A cognitive Semantic Study of ‘root’ in Mandarin Chinese

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This study aims to examine the semantic development of the plant vehicle \textit{gen} 根 ‘root’ by using data collected from the \textit{Scripta Sinica} database. The Linguistic Coding of Concepts scheme proposed by Heine, Claudi, and Hünnemeyer (1991): person > object > activity > space > time > quality, is reviewed in this study.

After chronologically presenting the meanings of \textit{gen}, we identify the importance of \textit{gen}’s development as a classifier and those meanings derived from the quality of the plant-part ‘root.’ The development of the meaning of \textit{gen} into ‘life’ in \textit{The Yi Wen Lei Ju} 藝文類聚 (Collection of Literature Arranged by Categories, A.D. 624) completed the developmental sequence in the line of quality. Finally, \textit{gen} became a classifier (in \textit{Tong Dian}, A.D. 801), a turning point in the derivation of many verbs from \textit{gen}. The semantic development of \textit{gen} in history agrees with the cognitive semantic rule proposed by Heine et al. (1991). However, the initial and the final stages of the scheme can be refined. The initial stage is a collaboration of person and nature, and the last element of the development ‘quality’ can be further elaborated as origin > dependence > foundation > thoroughness > contents > spirit > life > grow (verb). This result gives a rule of cognitive semantic development based on the semantic development of \textit{gen}.

Keywords: plant in language, classifier, semantic development, Linguistic Coding of Concepts

1. Introduction

Claude Lévi-Strauss (1963) points out that animals and plants are vivid and memorable and thus offer concrete image banks for languages to capture and compose mankind’s fleeting moments into words. In this study we research Mandarin Chinese, which has some characteristics that are absent from most Indo-European languages. Among these characteristics, one of the most striking phenomena is the abundance of classifiers in Chinese. The present study, inspired by the relation of the classifier \textit{gen} 根 to the plant-part ‘root’, examines the diachronic semantic development of the plant vehicle \textit{gen} and reviews the Linguistic Coding of Concepts scheme (Heine et al., 1991). To conclude, a more detailed semantic development based on Heine et al. has been developed.

The organization of the paper is as follows: (1) Introduction, (2) previous research, (3) theoretical background and data sources, (4) the semantic development of \textit{gen}, including its general and special developments, (5) a comparison of the actual development of \textit{gen} with the theoretical model of Heine et al., discussing plant, person, and quality, (6) \textit{gen} as a classifier, and (7) conclusion.
2. Previous research

Little attention has been paid to plant vehicles in language. However, in Lakoff and Turner’s (1989) ‘Great Chain of Being’ metaphor, human beings are ranked at the highest order, followed by other animals and plants. Animal and plant metaphors play important roles in languages. Hsieh, Lien & Meier (2005) examine fixed expressions that contain plant names in Mandarin Chinese and German corpora. They aimed to reveal the compositionality of the concepts of the plant vehicle flower by means of frame semantics. The linguistic frames of flowers show that German focuses on function by adopting usability and edibility of plants in their expressions, whereas Mandarin Chinese perceives outer appearance of plants and compiles “visualized” Chinese expressions.

Enfield (2008) studies the utilities of landscape terms in Lao, a Thai language. He lists several types of landscape expressions including the “forest/vegetation type.” The forest can be applied to large areas covered with vegetation and later refer to places where humans do not live. Expressions of landscapes are applied not just for their referents but further stand for other usages with cultural value. This can also be applied to other natural terms, such as plants. Majid, Boster & Bowerman (2008) study a cross-linguistic categorization of everyday events ‘cutting’ and ‘breaking’, they claim that the discrete categories humans recognize can be “based on observation of correlations in the distribution of features in the environment” (Rogers & McClelland, 2004; Rosch, Mervis, Gray, Johnson & Boyes-Braem, 1976). For instance, has roots, has rigid cell walls and can grow tall correlate for the category of plants.

