinese linguistic terminology in linguistic dictionaries, and analyzes their limitations. Through text comparison, it is found that: firstly, the knowledge classification methods of Chinese linguistic terminology have their own characteristics due to different organizational purposes, but they generally separate the Chinese and western linguistic knowledge systems; secondly, structured knowledge description method helps to improve the accuracy of knowledge unit description. Research conclusion: The related research of knowledge organization model is expanded by contrastive subject terms and contrastive knowledge units from different fields of Chinese linguistics, optimizing professional knowledge association, constructing knowledge organization system model in terminography, and designing sample entries.

Keywords: terminography, knowledge organization, contrastive terminology, Chinese linguistics, classical Chinese semantics

I. INTRODUCTION

Due to the internal and external factors of history and modern times, the discipline construction of Chinese philology has achieved remarkable results, but there is still broad room for development. From a historical point of view, the study of characters in ancient China, traditionally based on philology or Xiaoxue (Chinese traditional philology), did not become a science before modern times. From the pre-Qin "children's literacy textbook" stage, it developed into a vassal of Confucian classics in the Han Dynasty, and gradually formed the three subjects of exegesis, characters, and phonology [1], and even the Qing Dynasty's "all-round development".[1][6:90] Although

there are "merits of collecting the compilation", there are "few efforts paid in summary and conclusion", "giving people a sense of mystery, cumbersome and disorder". [2][12] In modern and contemporary terms, compared with western linguistics, the "discipline discourse system" of Chinese philology has developed but is still limited. [3] Since Zhang Taiyan replaced "Xiaoxue (Chinese traditional philology)" with the name "Chinese Language Science" [4], Du Dingyou [5] made the Chinese transformation of Dewey Decimal Classification and added "Chinese Philology", which is in contrast to "General International Comparative Philology". Zhou Fagao [6] defined Chinese philology in the broad sense (ie, "including various languages within China") and narrow sense (ie, "linguistics of Chinese"). Wang Li [7] and others' systematic review and affirmation of Chinese philology gave Chinese philology a solid foundation and broad prospects, and even the development of new Chinese philology has followed the western model and the "Soviet model" for a long time. This state is reflected in the content of Chinese philology textbooks and the "number", "type" and "terminology system" of the "linguistic dictionaries". It was not until the "1990s" that

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[1] The three branches of Xiaoxue (Chinese traditional philology) were earlier found in "Sui Shu" (Vol. 32 No.27 Scripture 1): "……训诂……音义、声韵、体势等诸书。(... Exegesis... Sound and meaning, sound, rhyme, body and others like these.)"

"philology dictionaries with the word 'China'" were published one after another, showing that China has begun to explore the development of philology with Chinese characteristics [8].

The study of Chinese philology means how to deal with the problem of the relationship between national philology and general philology. If this problem is placed in a philology knowledge organization / service tool represented by philology dictionaries, the interlaced space-time elements are brought together on a platform with a synchronic and coexistence perspective, which is difficult to deal with, especially the focus of contradiction is the aggregation of Chinese linguistic terminology that carries knowledge of different space-time dimensions. Therefore, the research or practice of "terminography" with Chinese linguistic terminology as the research or compilation object should combine the knowledge service tools of the dictionary platform and the characteristics of synchronic perspective, deeply analyze the characteristics of Chinese linguistic terminology, discover the real difficulties of potential user cognition and the processing of researchers and editors, and explore solutions and optimize theories and practices based on these characteristics and difficulties, so that it is enough to commit to high-quality professional philology services. However, there are few theoretical studies on the compilation of Chinese linguistic terminology dictionaries, such as "characteristics of philology terminology"[10], "parameters and types of philology dictionaries"[11], "philology terminology translation standards"[12], "the history and development of philology terminology of new China"[8]. At the same time, the knowledge organization perspective of library and information science can be used for reference in terminography research. On the one hand, the terminology related research in the field of knowledge organization involves general types (such as book classification, subject classification and code tables, etc.), subject field style [13], and discussion on the Construction Method of Interdisciplinary knowledge organization system (KOS) [14], [15], [16]. On the other hand, knowledge organization can provide theoretical drive for terminography. For example, Zheng Shupu and Ye Qisong introduced the ontology of knowledge, Bowker[17] discussed the important role of knowledge organization in the development of Canadian terminology, and Zheng Jie [18], [19] initially discussed the premise of interdisciplinary research on knowledge organization and terminology and the innovation of terminology definition. Based on the above status and the expected theoretical value and application value of future research for the construction of philology disciplines and dictionary compilation, this article is based on the perspective of knowledge organization theory, starting from the analysis of the

characteristics of Chinese linguistic terminology, and describing the knowledge organization characteristics of Chinese linguistic terminology (especially focusing on classical Chinese semantic terminology in modern times) in linguistic dictionaries and analyzes their limitations. And then this paper constructs the knowledge organization system model in linguistic terminology and designs term entries by comparing the research and compilation path of terminography and knowledge organization methods.

