A Study on the "Language Root" Theory of Zhang Taiyan

Concurrent Discussion on Its Bidimensionality and Function of Language Root

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Abstract—**The "language root" theory of Zhang Taiyan opens a new way of etymological derivation based on root. It takes "every piece of language has its root" as the guiding principle, "words with the same sound have similar meanings" as the criterion, and uses "chuwen (the initial writing of a word) and (quasi-chuwen)," as the basis. In practice, it conducts etymology deduction in the two directions of bianyi and ziru with the meaning and phonetic alternation as the precondition. Through a two-dimension analysis of the "language root" theory, this paper makes a correspondence of the theory and the connotation and denotation in logic, and further proposes the "root function". In this way the universality and scientificity of Zhang's "root theory" are demonstrated and thus provide more firm theoretical support for etymological deduction.**

Keywords—root; chuwen; bidimensionality; function

I. INTRODUCTION

The Qianjia School (of Qing dynasty) put forward that form, sound and meaning can be obtained from each other, and connected the relationship among the three, which provided a theoretical basis for the study of Chinese homologous words. However, the focus of their research is to explore the horizontal relationship among words, which is the aggregation of the same word family. Zhang Taiyan, on the basis of a thorough understanding of Chinese and western academic studies, he put forward the theory of "language roots" and explored the relationship among words from their origins, thus opening up a new era in the study of Chinese homologous words. His "language root" theory played the role of transition in the history of etymology, so the reanalysis of his theory can help us better understand and grasp the theoretical basis of etymology today.

II. ZHANG TAIYAN'S THEORETICAL SYSTEM OF "LANGUAGE ROOTS"

The concept of "language root" is the basis of Zhang Taiyan's discussion on the origin of language. He clearly put forward the concept of "language root" in 1902 in "*A Letter to Wu Junsui* (《与吴君遂书》)": "In his sociological research, Herbert Spencer (1820-1903) often started from dissenting words and language roots, but could see big things through

small ones. How was that? At the very beginning of the world, everything was in chaos. The deeds of ancient emperors are rarely recorded in biographies particularly, and traces can only be found in the language and words." (Ma Yong, *Collection of Zhang Taiyan's Letters*, page 64.) His most concentrated expression of the theory of language roots is in the article "*Origin of Language* (《语言缘起说》)". In this article, lies the guiding principle of the "language root" theory: "Language is not out of nowhere. Horse and cattle are not named horse and cattle arbitrarily. Every piece of language has its root." (Zhang Taiyan, "On Studies of Chinese Ancient Studies" (《语言缘起说》), p. 48) Based on the guiding principle of the "language root" theory — "Every piece of language has its root", Zhang Taiyan expatiates on many aspects.

A. "A Name Must Have Its Origin"

According to "Every piece of language has its root", Zhang Taiyan first put forward the idea that "a name must have its origin":

He used the concepts of "shi ('实', entity), de ('德', deeds) and ye ('业', karma) are inseparable from each other" from the Indian Vaiśeṣika to explain his own theory. Man and horse are shi; "to love universally and to war" are the de of man and horse. Metal and fire are shi; "secretive and destructive" are the ye of metal and fire. An entity must be matched up with its de or ye. That is why the names of all things must have their origins.

The shi, de and ye correspond to the noun, verb and adjective generally. Zhang Taiyan explained "The name of a thing must have its origin" from the complementary relationship of the three. At the same time, Zhang Taiyan also illustrated the reproductive relationship between these three kinds of characters:

In ancient times, it was even difficult for words to refer to the things on earth, so the names referring to de and ye appeared later. Therefore the characters "牛, 马 (cattle and horse)" appeared first; the characters of "事, 武 (to be engaged in, to war)" were reproduced by "牛, 马 (cattle and horse)". As the society developed, characters of de and ye can appear very early and then reproduce characters of entity.

So the character "引 (create, last)" came first and "引出万物的为天神 (the one who creates and last everything is celestial god)" came later; the character "提 (guide)" came first and then came the expression "提出万物的为地神 (the one who guides everything is earth-god)".