Of the plant vehicle gen, previous research on it set focus on gen as a classifier. Tang (2001, 2002, 2004), following Senft (2000), suggests that Chinese classifiers may be distinguished by the feature [+sortal]. Gen is assumed to be a classifier with [+sortal] feature. According to Senft (2000), sortal classifiers individuate whatever they refer to in terms of the kinds of entity that they are. Compared to sortal classifiers, measural classifiers individuate in terms of quantity. The present study should indicate that the classifier use of gen only catches a period of development of gen, and it highlights a turning point for the further semantic development of the plant vehicle gen.

3. Theoretical background and data sources

Heine, Claudi, and Hünnemeyer’s (1991) Linguistic Coding of Concepts scheme
plays an essential role in the present study. Heine et al. (1991) contended that lexemes (such as the word for the body part back) can be used as metaphorical vehicles to convey spatial concepts (such as ‘behind’). In this case, the development is from object to space. The latter can then serve as a vehicle for the temporal concept <after>. This stage in the development is thus from space to time. Ultimately, the grammatical structure of the word back can be depicted thus: object > space > time. The example of back is only one instance of a more general grammatical structure that contains other metaphorical conceptions: person > object > activity > space > time > quality.1

The relationship between these notions is metaphorical in nature; as Heine et al. (1991, p. 49) observed, “… any one of [these conceptions] may serve to conceptualize any other category to its right”. In one conclusion, Heine et al. (1991) discussed two models for starting points of prepositions, the body-part model (compare English in back of, ahead of) and the landscape model. In the landscape model, the source of the preposition is a landscape feature such as summit, sky, etc. The theoretical goal of generalizing the results was to formulate statements about the universal basis of the trajectories in human cognition.

Linguistic categories are apt to be described as chains or linear family resemblance categories (Heine, 1992; Hopper & Traugott, 1993; Heine 1997). The unidirectionality code is statistically significant and “can serve as a basis for generalizations on both linguistic evolution and language structure” (Heine, 1997, p. 153). We believe that the scheme proposed by Heine et al. (1991) is essential in understanding the nature of semantic change. We therefore adopt this scheme to examine the diachronic data of gen. Yet, we also believe the sequence can be enriched. This is the main concern of this study.

Our data were collected from the Scripta Sinica database. This Mandarin Chinese corpus contains the literature from Jing 经 (The Chinese Classics), Shi 史 (The Chinese Histories), Zi 子 (The Hundred Schools of Thoughts), Ji 集 (The Collection of Literary Works), and Cong Shu 篇書 (The Books of Chinese Customs), including Thirty-four Ancient Texts, The Literary Mind and the Carving of Dragons, and The Chinese Buddhist Canon Newly Edited in the Era of Taisho, to name a few. There are totally 6620 gen tokens retrieved. We first tag and classify the data according to their meanings and time of appearances, then identify the semantic

1 Peyraube & Wu (2005) study Chinese question-words such as shei 谁 ‘who’, he 何 ‘what’ in Archaic Chinese (11th-2nd B.C.) to see their semantic development. They compare their finding with Heine et al.’s (1991) scheme and brought ‘quality’ in the model forward.
development (see section 4), and specify those marked development (see 4.2 for Special Developments). Finally, the arranged data are analyzed by means of the Linguistic Coding of Concepts scheme proposed by Heine et al (1991).

4. The semantic development of gen

We first present the general semantic development of gen chronologically, and then discuss certain special developments.

The literature is categorized into Archaic Chinese (from Pre-Chin to West Han Dynasty, about B.C. 1000 until A.D. 23), Middle Chinese (East Han to early Tang Dynasty, A.D. 23-581), and Modern Chinese (since Tang Dynasty, A.D. 581-present)\(^2\) according to the categorization of Academia Sinica.

4.1 General development

*Guang Yun* (广韵 Broad Rimes) gives an interpretation of gen: *Gen, di ye* 根，柢也 ‘gen, the bottom/base of a plant'. *Chun Qiu Zuo Zhuan* (The History of Chunqiu annotated by Zuo Qiuming, B.C. 770-476) states that *gongzu*, *gongshi zhi zhiye ye*. *Ruo qu zhi, ze ben gen wu suo piyin yi* 公族，公室之枝葉也。若去之，则本根無所庇廕矣 ‘The aristocracy are the branches of the national family. If they were ousted, the dependence would not be shielded.’ The meaning of gen as the basic part of a plant was extended to stand for ‘dependence’ or ‘origin’. Other meanings develop one after another later on. We present the meanings of gen below and discuss them by the era (Archaic Chinese, Middle Chinese, and Modern Chinese).