II. PROPERTIES OF CHINESE LINGUISTIC TERMINOLOGY

Western linguistic terminology was formed in the study of specific language issues of Indo-European language families, and has similarities with Chinese linguistic terminology based on Chinese based on Sino-Tibetan language families. However, there are still many differences. As Lu Zongda and Wang Ning [2][7] said, "vocabularies" are "closely related to national life, national psychology" and "national culture", and it is necessary to "solve problems" "through the study of the native language". Due to the complex origins, Chinese linguistic terminology embodies the hybridity of ancient and modern, Chinese and western terminology and their concepts, and systems, which are very different from the relatively consistent western linguistic terminology dominated by Indo-European languages, especially English.

The hybridity of Chinese linguistic terminology is reflected in three aspects: source types, sub-disciplines and individual terms. In terms of source types, Chinese linguistic terminology consists of subsystems of traditional Chinese linguistic terminology (classical Chinese semantics, phonology, and philology), Chinese modern and contemporary linguistic terminology (such as ethnic linguistics, dialects, etc.), and western linguistic terminology. Each subsystem can be divided into "intrinsic terms", "borrowed terms" and "blended terms" according to the source of terms.[20][65-66] Taking classical Chinese semantics as an example, there are inherent terms such as 传注 (notes of biography), 义疏 (notes on classics), 集解 (notes on certain words or thinkings), 补注 (supplementary notes), etc., which are originally from ancient Chinese, especially in the context of classics, borrowed terms such as lexical word, lexical item, sense, sememe and other foreign terms, and blended terms such as quasi-sememe, core sememe, episememe, etc. In terms of sub-disciplines, there are differences and overlaps between terms. For example, "本义 (primitive meaning)" involves lexics, semantics and classical Chinese semantics, "推导 (derivation)" involves phonetics and computational linguistics, and "喉音 (laryngophony)" involves phonetics and phonology, etc. In terms of individual terms and their concepts, many terms belong to blended

terms, which have both Chinese and western knowledge systems. For example, quasi-sememes, core sememes, and episemes are blended terms composed of the borrowed term "sememes" and Chinese morphemes. Another category is Chinese native concepts inspired by western philology, such as giving the meaning, main precepts, meaning difference, etc.

The above-mentioned hybridity of Chinese linguistic terminology means challenges and opportunities for terminology researchers and compilers. Compared with modern and contemporary terms, Chinese traditional linguistic terminology are mainly designed to explain ancient documents and are difficult to understand. In particular, it is necessary to adopt a structured/systematic conceptual representation method. This is the inspiration given to terminology by Saussure's structuralist view of language. Ferdinand de Saussure et al. [21][155-160] regarded language as a system, that is, a "system of acoustic elements", and "constitutes the word on the basis", of which its "all elements are connected". For terminology, a system is a conceptual system formed by various conceptual relationships based on terms. Therefore, the correct understanding of "any term" needs to consider its "system to which it belongs." [20][186] However, the classification-related theory of terminology is not sufficient. Even the classification of the newer frame-based terminology is limited to specific fields. As a result, it is necessary to intervene in the theoretical perspective of knowledge organization, which is originated from book taxonomy and bibliography and gradually formed a faceted, fine-grained conceptual analysis method. From the perspective of knowledge organization, the user interfaces of the domestically published linguistic dictionaries in China are used as the research platforms, and the branch system of traditional Chinese linguistic terminology is the main research object, describing how it coexists with other sub-system terms of Chinese philology (such as Chinese modern and contemporary linguistic terminology, western linguistic terminology) in a structured way — that is, the characteristics of knowledge organization (such as knowledge classification, knowledge organization, knowledge description), which is the problem that the next section tries to reveal. Since the definition of traditional Chinese linguistic terminology is relatively clear, including classical Chinese semantics, phonology and graphology, and classical Chinese semantics is the top priority, the research results of classical Chinese semantics in modern times represented by the Zhanghuang School reflect the characteristics of linguistic knowledge structure since the transformation of modern Chinese disciplines, so this is the focus, and other branch systems are temporarily not clearly distinguished.