The initial generation of language comes from the human senses, which is why the characters denoting "de" appear first. Then, in terms of the form of words, in ancient times, there were words that represented the name of the entity, and then there were words that represented the name of de and ye. With language developing further, characters that expresses de, ye came first, and them reproduce characters that gives expression to entity name later.

From the above two paragraphs, we can extract two pieces of information. First, Zhang Taiyan believes that in different stages, the emergence of nouns, verbs and adjectives is different. In ancient times, words of verb, adjective were reproduced from the nouns; in later generations, nouns have been reproduced by verbs and adjectives. It is because "the initial generation of language comes from the human senses" that characters representing de come first". He also put forward the same view in *Wenshi Cases VI* ("文始·略例己")*:* If we trace the generation of characters to the time when human beings were just born and correspond words with the sensations of human, we can see that descriptive vocabulary should appear first and then come the nouns that represent things. "So, verbs and adjectives are the basis of nouns indeed. At the same time, Huang Kan has the same clear view on this issue: A noun is used as a nominatum with one of the meanings of the corresponding verb or adjective, therefore, verbs and adjectives are the root of nouns." *(Huang Kan dictated, Huang Zhuo edited, Notes on Phonetic Exegesis of Characters* ("文字声韵训诂笔记")*, page 195.)* The second is that, in terms of the form of words, the characters representing nouns come into being before the words of the other two classes. From the perspective of character form, appearances for concrete concept generally come first, on the basis of which appearances for abstract concept come into being. In addition, since the Chinese characters are ideographic, the character forms of nouns, verbs and adjectives reproduce each other in different stages. From the perspective of language, "the names of all things mostly originate from '触受' (what people touch/undergo and what they apprehend)", and "The generation of words are due to '触受' in the good and bad times". Because '触受', what people first perceive at the sight of something are "de" or "ye". Therefore the characters representing "de" come first, which means that verbs and adjectives are produced earlier.

B. "Characters with the Same Sound Often Have Similar Meanings"

The importance and application of sound in etymology have been elaborated by predecessors, especially scholars of Qing dynasty. After the "Youwen Theory"(a theory of exegesis in which the meaning of words is inferred from phonetic signs) proposed by Wang Shengmei, a scholar of Song dynasty, the Qianjia Scholars of Qing dynasty put forward the exegetic methods of "exploring meaning according to sound" on the basis of the theory and opened a new path for the etymological exploration. Zhang Taiyan pays special attention to the relationship between sound and meaning in his theory of language root. In his "*A brief Introduction to Little Learning"* ("小学略说"), he put forward: "sound and meaning are closely tied to each other, which is a subtle and marvelous relationship of interdependence." In *Lihuo lun* ("理惑论")*,* Zhang Taiyan said: "In the study of little learning, what is the most important is to seek the essence of language from the sound."

"Before words were created, language was transmitted orally and through analogy. How was that? For the categories all things have an end, while the analogies in the human heart are infinite." That is why "characters with the same sound often have similar meanings." Here the organism for exploring language root is the connection between sound and meaning, which is "analogous sound, similar meaning". *Wenshi* ("文始") was composed under this organism, which is also the standard. Zhang Taiyan said when talking about the reasons for his creation of *Wenshi*, "although numerous characters are reproduced, there must be a reference for their nominatum. Semantic extension is caused by phonetic similarity, and thus referential changes are made, on the basis of which new characters are produced. This is the principle of language development. These are the reasons for me to compose *Wenshi*." (Academic history of China in the Past 300 Years, page124.) This points out the relationship between sound and meaning from the perspective of Phylogenetics, and points out that this is the criterion for the development of characters and language.

C. Mutual Explanation ("转注") and Phonetic Loan ("假借")

The understanding of mutual explanation and phonetic loan has always been a controversial issue. Before Zhang Taiyan, scholars including Wu Yuanman and Daizhen divided "*Liushu* (the six categories of Chinese characters)" into two categories and held that mutual explanation and phonetic loan belonged to the using rules of Characters, which is followed by most people today. However, Zhang Taiyan put forward that "mutual explanation and phonetic loan were all rules for creating characters". This is from the perspective of how Chinese characters came into being:

Language comes before characters. Language is written in the form of words by use of sound. Dialects with different sound can have the same meaning and signified. When there is a change in alliteration or assonance, a new character is to be created, which is called mutual explanation. In this way multiplies the number of characters and it needs check. Therefore when the sounds of the characters are related and their meaning similar, there is no need to create a new character, which is called phonetic loan.