Archaic Chinese

In Archaic Chinese, *gen* refers to ‘origin’, ‘dependence’, ‘ancestry’, ‘foundation’, and ‘basic’. These meanings are basically derived from the attribute of the plant-part root. Some examples are given below:

1. *gen*: origin, dependence  (B.C. 770 – 476)

   Wei guo jia zhe, jian e ru nong fu zhi wu qu cao yan. Shan yi yun chong zhi, jue qi ben *gen*, wu shi neng zhi, ze shan zhe xin yi. — Chapter 2 of *Chun Qiu Zuo Zhuan*:

Zhuan Year of Vassal Yin 為國家者，見惡如農夫之務去草焉，芟夷蘊崇之，絕 其本根，勿使能殖，則 善者信矣。《春秋·左傳·隱公傳》
To rule a country one has to deal with vicious behavior as farmers deal with weeds in the field. Farmers go to the source and exterminate the root in case the weed continues growing. In this way the well-behaved commoners will put their trust in you/the government.

(2) *gen*: ancestry  （B.C. 206–A.D. 220）
Zang zhe, ben xian ren zhi qiu ling ju chu ye, ming wei chu zhi gen chong。—Tai Ping Jing, Chapter 50 為國家者，見惡如農夫之務去草焉，芟夷蘊崇之，絕 其本根，勿使能殖，則 善者信矣。名為初置根種。《太平經合校·卷五十》
Entomb the dead in the place where their ancestors are buried. It is the original resting place of their ancestors.

(3) *gen*: foundation  （B.C. 206–A.D. 220）
Gu Hai shi wu ge shou qi gen ye, fu tian jiang sheng ren, xi yi zhen dao fu zhi wu ju。—Tai Ping Jing, Chapter 68 故還使務各守其根也。夫天將生人，悉以真道付 之物具。《太平經合校·卷 六十八》
Therefore, we have to work on practicing the foundation of the virtue we hold as human beings, because the virtue was instilled in us when we were made by the heavens.

(4) *gen*: basic, primitive  （B.C. 206–A.D. 220）
Zi yu de dao si shu wen, qiu dao zhi fa jing wei gen。—Tai Ping Jing, Chapter 73 to 85 子欲得道思書文，求道之法靜為根。《太平經合校·卷七十三至八十五》
To understand the truth of Taoism you must accept the primary tenet of being humble and tranquil.

**Middle Chinese**

There are interesting extensions in the period of Middle Chinese. *Gen* refers to ‘silver’, ‘meaning’, ‘rock’, ‘thoroughly’, ‘contents’, and ‘spirit’. Some examples along with data sources are given below.
Leaving the attribute of a root, *gen* can be collocated with *ye* to mean ‘contents’ (8). *Gen* (根) is even used to stand for *yin* (銀) and *gen* (跟) for authorial errors (5). We elaborate the special meanings of *gen* in the next section.

(5) *gen*: silver, meaning (A.D. 283–343)
   a. jin *gen* zhi xuan. — Zhuzi, *The Baopoz*, Inner Book, Chapter 9
      金根之軒·《諸子·抱朴子·內篇卷九》
      A carriage adorned with gold and silver.
   b. fu zhi gen. — Zhuzi, *The Baopoz*, Inner Book, Chapter 10
      俯不知跟·《諸子·抱朴子·內篇卷十》
      Even though you have the book, if you don’t have the proper instructor, you won’t be able to understand the meaning regardless of how you approach it.

(6) *gen*: rock (A.D. 263–303)
   Yun *gen* ke qi. Le ci wei cen. — *Collection Works of Lu Yun*
      雲根可栖·樂此隈岑·《陸雲集》
      I can rest on the rock. I feel content to stay in this corner of the mountain.