III. KNOWLEDGE ORGANIZATION FEATURES OF CHINESE LINGUISTIC TERMINOLOGY

"Knowledge organization" refers to "processes and methods" such as "organization, processing, presentation, and control with knowledge as the object".[22][103] It aims at simple and applicable knowledge management and knowledge services. Its research involves the construction principles and methods of knowledge organization systems such as classification tables, catalogs, indexes, subject headings, descriptor list, and ontology. [23], [24]

Knowledge organization aims to control the complex with simplicity. Up to ancient philosophy classification thought, the librarian, the founder of knowledge organization Bliss [25], [26] proposed the "principles" of "organization and unification" and "maximal efficiency". With the systematic introduction and theoretical development by scholars such as Wang Zhijin [27], Jiang Yongfu [28], [29], and Su Xinning [30], the increasingly diverse knowledge organization methods have always hidden the idea of using simplicity to control complexity. This idea is also embodied in the theory and practice of dictionary compilation that is increasingly dominated by the cognitive economy, and in the terminology management thinking and practice of "cost saving" through the principle of "consistency"[31][7]. The practice of terminography from the perspective of knowledge organization, with the purpose of simplifying and controlling the complexity, is mainly through the organization methods of professional knowledge based on terminology including specific methods of knowledge organization such as classification, arrangement and description. It "reorganizes and integrates discrete and implicit knowledge factors to become systematic and explicit professional knowledge." The characteristics of knowledge organization are the presentation of the above specific methods in different structural dimensions of the dictionary user interfaces. Aiming at traditional Chinese linguistic terminology, based on the existing independent Chinese philology dictionaries in China[2], combined with the research questions in this article, it is mainly described from two aspects: knowledge classification characteristics and knowledge description characteristics, so as to find advantages and limitations.

A. *Knowledge classification features*

The knowledge classification method builds the terminology knowledge system from the overall

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2 The scope of the dictionary is based on the Chinese monolingual or Chinese-English linguistics dictionaries collected by the author of the "China Reference Book Network Publishing General Library" and Chaoxing Digital Library on August 20, 2019, and refer to Li Qiuxia.

discipline and subject content analysis of the terminology, corresponding to the macro structure of the dictionary, that is, "the main part of the overall structure of the dictionary", and "the layout of all items..." [4]. The knowledge classification feature is the knowledge classification method presented in the dictionary user interfaces. In the investigated dictionaries, the knowledge classification characteristics of Chinese linguistic terminology can be summarized into two types:

The first type belongs to the recessive classification, which uses the phonetic sequence of the Chinese pinyin or the Chinese shape sequence as the arrangement order of the macrostructure. This type of terminology items are selected according to the terminology branch to varying degrees in the compilation process, and are often mentioned in the user description. However, from the perspective of users who are mainly professional learners and educators, this kind of tacit knowledge organization method is helpful for simple and quick terminology checking, but it breaks the natural system of terms and concepts. Therefore, this type only serves the most basic knowledge "storage" function from the surface level, that is, the terminology entry inspection level, which is "aggregation based on the style of dictionaries" and "for people to check" as the "main purpose" said by Wang Ning [32]. However, from the deep level, namely the acquisition of concepts/knowledge, it is still in a state of disorder.

The second type is the explicit classification, with the subject classification as the main classification method, and presents two characteristics: the sub-disciplines of Chinese and western linguistics coexisted in parallel, and the increasingly formed "functional isomorphism" of the terminology system of Chinese and western disciplines. First of all, in the dictionary, the classification feature of the parallel coexistence of Chinese and western linguistic subdisciplines began in the "Ci Hai · Languages Fascicle" (trial version of Ci Hai Editing Office of Zhonghua Book Company in 1961). After the expansion of the "Encyclopedia of China" (first edition) and the "Linguistic Terms" published in 2011, China's indigenous disciplines have become increasingly abundant. "Ci Hai · Languages Fascicle" puts graphology, classical Chinese semantics and phonology in parallel with modern linguistics sub-disciplines such as lexics (with a dictionary), grammar, etc. However, the categorized vocabulary list only has first-level categories, and no subject is mentioned in the general rules. It only talks about "the categories and their names are mainly for the convenience of writing and reviewing". Since the reform and opening up, the local exploration of Chinese linguistics has gradually deepened. The "Encyclopedia of China" (first edition) clearly proposed "classification by subject (knowledge category)". On the basis of inheriting the categories of "Ci Hai · Languages Fascicle", two sub-disciplines of