Mutual explanation is a way of reproducing characters while phonetic loan is a way of checking the ziru of characters. The two complement each other, so that Chinese characters can reproduce and develop yet with limit.

In addition, in Zhang's view, the ziru of Chinese characters through mutual explanation, as well as phonetic loan should be based on sound: "Categories are the

categories of sounds, instead of the 540 indexing components; radicals are phonetic radicals and it is not that 'characters with the same image radical belong to the same radical'. ...phonetically different characters do not belong to the same category; characters with different origins are not of the same sound." He clearly demonstrated that mutual explanation is conducted according to sound and meaning, instead of image radicals and form." He also took "考 (kǎo)" "老 (lǎo)" proposed by Xu Shen as examples and pointed out that both of the two belong to "You (幽) rhythm". The meanings of them are related and their sounds are just subtly different. They have different forms but are of the same origin. "

Therefore, according to Zhang Taiyan, the issue of character origin and word origin are involved in the mutual explanation and phonetic loan. In his "theory of language origin", he said: "there are '拘 (jū)', '钩 (gōu)' in *Shuowen Jù/Gōu (句) Radical* (《说文·句部》), '紧 (jǐn)', '坚 (jiān)' in Qiān (臤) *Radical* (each couple of characters has related meaning with their shared radical). These words are created through mutual explanation and phonetic loan. ...When the phonetic radical haven't produce new characters it can just cover the other meanings. The phonetic radicals are still used although new words have been created, for characters are not created especially accordingly and the existing characters with the same or similar sound are used for record. This is mutual explanation and phonetic loan." There are also corresponding description in *Wenshi*: "The use of no more than five hundred 'chuwen (the initial writing of a word)' and 'quasi-chuwen' to refer to thousands of meanings is the rule of phonetic loan; ... the differences of sound meaning in the characters '屮 (chè)' and '耑 (duān)', '予 (yǔ)' and '与 (yǔ)' are very little but they have different images, which is mutual explanation."

III. IMPORTANT PRACTICE OF ZHANG TAIYAN'S OF LANGUAGE ROOT THEORY — *WENSHI* AND *THE NEW DIALECTS* (《新方言》)

Wenshi is an important practice of Zhang Taiyan's Language Root Theory. "The purpose to compose it is to ascertain the language origin."

A. "Chuwen" and "Quasi-chuwen" — the Cornerstone of the Deduction of Language Root

*Wenshi Cases: "*Single characters in *Shuowen* ("说文解字"), composed by Xu Shen, a scholar of Han dynasty, is the first Chinese character book that systematically analyzes Chinese characters' glyphs and sources, and one of the earliest dictionaries in the world) were named chuwen, and the variation and combination of pictographic characters, self-explanatory characters, characters with obvious phonetic radical and unapparent image radical and characters with repeated forms are called quasi-chuwen."

Chuwen and quasi-chuwen can be regarded as the language root proposed by Zhang Taiyan. Or it can be seen as the representation of language root, which is also the basis of language evolution and differentiation. "The category of characters and sound are interconnected" proposed later

further demonstrates that language root is the combination of sound and meaning. This represents that Zhang's language root theory is not just an exploration and connection between the origin of characters, and also an exploration of words origin based on Chinese characters. Thus his study enters from the category of words into the category of language. And he himself also made it clear that "in learning, we should not only study words, but further study language since words are used to express language as well." It can be seen that the purpose of Zhang Taiyan is not to explore the etymology of characters, but to explore the root of all languages.