(7) *gen*: thoroughly (A.D. 398–455)
   Shi he yan zhi yu hu! Qiang sui wuai huan, shi shen nei ji, ruo gong zhi bu *gen*, shi yang ji yu xin fu ye. — *The Book of Later Han, Biographies of Significant Celebrities, Chapter 87*
      是何言之迂乎!羌雖外患，實深內疾，若攻之不根，是養疾於心腹也.《新校本後漢書.列傳.卷八十七》
      What you said is nonsense! The Qiang people are our enemy both by attacking our borders and contributing to our internal conflicts. If we don’t annihilate them thoroughly they will continue to pose a threat to our country, just like one who ignores a great disease that attacks the body.

(8) *gen*: contents (A.D. 465–532)
   Gu yia yu qi fan, ao yu xian shu, fan yu yue chuan, zhuang yu qing guai, wen ci *gen* ye, yuan you qi zhong yi. — *Wen Xin Diao Long, Chapter 6* 故雅與奇反，奧與顯殊，繁與約舛，壯與輕乖，文辭根葉，苑囿其中矣·《文心雕龍·卷六》
      Classicality is contrary to novelty. Profundity and plainness are counterparts.
Complexity is the opposite of pithiness. Magnificence is different from lightness. Therefore, the contents (the roots) and the forms (the leaves) of all kinds of literature are included in these eight styles.

(9) *gen*: spirit  (A.D. 547)

Mo luo cong hui li *gen*. Xue qiong shi shi. — *Luoyang Jialan Book. Chapter 4*

摩羅聰慧利根。學窮釋氏。《洛陽伽藍記·卷四》

Moluo is a smart, clever and spiritual person. He is a Buddhist master.

**Modern Chinese**

There are rich extensions of *gen* in the period of Modern Chinese: ‘life’, a classifier, ‘grow’, ‘root in’, ‘found’, ‘subsume’, ‘ground on’, ‘master’, and ‘time’. The classifier that appears during this period marks a further development of *gen*.

(10) *gen*: life  (A.D. 624)

Pu tian rang qi fu mian, ning wu ren zhi suo ci, yuan *gen* zhi wuan zhui, zhi sui mu er wei qi. — *The Yi Wen Lei Ju, Chapter 40, Libu B, Grave and Tomb* 普天壤其弗免。寧吾人之所辭。願靈根之晚墜。指歲暮而為期。《藝文類聚· 第四十卷· 禮部下·冢墓》

No creature in the world can escape this fate, myself included. I only wish that I could age slower and live till the sun sets on this world.

(11) *gen*: classifier  (A.D. 801)

a. Qiang shi *gen* wei shu. — *Tong Dian, Bing Dian Fan, Chapter 15*

槍十根為束。《通典·兵典凡十五卷》

Ten *spears* bundled together.

b. Chuan, qian jiu bai jiu shi *gen*. — *Tong Dian, Chapter 10,*

椽，千九百九十根。《通典·卷十》

There are 1990 *rafters*.

(12) *gen*: grow, root in  (A.D. 1270)

De xiao zhe er da zhe wei jin, you bu ke.xu shi wu fen hao qian que, fang shi. Qie ru Lu Zi-jing shuo, ‘liang zhi liang neng, si duan *gen* xin.’ 得小者而大者未盡，尤不可。須是無分毫欠闕，方是。且如陸子靜說『良知

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It is totally lamentable to achieve only a minor goal without fulfilling the major goal. A righteous person will accomplish both major and minor goals. It’s just as Lu Zi-jing said, ‘The development of virtues, such as conscience, charity, philanthropy, suitable behavior, courtesy, and knowing right from wrong, grow from the heart.’

(13) *gen*: found, subsume  (A.D. 1270)
Yue, “Ren ti rou er yong gang, yi ti gang er young rou.” Zhu yue, “ci qi suo wei 'yang gen yin, yin gen yang' ye?” Yue, “Ran.” — *Zhuzi Yu Lei, Chpater 77* 曰：「仁體柔而用剛，義體剛而用柔，」鉤曰：「此豈所謂『陽根陰，陰根陽』耶？」曰：「然。」鉤，*朱子語類·卷第七十七*  Zhuzi said, “The nature of benevolence is tender, but it is revealed resolutely; however, the nature of justness is resolute, but it is revealed tenderly.” Zhu said “Is it just like the saying that yang derived from yin while yin derived from yang?” Zhuzi said “Exactly.”