Chinese dialects and applied linguistics are added, and a multi-level terminology system is attempted for some disciplines in indented format. "Linguistic Terms" clearly proposes the nature of the work of "cleaning up traditional disciplines" and "building emerging disciplines", and "roughly refer to the classification of the "Encyclopedia of China · Languages"[4], and form a knowledge system of Chinese linguistics with 13 first-level branches of linguistics juxtaposed covering western disciplines, traditional Chinese disciplines, and modern Chinese contemporary disciplines. Secondly, represented by "Linguistic Terms", the terminology system of each sub-discipline is initially standardized, and it shows the "functional isomorphism" of the Chinese and western discipline systems. The term "isomorphism" is derived from mathematics. Compared with the "one-to-one correspondence of each element" of "structural isomorphism", "functional isomorphism is used to explain the correspondence of subjectively perceived object attributes".[18][86] The 13 sub-disciplines of "Linguistic Terms" are different in maturity and subject characteristics, so its terminology system is currently difficult to achieve one-to-one correspondence at various levels. For example, the more mature discipline "Theoretical Linguistics" is subdivided into "Disciplines", "Schools", "Theories and Methods", "Core Terminology" and "Interdisciplinary Terminology", "Phonetics" is divided into six sub-disciplines, and traditional disciplines such as "Exegetical Studies" are divided into "General Theory", "Exegetical Styles", "Exegetical Explanations", "Sound and Meaning Relations of Characters, Words, and Sentences Seen in Exegesis" and "Exegetical Methods and Taboos". On the whole, the terminology system of each discipline roughly presents the characteristics of "general theory + subject or branch discipline" supplemented by Arabic numerals. The average number of the second-level categories is 5 and is controlled within the range of 3 to 11. The "General Theory" appears 8 times in 13 sub-disciplines. These characteristics mean the "functional isomorphism" of the Chinese and western discipline systems, that is, the construction of roughly corresponding levels of the discipline terminology system through mutual reference.

B. *Knowledge description features*

Compared with the knowledge classification method for the systematic construction of the term knowledge system (corresponding to the dictionary macro structure), the knowledge description method emphasizes the presentation of the adaptive concept table for the term knowledge unit (corresponding to the dictionary micro structure), that is, the appropriate conceptual descriptions adopted for specific knowledge service purposes or user needs; The knowledge description feature is the knowledge description method presented in the dictionary user interface. Combining the actual situation of exegetical terms, from the

perspective of morphology, two types of terms are selected as the research objects:

The first category has a clearly distinguishable terminology system at the morphological level, and the terms in the same system often co-occur. Wang Ning[33] uses the sememe analysis method to establish the three terms "quasi-sememe", "core sememe" and "episeme" as representatives. They are consisted of the Chinese qualifier such as "类 (quasi-)", "核 (core)", and "表 (epi-)" before the western linguistic terminology. Existing dictionaries rarely included these terms. According to related documents, their knowledge description characteristics can be divided into two types according to different reference systems. The first major type can be called using Chinese to intepret Chinese, which is described by its own language system, and can be subdivided into three combination types:

- "Connotation definition", that is, a way of adding species difference. For example, "quasi-sememes" are "sense elements in the sense item that represent the sense category"; [34]

- The definition of connotation + "note material". If the above definition has been removed, according to the annotation "撕，水索也……消，水尽也……浪，水虚也……汽，水涸也 (Tear means the water will... disappear means the water will run out... waves means the water is not solid... steam means the water run dry)" to decompose the "quasi-sememe" of "水 (water)"; [33]

- At least two terms are defined in accordance with the above two categories, such as combining sememes with related descriptive elements of nuclides. The second major type can be regarded as the western interpretation. For example, when Wang Donghai described "core sememe", he compared it with the core sememe proposed by "Greimas". The latter is "relative contextual sememe", "like a minimal sememe constant", and "contextual sememe is a variable", but the core sememe "represents etymology" and "has diachronic characteristics".

Since these terms originated in the West and combined with the characteristics of Chinese to form homographs, the accuracy of the description of the above types has gradually improved.