B. "Phonetic Alternation" Theory — Phonetic Conditions for Language Root Deduction

Phonetic proximity and similar meaning is an important principle for ancient people to explore etymology. And the phonetic relations are an indispensable condition in the connecting of homologous characters. The language root deduction of Zhang Taiyan is conducted under the framework of 23 ancient Chinese rhymes and 21 consonants drew up by him. On the basis of the 23 ancient Chinese rhymes and 21 consonants, he put forward the "phonetic alternation" theory which includes two types of "regular sound" including "transformation to an adjacent position of the same rank (近转), transformation to the parallel position same rank in the same rhythm direction of yin and yang (近旁转), transformation to a nonadjacent position of the same rank in the same rhythm direction of yin and yang (次旁转), transformation to the same position of the same rank in the opposite rhythm direction of yin and yang (正对转), transformation to the parallel position of the same rank in the opposite rhythm direction of yin and yang (次对转)"and "irregular altered sound excluded from the five regular alterations".

This theory provides operable standards for the bianyi and ziru of language roots and it suggests that changes can occur between similar rhymes or initials, but this does not necessarily mean they will. After all, in the process of root derivation, the transformation between phonetics is also restricted by semantic conditions, and the two are mutually restricted.

C. Bianyi and Ziru — the Path of Language Root Deduction

In the practice of *Wenshi*, the deduction of chuwen and quasi-chuwen are conducted in the two directions of bianyi and ziru. "In this method, both the sound change and meaning change is called bianyi. The change of characters in the era of Three Emperors and Five Sovereigns (in ancient China) was just like this." "The change of meaning caused by sound is called ziru." Bianyi and ziru are the two different paths of the language root deduction but they are not distinctively unrelated. In the deduction of one language root the two paths often coexist, for example, "雠 (chóu)" in *Wenshi:*

In the work, it is defined that "'雠', a couple of birds. It consists of two '隹 (means a bird)'." When it transformed to

"Dong (东) rhythm" in the parallel position of the same rank in the opposite rhythm direction of yin and yang, it shifted to "双", which means two birds. Inside its own rhythm category it reproduced "雠 (chóu)", which means to response. In "*Shigu* ("释诂")", the first chapter of *Erya* ("尔雅") which is the ancestor of han dictionaries, " '雠' is defined as an unhappy couple. "When "雠" is transformed in to the "Xiao (宵) rhythm", it reproduced "曹 (cáo)", which means both parties in a lawsuit. Then it reproduced "遭", which means to undergo. But the characters that pronounced "曹" are between the "Xiao (宵) rhythm" and "You (幽) rhythm". Next it reproduced "召 (zhào, shào)", meaning calling in. And then "招 (zhāo)" was reproduced, which means calling by waving one's hands. In the small seal characters in Qin dynasty, it was said that "诏" was reproduced by "召". But in *Shuowen,* it is not recorded.

According to the theoretical system of Zhang Taiyan, bianyi and ziru was proposed to balance the development of the form and sound of characters." This emphasizes that, in the study of the deduction of language roots, neither should researchers neglect the relation between sound and meaning because of form, nor should they make light of the ideographic character of the Chinese characters. Form, sound as well as meaning should be organically integrated.

In addition, *The New Dialects* ("新方言") is Zhang Taiyan's another important practice of his language root theory." It is not just a book to record dialects, but an etymological work that investigates etymology according to the transformation of sound categories of today."[1] *Wenshi* is the deduction from top to bottom while *The New Dialects* is a process of tracing from bottom to top.

IV. THE TWO-DIMENSIONAL ANALYSIS OF "LANGUAGE ROOT" THEORY

Zhang Taiyan proposed his language root theory under the influence of the "word roots" theory in western historical comparative linguistics. For western languages with forms, sound and meaning are based on forms, and roots are expressed in forms. But Chinese is a language without form. In the early stage of Chinese language, monosyllabic words are the main words. In addition, the ideographic nature of Chinese characters means that a Chinese character often represents a word. Chinese phonetics and semantics are mainly based on characters, which means both meaning and sound can be expressed by form. Therefore, the 437 language roots selected by Zhang from *Shuowen* in the process of language root deduction can be regarded as combinations of sound and meaning. Thus the language root can be represented as:

Language root = {sound, meaning}

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[1] This is the discourse made by Jiang Lihong in The New Dialects ("新方言"), Lingwai sanzhou yu ("岭外三州语") and Wuyu ("吴语") (2014) in his proofreading. (in Chinese)

A. The Bidimensionality of Sound

As far as phonetics is concerned, the traditional syllable division in China is the dichotomy of initial and final dichotomy. The ancients often conducted the dichotomy of initial and final when discussing the relationship between sound and meaning. From the acoustic exegetics at the beginning to "phonetically altered character", "alternation of sound" and "similar sound, related meaning", all were proposed according the different relations of initial or final in characters. Although it is not clear whether the specific phonetic relation between these words is related to the initials or finals, it can be distinguished according to the ancient phonetic system and their narration. For example, "庸 (yōng)" is called according to "佡 (sōng)", which is a phonetic alternation. (*The New Dialect·Volume 3*) ("方言·卷三")

In terms of initials, "庸" is "a character with the initial of Yu (喻)" and "佡" a character with the initial of Xin (心)". As for the finals, the two have the same finals, both of which belong to "Dong (东) rhythm". Their relations are mainly represented in their rhythms.

In the Qing dynasty, Dai Zhen, Qian Daxin, Duan Yucai and others of the Qianjia School made an in-depth discussion on the relationship between sound and rhyme. Among them, Dai Zhen's "*Twelve Chapters of Phonetic Transfer* ("转语十二章")" and Qian Daxin's "*Initial Category* ("声类")" are dedicated to the discussion of initial transfer, while Duan Yucai's "*Table of Shared Ancient Chinese Phonology in the Seventeen Classes* ("古十七部合用类分表")" can be seen as dedicated to the discussion of final transfer. Their exploration of semantics according to phonology is realized through initial transfer or final transfer. So it can be seen that in the investigation of the relationship between semantics and phonology of the Chinese characters, the dichotomy of initial and final has its foundation and rationality. And the bianyi and ziru of language root are also achieved under the condition of initial transfer or final transfer, in Zhang Taiyan's language root theory. Therefore, the sound in a language root can be represented as:

Sound = {initials, finals}

B. Bidimensionality of Meaning

As for the meaning, Zhang Taiyan said in *Wenshi Cases III* ("文始·略例丙"): "Anything that is identical in form but different in nature may be given the same name, such as the names of '蜥蜴 (lizard)' and '鼍 (alligator sinensis)', '雁(wild goose)' and '鴈鵝 (goose)'". And things with shared nature but in different forms may also have the same name, such as "钜 (diamond)" and "黔 (coal)", 鼠 (field mouse) and "鴽 (rú)". (Both diamond and coal are consist of carbon; In *A Collective Interpretation of the Seventy-two "Hou"*("月令七十二候集解"), the author Wu Cheng of Yuan dynasty stated that "二候，田鼠化为鴽", meaning "in the second 'hou' (a period of five days), the field mouse turns into '鴽'. So, Wu Cheng held that the things in the two couples are the same.) All things are of different kinds, but the language used to refer to them may come from the same source."

In short, "form" means "shape", "nature" refers to "entity", and "name" means "concept". This is an illustration of the problem of nomenclature. At the same time, Zhang pointed out the concept of homologous: "The reproduced characters may come from the same origin". And things of different category but with same characters can "be named the same", indicating the dichotomy of "name", which is the concept. This is a prerequisite for cognate character association and tracing.