(14) *gen*: ground on  (A.D. 1270)
Qi yong zi jie gen ju gu shu, fei jin ren suo neng jie, yi gu jie wei ren wang jie. — *Zhuzi Yu Lei, Chpater 125* 其用字皆根據古書，非今人所能解，以故皆為人枉解。  *朱子語類·卷第一百二十五*  The words he uses are all grounded in ancient literatures which are incomprehensible and misread by contemporary readers.

(15) *gen*: master  (A.D. 1343)
Wei wen ming chang, xi gen zhu li. — *History of Song, Chpater 393* 為文明暢，悉根諸理。《宋史·卷三百九十三》  His writing style is clear and facile and he has mastered all kinds of knowledge.

(16) *gen*: time  (A.D. 1928)
Ni zi dao guang shi si nian jia wu wei nian gen, an shi ce zhi shu, jiang yuan yong shu shao wei sun yi, tui de ri xing jiao jie shi ke, si yu shi ce zhi shu jiao jin. — *New Revised History of Qing, Zhi, Chapter 45, Zhi 20th* 拟自道光十四年甲午為年根，按實測之數，將原用數稍為損益，推得日行交
We planned to take A.D. 1834 as the benchmark. We adjusted the number that we measured with the benchmark so that we can get the ecliptic data which is closer to the exact number.


4.2 Special developments

The above presentation of the development of gen shows at least three special lines of development: the selection of the quality of ‘root’, gen as a classifier, and the homonyms.

First, we see many semantic extensions of gen, such as ‘origin’, ‘dependence’ (1), ‘ancestry’ (2), ‘foundation’ (3), ‘basic’ (4), ‘thoroughness’ (7), ‘contents’ (8), ‘spirit’ (9), ‘life’ (10), ‘grow’ (12) and, ‘ground on’ (14). These are derived from the quality of this part of a plant ‘root’; for example, the root is the base of a plant, thus the meaning ‘foundation’. Second, the classifier (11) looks like an unusual development. We will focus on these two issues in our later discussion.

Third, the development of both yin (銀) (5a) and gen (根) (5b) appear in The Baopuzi 抱朴子 (The Master Who Embraces Simplicity, A.D. 317). They are homonyms whose occurrence has little to do with the meaning; instead, it has to do with the orthographic transcript. The character “根” was used to represent yin (銀) and gen (根) because they have the same phonetic gen4 (or gen3) 根, and the writers at the time mixed them up. In fact, these three characters have different radicals that indicate their semantic categories of plant (根), currency (銀), or body part (根). But “根” was presumably a homonym of “根” in A.D. 317.

Moreover, a specific meaning was often used repeatedly at a certain period of time. For example, in Zhuzi Yu Lei 朱子語類 (Analects of Master Zhu), gen meaning ‘primitive’ has about one hundred tokens, many more than other meanings. It is either because of the writer’s preference or it shows a full development of that meaning. In terms of time period, at the time of Tai Ping Jing 太平經 (B.C.206–A.D. 220) many meanings were derived, such as ‘ancestry’, ‘foundation’, and ‘primitive’.

Two of the developments—the selection of the quality of ‘root’ and gen as a classifier—show fundamental semantic development of gen and illuminate some
missing elements in the scheme of Heine et al. (1991). They will be discussed in the following sections.

5. A comparison with Heine et al.

As mentioned earlier, in the Linguistic Coding of Concepts of Heine et al. (1991), the following sequence of semantic development is given: person > object > activity > space > time > quality. The development of gen is of no exception—only the element ‘time’ is different. If we give one meaning for each stage as evidence, the same sequence in terms of gen can be: ancestry > rock > thoroughness > contents > spirit. We give each stage an example below:

(17) person > object > activity > space > quality

a. gen: ancestry (person) (B.C. 206 – A.D. 220)
   Zang zhe, ben xian ren zhi qiu ling ju chu ye, ming wei chu zhi gen chong. —Tai Ping Jing, Chapter 50
   Entomb the dead in the place where their ancestors are buried. It is the original resting place of their ancestors.