The second category of terms does not have the advantage of a clear and recognizable terminology system. Taking the core term "义界 (giving the meaning)" in exegetical science as an example, there are three main knowledge description characteristics. The first descriptive feature is to derive the synonymous term "definition" through "definition by paraphrase"[36][43]. For example, "the content and characteristics of the meaning of a word expressed by

giving a definition ...", [37] "is the definition. Use a group of words, a sentence or a few sentences to define the general meaning of a word...". [38] The second descriptive feature is to introduce its component terms through the whole-part definition in the "extensional definition", such as "consisting of the main precept plus the difference in meaning...". [39] The third is to draw out its antonyms through comparison, such as "compared with 'single-character phrase', the sense of giving the meaning is 'multi-character phrase'".[40] The description effects of the above three types obviously increase in sequence: Although the first category is defined with the help of a more general synonymous term "definition", it fails to distinguish the nuances between the definition of meaning and the definition. It may meet the knowledge needs of the general public, but it is more important for linguistic users not enough; The second category introduces two components of the term "main precepts" plus "sense value difference" through decomposition, which is more professional than the first category. But from a more professional point of view, it fails to be related and distinguished from the western similar concept of "genus plus species difference"; The third category accurately reveals the connotation of concepts through antisense terms. It can be seen that various structured knowledge description methods put difficult-to-define terms in a specific system, correlate and contrast with other terms, and improve the accuracy of description to varying degrees.

The above uses Chinese or Chinese-English linguistic dictionaries published in China as a platform, focusing on Chinese traditional linguistic terminology, and describing the coexistence methods (knowledge classification characteristics and knowledge description characteristics) with other system terms (such as western linguistic terms), finding that limitations and advantages coexist. First of all, the knowledge classification methods of Chinese linguistic terminology have their own characteristics due to different organizational purposes, but they generally separate the knowledge systems of Chinese and western philology. The first category aims to improve the accessibility of term entries through the "storage" performance of the most basic knowledge of the dictionary, and the sequence or shape order ensures the satisfaction of this basic requirement. However, the accessibility of the system based on terminology entries rather than concepts is difficult to meet users' deep-level knowledge needs. This is where the second category of discipline classifications visible through the user interface can make up for. This category is aimed at the disciplinary construction of Chinese linguistics. The macro-structure dimension presents a parallel coexistence of Chinese and western terminology. It emphasizes the relativity and difference between China and the West, and realizes the dichotomy. However, from the perspective of knowledge organization with

the purpose of simplifying and controlling the complex, its limitation with the first category is that it fails to consider the relevance and similarity of the Chinese and western knowledge systems, which is the problem of integration. This is precisely the cognitive difficulty and processing focus that the hybridity of Chinese linguistic terminology brings to users and researchers. Secondly, the structured knowledge description methods of individual Chinese traditional linguistic terminology are instructive to the above difficulties. Traditional linguistic terminology is mainly oriented to ancient documents, and it is more difficult to understand than modern and contemporary terminology. If it can be correlated and contrasted with terms within its field or subject, Chinese modern and contemporary subject terminology, or western subject terminology, the degree of conceptual discrimination can be greatly improved. When using structured knowledge description methods, editors need to combine professional knowledge background and choose an appropriate description method. For example, the small terminology system such as "core sememe" above can also realize the accurate understanding of the concept, but it comes from the West and is slightly different from the western concept. If they can be connected and compare with each other, they can achieve a more precise concept description. However, the term "giving the meaning" and the modern term "definition" and its component terms "main precepts plus meaning difference" and "genus plus species difference", these two pairs of Chinese and western or ancient and modern concepts are difficult to distinguish. According to the characteristics of the source of the term, the use of a pair of antonyms such as "single-character phrase" and "multi-character phrase" optimizes the accuracy of knowledge description. Therefore, terminology researchers and editors should deeply understand the characteristics of terminology from the perspective of linguistics, discover the potential difficulties in understanding its users, and adopt a flexible knowledge organization method in combination with the function and purpose of the compilation. At the same time, the scientific organization method of the knowledge organization theory for the conceptual system is applicable to the systemic nature of (western) linguistic terminology itself. However, because the research object of this theory is mainly literature, it cannot provide sufficient academic support for the fusion of Chinese linguistic terminology, which puts forward a demand for the intervention of contrastive terminology.