The dichotomy of concepts can be traced back to Liu Xi of the Eastern Han Dynasty. In the preface of his *Shiming* ("释名·叙"), he said: "there must be a certain connection between names and things. People use these names every day, but they have long forgotten what the rationale in them is; ... We cannot exhaust all the material things so far." Liu Xi put forward the concept of "category of meanings" and "category of things" to explore the etymology of the two groups of concepts, which was somewhat the bud of meaning dichotomy. Huang Chengji, a scholar of Qing dynasty, proposed in his comment on *Zigu* ("字诂") and Yifu ("义府") which were composed by Huang Sheng, "The phonetic radicals of homophone characters are the outline, while the image radicals represent the category of things so they are the catalogue". He also put forward that "the outline is more important than catalogue". His discourse not only provided a clear clue for dichotomy, but also pointed out that the key of Cognate word association lies on the "outline". Scholars of the modern times Sun Yongchang (1985), Su Baorong (1987), when classifying the meanings of words in their study of cognate words, proposed the concepts of "referential meaning", "intentioned meaning", "surface 'referential meaning'", and "deep 'implied meaning'". And scholars like Wang Guiyuan (1990)[2]; Liu Dianyi and Zhang Renming (1995), Wang Ning (1996: 208-211) studied the cognate words by use of the western seme analysis and put forward the concepts of "core-meaning element", "etymeme" and "class sememe". After that Yang Guangrong (2000: 103-142) , in his doctoral dissertation further developed the concepts into "core-meaning" and "class meaning", on the basis of which he put forward the two-dimensional homologous word to provide new ideas and methods for the exploration of etymology and the association of homologous words. In the two-dimensional etymology, the class meaning refers to the meaning component that can represent the category of things and is used to distinguish different categories of things. Core meaning is the similar character or behavior between several objects represented by class meaning, which correspond to "状 (form)" referred to by Zhang Taiyan to connect different categories. It remains the core of homologous words and the hub of root inference. Therefore, it can be seen that "'things of the same categories yet with different forms' and 'different things with the same form' can both 'be given the same name'" proposed by Zhang Taiyan, is just the results of the different operation of class meaning and core meaning.

Thus the meaning in a language root can be divided into "core meaning" and "class meaning" through dichotomy:

Meaning = {core meaning, class meaning}

And the language root can be represented as:

language root = {sound, meaning}

$$= \begin{cases} \text{initial, final}^3 \\ \\ \text{core meaning, class meaning} \end{cases}$$

V. PRELIMINARY EXPLORATION OF LANGUAGE ROOT FUNCTIONS

The two-dimensional representation of the language root is just a static description, and the dynamic deduction of the language root can be conducted more intuitively and scientifically through the way of "function" of logic.

The function is brought in by Frege from mathematics. He introduced the concept of function into logical study, trying to establish a "formal language featuring pure thinking that imitates the structure of arithmetic language", and redefined the independent variable and function to replace the traditional concept of subject and predicate. He said, "if a simple or compound symbol appears at one or more positions in an expression which do not need to be interpretable, and it is believed that this symbol at one or every position can be replaced by another symbol that cannot be any other, then the constant part in this expression is called function and the alternative part independent variable." (Frege, Selected Works of Frege's Philosophy, pp. 23) He expanded the scope of application of functions to express other general propositions besides mathematical concepts, and successfully extended the language of arithmetic symbols into a logical language, making the study of logic more objective.

Carnap, on the basis of his teacher Frege's function theory, established a correspondence between the originally separate denotation and connotation by means of functional terms. He pointed out that each state description is assigned a definite denotation, and the connotation is the function between the expression and the state description. (Ma Liang, 2004) Among them, the connotation in Carnap's connotation theory corresponds to the function, while the denotation corresponds to the independent variable.

For the specific language root, the core meaning (core sound) is the invariant part, and the class meaning (class sound) is the replaceable part. Therefore, on the basis of Frege's functional theory and Carnap's connotation theory, we respectively correspond the core meaning and class meaning in the language root to the "connotation" and "denotation", and then we can get the basic function of this language root: F(x). If we set each specific character
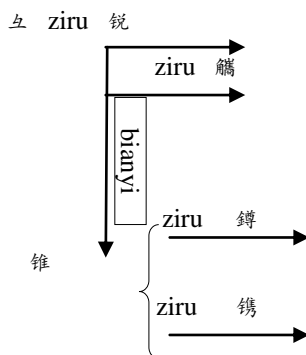
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[2]   It is from the *History of Etymological Concepts* by Yang Guangrong.