b. gen: rock (object) (A.D. 263 – 303)
   Yun gen ke qi. Le ci wei cen. —Collection Works of Lu Yun,
   I can rest on the rock. I feel content to stay in this corner of the mountain.

c. gen: thoroughly (activity) (A.D. 398 – 455)
   Shi he yan zhi yu hu! Qiang sui wuai huan, shi shen nei ji, ruo gong zhi bu gen, shi yang ji yu xin fu ye. —The Book of Later Han, Biographies of Significant Celebrities, Chapter 87
   What you said is nonsense! The Qiang people are our enemy both by attacking our borders and contributing to our internal conflicts. If we don’t annihilate them thoroughly they will continue to pose a threat to our country, just like one who ignores a great disease that attacks the body.

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3 Examples (17a-e) are the examples in section 4.1 (General development) numbers (2), (6), (7), (8), and (9) respectively. The numbers have been changed for the convenience of discussion.
d. *gen:* contents (space)  (A.D. 465–532)

Gu yia yu qi fan, ao yu xian shu, fan yu yue chuan, zhuang yu qing guai, wen ci *gen* ye, yuan you qi zhong yi. — *Wen Xin Diao Long, Chapter 6* 故雅與奇反，奧與顯殊，繁與約舛，文與輕乖，苑圍其中矣。

《文心雕龍·卷六》

Classicality is contrary to novelty. Profundity and plainness are counterparts. Complexity is the opposite of pithiness. Magnificence is different from lightness. Therefore, the contents (the roots) and the forms (the leaves) of all kinds of literature are included in these eight styles.

e. *gen:* spirit (quality)  (A.D. 547)

Mo luo cong hui li *gen*. Xue qiong shi shi. — *Luoyang Jialan Book, Chapter 4*

摩羅聰慧利根。學窮釋氏.《洛陽伽藍記·卷四》

Moluo is a smart, clever and spiritual person. He is a Buddhist master.

(18) *gen:* time

a. Ni zi dao guang shi si nian jia wu wei nian *gen*, an shi ce zhi shu, jiang yuan yong shu shao wei sun yi, tui de ri xing jiao jie shi ke, si yu shi ce zhi shu jiao jin. — *New Revised History of Qing, Zhi, Chapter 45, Zhi 20th* (A.D. 1928)

擬自道光十四年甲午為年根，按實測之數，將原用數稍為損益，推得日行交節時刻，似與實測之數較近.《新校本清史稿·志.卷四十五.志二十》

We planned to take A.D. 1834 as the benchmark. We adjusted the number that we measured with the benchmark so that we can get the ecliptic data which is closer to the exact number.

b. An huai nan tian wen xun, “Gui sheng ju sha, heng zhang quan cang, sheng ju zhong yang, wei si shi *gen*.” — *The Huainanzi, Chapter 3 Tianwen (Patterns of Heaven)* (B.C. 179–122)

規生矩殺，衡長權藏，繩居中央，為四時根.《淮南子·卷三天文訓》

Gui, which represents the air of the warm sun in spring, governs the birth; Ju, which represents the air of coolness in fall, governs the killing; Heng, representing the air of sun in summer, governs growing; Quan, which represents the air of coldness in winter, governs the storing. The string represents the straightness of heaven rule. It is placed in the middle and is the origin of the four seasons.

In example (17a), ‘ancestry’ refers to people. ‘Rock’ in (17b) is an object. The thoroughness of an activity is shown in (17c). ‘Contents’, which compose the body or
the ‘space’ of a literary work, in expressions such as *wen ci gen ye* 文辮根葉 ‘the contents of the literary works’ is given in (17d). Example (17e) expresses the highest quality of a living being. Over all, the development of *gen* listed chronologically in (17a)-(17e) is in accord with the Heine et al. (1991) scheme.