IV. THE MODEL CONSTRUCTION OF KNOWLEDGE ORGANIZATION SYSTEM IN TERMINOGRAPHY

A. Combined research and compilation approach of contrastive terminology and knowledge organization methods

In view of the characteristics and difficulties of Chinese linguistic terminology, the conceptual contrast perspective of contrastive terminology and the conceptual organization methods of knowledge organization can complement each other. Contrastive terminology aims to "coordinately reveal" the "similarities and differences" of the compared terms, which is consistent with the problem that this research attempts to solve. The research perspective of contrastive terminology is mainly synchronic, which is consistent with the characteristics of dictionaries. Contrastive terminology takes "ethnic terms in different languages that belong to the same conceptual field or other branch field" as a more "reasonable" research object, which is suitable for the fusion of Chinese linguistic terminology, especially for similar concepts in Chinese and western linguistics. However, as analyzed above, some traditional linguistic terminology need to be combined with their own conceptual systems to achieve appropriate and accurate descriptions (for example, the description of "义界"), so this study takes traditional Chinese linguistic terminology as the basis and starting point, and the conceptual comparison will involve terms in Chinese and English linguistics related fields. Therefore, the author tried to propose a "combined research and compilation approach of contrastive terminology and knowledge organization methods", which is mainly divided into three steps, taking exegetical terms as an example:

Step one is the contrastive analysis and extraction of subject terms. Through comprehensive analysis of expert literature, the editors need to extract the subject terms for comparison/contrast. In classical Chinese semantic monographs, there are often expressions about its subject positioning, which are listed as follows based on only some of the definitions retrieved so far: "...the meaning of ancient Chinese languages and characters..." [41][1], "specially study the meaning of characters"[42][2], "the study of explaining word meaning"[44][3], "in a broad sense...can also be called Chinese semantics...", "...the interpretation of word meaning as the main research object...", "the study of ancient Chinese word meaning"[2][5], etc. In short, linguists basically position it as a semantic study, from which the two contrasting terms of classical Chinese semantics and semantics can be extracted.[3]

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[3] This article aims to combine the perspectives of modern and contemporary linguists to explore the approaches in

Step two is the contrastive analysis and extraction of knowledge units. "Knowledge unit" is the "basic unit of knowledge control and processing" in knowledge organization. "Knowledge unit in a broad sense" refers to "knowledge unit with relative independence" in terms of "knowledge content and knowledge carrier", and "narrow sense of knowledge unit" specifically refers to "...the most basic constituent elements that make up system knowledge"[45], or "knowledge in the form of conceptual thinking", while they "are often contained in a specific context". Therefore, in the field of information science, it is possible to transform the "continuous linear text" into a "discrete" and "semi-structured" "linguistic unit" by performing (manual or) "automatic analysis" of the context "syntax-semantics" of the context, and they are "given a semantic role" to further "realize the automatic extraction of knowledge units"[46]. This article refers to a narrow sense of knowledge unit[4]. For terminography, the knowledge unit is equivalent to a microstructure, that is, "the organization of the internal information of an item". With reference to the above definition, as far as the research object of this article is concerned, the comparative knowledge unit refers to the terminology of Chinese, western, ancient and modern linguistics and the information contained in "the same concept field or other branch field". For example, the similar concepts of classical Chinese semantics and semantics are often contained in the literature that studies the modern transformation of traditional exegetics. They exist in specific sentences or texts in the form of mutual comparison of subject terms, and as the research deepens, they often co-occur as a small term system. Taking classical Chinese semantics as an example, the borrowed terms and blended terms can be extracted from modern exegetical research literature, such as the five types of units recorded in Chinese characters of "character", "lexical word", "lexical item", "sense" and "sememe", are produced on the basis of "absorbing the achievements of modern semantics". On the basis of systematic term recognition, the context that can be used in the knowledge unit can be extracted, as shown below:

- The context of "character" — "'齐 (qi)' is annotated by '禾麦吐穗上平也 (as flat as when the wheats are growing their ears', the annotation is its intent of word formation (referring to it is like wheats, when the ears are spit out, it is generally flat due to artificial planting). Therefore, the identity of "齐" here can only be one character, which is the written form (c h a r a c t e r)".

- The context of "lexical word" — "'品 (pin)' is annotated by many meanings, and here it is a lexical word".

- The context of "lexical item" — "except for '权舆 (quan yu)', they are all single Chinese characters, and they are both annotated by '始(shi, means beginning)'. Therefore, they are all just lexical items"[33].

Through the analysis of the above three contexts, three types of information extracted by the auxiliary knowledge unit can be found, which can be encoded and stored in files (or similar terminography tools).