[3]   In the two-dimensional analysis of sounds the categories of "core sound" and "class sound" are not adopted, in the light of the fact that in traditional little learning, sound is always studied based on initials or finals, and core sound and class sound are represented as initial or final.

deducted from the language root as y, then y=F(x). In this function, F represents core meaning, and can also be extended to include sounds representing the core meaning. In word families (word families) derived from the same root, this is fixed and marks the distinction from other sets. X stands for class meaning and its corresponding sound. Then, a series of deduction of the language root is the collection of x (class meaning and class sound) under the coordination of F (core meaning and core sound). The root deduction of Zhang Taiyan is the recursion with limited chuwen and quasi-chuwen from top to bottom according to specific rules. For example: *Wenshi* ("文始") "㒸":

In Shuowen ("说文"): "'㒸 (pronounces jì means sharp and upward)' is defined as pig's head." … "㒸" has the same final with "锐 (ruì)". It reproduced "锐 (sharp)", which means "芒 (a needlelike substance on the shell of a cereal seed or on vegetation)". It transformed to "Dui (队) rhythm" nearby and changed into "锥 (zhuī)", which means "锐". Then "觿" was reproduced to refer to the awl worn on the body to untie a knot. "锥" transformed to its opposite rhythm, "zhūn (谆) rhythm" and reproduced "镈 (zūn)", referring to copper tapered sleeve at the lower end of the handle of "ge (an ancient Chinese weapon, dagger-axe)". In *Quli* of *Li* ("礼·曲礼"), it was recorded that "what has sharp bottom is called '镈'." And "锥" reproduced "镌", which refers to the awl used to break wood.

The relations of these characters are shown as follows:

锐，*"Shuowen Jin* （金） *Radical* ("说文·金部")": "芒". Duan Yucai noted: "'芒' refers to the top of grass, which is very sharp and small." "㒸" is the pig's head on which its mouth stands out, "sharp and protruding upwards". "锐" refers to the top of grass. As Duan put it, the top of grass must be sharp so both of the two has the meaning of "sharp", and "to be sharp" means "to be keen".

锥，*"Shuowen Jin* （金） *Radical* ("说文·金部")": "锐". Duan noted: "their relation is the same with that of '门' and '闻', '户' and '护'." The author comments: these three examples are the exegesis of rhyme for "Die (叠) rhythm". At the same time, they also indicate that their names are derived from the properties or functions of their referent objects. In the literature that is handed down for generations, "锥" generally refers to a tool that is sharp at one end. *Guanzi Haiwang* ("管子·海王"): "every vehicle producer shall have an axe ('斧'), a saw ('锯'), an awl ('锥'), and a chisel ('凿') to do his work."

"觿 (xī) ", *Shuowen Jiao* （角） *Radical* ("说文·角部"): "refers to a hornlike ornament worn by people with a sharp end that can untie a knot. Its image radical is "角", and its phonetic radical is '巂 (xī)'." Duan Yucai noted: In "Weifengzhuan ("卫风传") it was said that '觿' can be used to untie knots and is an ornament for grown-ups. *'Neizezhu ("内则注")'* said that little '觿' is used to untie little knots. It looks like '锥 (awl)' and is made from the bone of elephant." '觿' refers to some conical thing made from bone or jade which for untying knots and is often used as an ornament.

"镈", *Shuowen Jin* （金） *Radical* ("说文·金部"): "copper tapered sleeve at the lower end of the handle of 'ge (an ancient Chinese weapon, dagger-axe)'." And Duan Yucai noted: "According to 'Quli (曲礼)' 'When offering the weapon of ge as a tribute, one shall put the base forward'...and made an annotation that ...the one with a sharp end is called '镈' cause it can rip into the earth. The one with a flat end is called '镦', because it can ram the earth. It also commented that '镈' can stab into the earth." "镈" refers to the copper tapered sleeve at the lower end of the handle of 'ge (an ancient Chinese weapon, dagger-axe)' and it can stab into the earth with its sharp end.

"镌 (juān)", *Shuowen Jin* （金） *Radical* ("说文·金部"): "An awl that can break wood. Its image radical is '金' and phonetic radical '隽 (juàn)'." It can also be used for grinding stone." Duan Yucai noted that the tool used to breaking wood is called "镌". Therefore the action of breaking wood is also called "镌". *Shiming* ("释名") Chapter 7: "'镌', refers to '镈'. It can be hammered into an object." Here "镈" is used to explain the meaning of "sharp" that they share.