Time is not discussed in the sequence. The *gen* meaning ‘time’ appears very late in 1928, as example (18a) shows. Nevertheless, this meaning could have appeared as early as in *The Huainanzi* 淮南子 (Liu An, B.C. 179-122) (example 17b), but it disappeared in Chinese history and came back again in the twentieth century, possibly a result of lexical competition or because of the Modern Vernacular Chinese Movement in 1920. Therefore, the Chinese *gen* that means ‘time’ developed diachronically differently from the scheme presented for Western languages by Heine et al. (1991).

Nevertheless, this is not yet the whole picture of the semantic development of *gen*: in the sequence, the initial stage (person > object) and the final stage (quality) can be refined as we will discuss in 5.1 and 5.2 respectively.

### 5.1 Plant & person

The Linguistic Coding of Concepts starts with ‘person’. The derivation of *gen* shows that ‘plant’ (the plant-part ‘root’), not ‘person’, is the base of this line of semantic development. That is, plant works with the base ‘person’ as a whole (see Figure 1) as the beginning of the development.

![Diagram of plant and person relationship](image)

**Figure 1.** The collaboration of plant and person in the semantic development of *gen*

Evidence of such collaboration is supported by existing research. Lakoff and Turner (1989, p. 53) claimed that PEOPLE ARE PLANTS is a basic metaphor that occurs at the conceptual level, which can be either conventionalized in everyday
language or pushed beyond the conventional into poetic uses. Lakoff and Turner took examples from Shakespeare’s works, such as sonnet seventy-three and Lear’s expression “Ripeness is all”. They are like the everyday expressions “He’s withering” and “She’s a budding beauty”, in which the subjects he and she, respectively, are mapped onto the living features of a plant that withers when its time is almost up and a flower that is beautiful when budding.

Nerlich, Clarke & Dingwall (2000, p. 236) discussed the metaphors of genetically modified food and claimed that “cloned organs are farmed”, “genetically modified plants are killers”, and so on. Such statements can be grouped or classified into higher-order metaphors such as “CLONES ARE PLANTS” and “PLANTS ARE HUMANS” (2000, p. 223). That is to say, plants were conceived as humans, and in the cloning debate, humans were conceived as plants.

Still, ‘plant’ is not the only collaborator that works with human observers; animals have a share too. Radcliffe-Brown (1952[1929]) believed that people attached a built-in importance to animals because they were supposed to rouse man’s spontaneous interest as food. Fairclough (1989) and Gibbs (1999) claimed that metaphorical interpretations of HUMAN IS ANIMAL construct ideologies and justify certain behaviors. Hsieh (2001) delineated the semantic role of animal names in Mandarin Chinese and German, and believed that animal names are used to express human values. Kuo (2003) presented animal metaphors in political discourse. Goatly (2004) researched on conventional metaphors in contemporary English and reviewed different variants of the metaphor HUMAN IS ANIMAL.

Therefore, we can conclude that the initial stage of semantic development is that the observer (people) observes the natural world (plant, animal) and combines other linguistic sources to create human language. Figure 2 shows the collaboration.

![Figure 2](image)

**Figure 2.** The collaboration of person and nature in semantic development

### 5.2 Quality
The meanings ‘origin’, ‘dependence’, ‘foundation’, ‘basic’, ‘thoroughly’, ‘contents’, ‘spirit’, ‘life’, ‘grow’, ‘master’, etc. of gen all have a common semantic property [+quality, essence]. This feature has to do with the plant-part root. Roots take nutrients from outside sources in the soil and provide it to the plant, which gives the plant life and helps it grow. In other words, because the plant-part ‘root’ is underground, its outer appearance is not significant for Chinese speakers in developing its meaning. The meanings and semantic developments of gen were thus taken mostly from the quality and essence of the root. For example, the ‘basic’ (example 4) is where the root is located and which in turn is the basis of the botanical organ that gives ‘life’ (10) and the possibility to ‘grow’ (12).