- Elements of the knowledge unit: lexical items ("字" and "词"), English corresponding terms ("character" and "lexical word"), interpretation ("writing form", "word formation intention" and "polysemy") and examples ("Qi' is annotated by...", etc.);

- Intra-lingual conceptual relations: In classical Chinese semantics, "character", "lexical word" and "lexical item" constitute relative antonyms ("contrary antonyms"). If further subdivision is required, "character" and "lexical word"/"lexical item" constitute complementary antonyms; [4]

- Interlingual conceptual relations: The "lexical word" of grammar and the "word" of English linguistics belong to "homonyms".

Blended terms such as "quasi-sememes", " core sememes", "episemes", as well as interpretations of "giving the meaning" and "linkages", because they are formed on the basis of "inspired by modern semantics", new knowledge of "intrinsic methods and laws", and "exploration of universal meaning"[33], the analysis and extraction methods are similar to the above, but they especially need to relate and contrast western semantics terminology, so they won't be repeated here. Inherent terms, such as "传注(notes of biography)", "义疏 (notes on classics)", "集解 (notes on certain words or thinkings)", " 补注 (supplementary notes)", etc., are originally from ancient Chinese, especially in the context of Confucian classics, and have obvious differences in morphology and semantics compared with western linguistic terminology. This article is limited by space and will not consider these.

Step three is the comprehensive arrangement of knowledge units. Combining the purpose and needs of the compilation, the above-mentioned analysis and extraction of information categories and their elements

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terminography that provide better knowledge services for professional language learners and teachers, and does not represent the actual subject positioning of classical Chinese semantics

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[4] Relative antisense relationship refers to "assertion of one entails the negation of the other" but "negation of one does not entail the assertion of the other", such as "long/short", "new/old";" complementary antisense relationship refers to "assertion of one entails the negation of the other..."

are combined into entries, and their content or order can be adjusted.

B. Knowledge organization system model in terminography

Based on the above path, this article preliminarily constructed a knowledge organization system model for terminography ("Fig. 1"), and designed a sample entry with the exegetical terms "字" and "词" as examples ("Fig. 2").
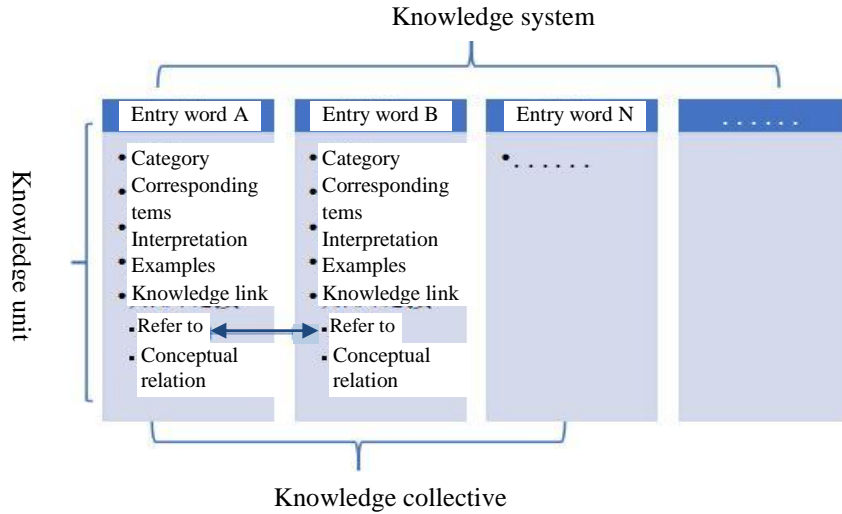

Fig. 1. Knowledge organization system model in terminography.

一级类号 训诂学

二级类号 字（character）：只有构字意图而无意义的汉字书写形式。如"齐"用"禾麦吐穗上平也"来注释其构字意图（《说文解字》）。与"词（lexical word）"构成互补反义关系（complementary antonymy）；参见"词项"，二者构成对比反义关系（contrary antonymy）。

二级类号 词（lexical word）：一个被多义项注释的汉字。如这句话中的"品"字："品：式也，率也，同也……"《经籍纂诂》。参见"词（word）"，二者互为同名异义词（homonyms）；另见"字"、"词项"。

Fig. 2. Sample entry.