In terms of meaning, this group of words all contains the meaning of "sharp" and "kin". "锥" refers to a tool with sharp end; "觿" refers to a conical thing made from bone or jade to untie knots and can also be used for ornaments; "镌" is a tool used to breaking woods. They belong to different categories and are held together by the core meaning of "sharp and kin".

In phonetics[4], the distribution of their initial and final are relatively focused. "㒸": its initial belongs to Ying (影); final belongs to Tai (泰) rhyme. "锐": its initial belongs to Ding (定), and final belongs to Tai (泰) rhyme. "锥": its initial belongs to Zhao (照), and final belongs to Dui (队) rhyme. "觿": its initial belongs to Xiao (晓), and final belongs to Zhi (支) rhyme. "镈": its initial belongs to Cong (从) and final belongs to Zhun (谆) rhyme. "镌": its initial belongs to Jing (精), and final belongs to Zhun (谆) rhyme. Among them, "㒸" has the same initial and same final with "锐", and the articulation place of it is close to "锥" with changed glossal sound and dental sound. The place of articulation of the finals of it and "觿" are close and that of the initials are the same. "锥" and "镈", "镌" has close articulation place of finals and same articulation place of initials.

In this group of characters, "㒸" is the language root that reproduced "锐" and "觿". At the same time it changed into

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[4] The initials and finals in Zhang Taiyan's *Wenshi* ("文始") are taken as the main examples.

"锥", which began the ziru of the second level. They always took "sharp and kin" as their core meaning and the close relation of rhyme as the condition. Therefore at this time, F is "sharp and kin", and x is the variable that refers to the different categories that "锐, 锥, 觿, 鐏 and 镌" belong to. With the collection of their corresponding sounds, F(x) represents the set of the word family or character family deducted by the language root.

VI. CONCLUSION

As for the value and significance of Zhang Taiyan's language root theory, most scholars hold that this theory is more an exploration of character origin than that of word origin. But according to the author, this kind of view is not accurate.

Words are the written form of language. Lu Zongda (1996:253) said: "Chinese characters are the writing symbols of Chinese. It's sound and meaning come from the Chinese language while its form is a symbol that people give to the language." Since sound and meaning are changing constantly, while glyphs are relatively stable, it is a good way to conduct the language root deduction by use of this advantage of the Chinese language. In addition, the monosyllabic nature of Chinese and the nature of representing both sound and meaning of Chinese characters at the very beginning make the characters and words have strong correspondence when the language was first produced, which also provides the possibility and conditions for etymology discussion from the perspective of characters. Therefore, the statement that the exploration of language origin of Zhang Taiyan's language root theory based on chuwen and quasi-chuwen is character etymology is one-sided for it fails to recognize the relationship between character and word in Chinese. What's more, Homologous words sometimes overlap with homologous characters. The theoretical basis of the word construction and character construction in Chinese are similar. At the beginning of their presence, both of them select a certain trait of the object and relate it with a specific sound. Therefore they can overlap sometimes, which means that a group of homologous characters and words have homologous relations in shape as well as sound and meaning. Thus in the exploration of the origin of the Chinese language, researchers cannot just neglect the characters and words, nor can they limit their study to characters and words. They should start from the sound and also take account of glyph so as to make the research comprehensive and precise.

In this paper, the two-dimensional analysis and functional exploration of language roots unify the relationship between characters and words in form. Neither the study on homologous characters nor that on homologous words can avoid the exploration of relationship between sound and meaning and both of them should be based on the core meaning and core sound. And the only difference is that when study homologous characters researchers have to consider homologous relationships in glyphs.

However, due to the limitations of the times and the materials at that time, especially the fact that he did not pay attention to the ancient literary materials at the beginning, some parts of Zhang Taiyan's research on the deduction and connection of language roots still needs to be deliberated. But defects cannot belittle virtues and his theory of "linguistic roots" is undeniable for its pioneering work in the study of the etymology of later generations.

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