This model is mainly expanded on the basis of the following models: In the field of knowledge organization, Dahlberg[47][12], [48][142], the founder of the International Association of Knowledge Organizations (ISKO), believed that the objects of knowledge organization can be expressed as four levels of knowedge element, knowledge units, larger knowledge units and knowledge system; Song Peiyan[46], [49] et al. built a "term dictionary knowledge organization structure model" oriented to "semi-automatic compilation" and "knowledge sharing" based on the insufficient "depth of knowledge description" and "degree of automation" in the existing terminology dictionary compilation. They took scientific and technological terminology as the object, and standardized the microstructure of the dictionary; The research on the content and structure of the lexicographical field is related to this. For example, Wei Xiangqing[50][180] and others have used bilingual learning dictionaries as the research object, and constructed a "hierarchical association model" of the

four structures of dictionaries: general, macro, meso and micro. The above theoretical models are based on the principles of system theory, with knowledge organization systems or dictionary systems as the main research objects. This article highlights the specific problems in terminography caused by the hybrid characteristics of Chinese linguistics, especially focusing on classical Chinese semantic terminology. Through the analysis, extraction and arrangement of comparative subject terminology and comparative knowledge unit, the related research of knowledge organization model has been expanded.

This model has two characteristics. First, it takes the hybridity of Chinese linguistic terminology as the starting point, and takes advantage of the construction of a comparative system of disciplinary concepts. It can be linked to all Chinese and western or ancient and modern contrasting concepts and their closely related concepts through all the vocabulary (hyper) links underlined in bold in "Fig. 2" (such as the term referring to the relationship between concepts, belonging to the category of semantics). They actually form knowledge collections and even knowledge systems through knowledge organization methods, especially "knowledge link" and its subcategories, to achieve mutual reference of contrast terms (the two-way arrows in "Fig. 1") and annotations of conceptual relationships. For example, by linking to the "词" entry that constitutes a complementary antisense relationship, people can learn "字". They can also use the link to

enter the "complementary antisense relationship" to understand this (western) semantic term, so as to optimize the professional "knowledge association" by "changing the original connection between knowledge factors".[28][4] Second, this model is proposed for the hybridity of Chinese linguistic terminology, but it is universal for terminography related research or practice in terms of structural appearance, extensibility and indexing symbols. In terms of structure and appearance, this model takes into account the research and compilation of terms of other disciplines, but it still needs to be adjusted according to its terminology characteristics. From the perspective of scalability, computer files or other editing tools enable each information category and its elements to be added, deleted, and modified according to needs. Taking "knowledge link" as an example, its subcategories can be reduced or other categories such as "picture", "audio", "video", etc. can be added depending on the condition. [49] In terms of indexing symbols, the "first class number" and "second class number" in "Fig. 2" can be used for reference to the classification and indexing techniques of knowledge organization tools such as document classification, using both human-readable and machine-readable letters combined with Arabic numerals and other indexing symbols to improve mnemonic.

V. CONCLUSION

融通 (Integration) is the ideological gene and spirit of the age in Chinese culture. 融(Rong): "炊气上出也。(The cooking smoke goes up)" ("Shuo Wen Jie Zi") "熔(rong) 也，气上融散也。(Melting, means the smoke goes up and fade away)" ("Annotation of Shuo Wen Jie Zi") 通(tong): "达也。(to realize, to reach)" ("Shuo Wen Jie Zi") "彻也。(to the very end)" ("Zheng Yun"). These expressions that began in the Wei and Jin Dynasties, such as the integration of the outside and the inside, the harmony and coherence, and even the five ideas of "The Belt and Road Initiative", and the "integration" concept of the "new liberal arts" of colleges and universities[51], all contain the profound understanding of "change" of the Chinese nation to the universe and the "connection" of life. The development trajectory of Chinese linguistics is reflected in the similarities in "*Ma Shi Wen Tong*", the differences in "*Ci Hai ·Languages Fascicle*" and even "*Chinese Terms in Linguistics*", each with its rationality and necessity. In the growing discussion of the integration of ancient, modern, Chinese and Western in various disciplines, focusing on the increasingly prominent characteristics of ancient and modern, Chinese and western fusion in Chinese linguistic terminology, especially classical Chinese semantic terminology in modern times. How to deal with the dialectical unity of the similarities and differences, separation and integration of the professional knowledge carried by the terminology, to realize the simplicity of the knowledge organization method to control the complexity of the terminology system, presents challenges and opportunities for the research and practice of terminography. The reference value of knowledge organization theory lies in its conceptual system construction method, while the conceptual contrast perspective of contrastive Terminology applies to the hybrid characteristics of terms. The combined research and compilation path of the two constructs a knowledge organization system model for Chinese linguistic terminology knowledge service by integrating ancient, modern Chinese and western thinking. Future research needs to systematically sort out the terminology and optimize the corresponding formal construction methods. The effectiveness of the model also needs to be tested to meet the increasingly diversified terminology knowledge service needs.

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