Since the quality of root is taken from the semantic development of gen, the nature-dependent selection decides the generating point of plant-related Chinese lexemes. If we examine the sequence in Heine et al. (1991), we see that quality will not be the end of the development. Aspects of the quality of root are taken step by step and developed into a sequence of meanings in the development of gen:

(19) Quality: origin, dependence → foundation → thoroughness → contents → spirit → life (noun) → grow (verb)

From gen ‘root’ is located at the base (thus, meaning ‘origin’, ‘dependence’, B.C. 770 – 476), as the origin, till that gen is a ‘foundation’, shows ‘thoroughness’, ‘contents’ and can give ‘spirit’. When ‘life’ (A.D.624) appears, the metaphysical feature ‘spirit’ reaches its summit. At this point, gen as a noun was completed and could be further developed or transformed into a verb: gen as a verb developed profusely after its meaning of ‘life’ (as well as being a classifier, see below). Afterwards, other verbs appeared one after another, such as ‘found’, ‘subsume’, ‘ground on’, and ‘master’ in Modern Chinese.

Therefore, we can add to the Heine et al. (1991) scheme that person + nature >

\[\text{Diff} \] Different from gen 根 ‘root’, the meanings of hua 花 ‘flower’ are mainly developed from the outer appearance of the flower (see Hsieh, Lien & Meier (2005) for discussion).

\[\text{An} \] An exception of gen as a verb is when gen collocates with the particle yu (i.e. gen yu 根於 ‘root in’) which appeared as early as in Mencius 孟子 (B.C. 372–289). This is however a fixed collocation where gen cannot stand alone. The verb use of gen ju 根據 ‘to ground on’ also has a fixed morphological presentation, but its first occurrence is in Zhuzi Yu Lei 朱子語類 (Analects of Master Zhu, A.D. 1270).
object > activity > space > time > quality (origin, dependence → foundation → thoroughness → contents → spirit → life (noun) → grow [verb]).

6. **Gen as a classifier**

The classifier *gen* (example 11a-b) displays the process of from-noun-to-classifier development and also acts as a turning point of from-noun-to-verb. Let’s now look into the development of *gen* as a classifier.

The outer appearance of a root is not important for the meanings of *gen*; however, the outer appearance of a root is essential for the classifier *gen*. In fact, outer appearance is the primary parameter for categorizing classifiers; thus, Allan (1977) proposes seven physical parameters for this task, of which shape and size are the most important. Tai (1994) gives five parameters for Chinese classifiers according to the object properties the classifier modifies. Shape and size are also essential parameters for Tai.

In addition to the fact that a root’s outer appearance, being long and thin, is taken as the parameter of the classifier *gen*, the classifier *gen* is also generated from the semantics of *gen*’s corresponding nouns. As Wang (1980) points out, Chinese classifiers are derived mostly from nouns, many of which developed into classifiers. For example, in (20) the noun *bei* ‘cup’ is used as a classifier to modify the amount of water. This usage of classifiers also occurs in English, such as *a cup of water*. In addition, the noun *dan* in (21) originally is a bamboo utensil for holding cooked rice, and it serves as a classifier to modify the amount of food.


*今之為仁者，猶以一杯水救一車薪之火也。《四書集注·孟子集注·告子章句上》*

Nowadays, there are too few people who behave well and thus make good for this society; just like to extinguish fire on a cart of firewood with a *cup* of water.

(21) Kong zi yue, “xian zai hui ye! Yi dan si, yi piao yin．．．” —*Shiji, Chapter 67* (B.C. 135–B.C. 90)

*孔子曰：賢哉回也！一簞食，一瓢飲。《史記·卷六十七》*

Confucius said “Yanhui is a person of virtue. He lives a life with a *basket* of food, a little amount of water.
The examples show that it is common for Chinese to take advantage of the ideas of objects to modify and measure the amounts of things or the number of events. Some nouns develop into classifiers and gradually lose their nominal functions. Some nouns can act as either a noun or a classifier.

So is the case of *gen* as a classifier. *Gen* ‘root’ originates as a noun to indicate the root of a tree. It turns out to be classifier-like in Middle Chinese as can be found in *Tong Dian* 通典 (Comprehensive Guide, A.D. 801):

(22) *gen*: classifier  (A.D. 801)

a. Chuan, qian jiu bai jiu shi *gen*.  — *Tong Dian, Chapter 10, Li*
   桧，千九百九十根·《通典·卷十·禮》
   There are 1990 rafters.

b. Qiang shi *gen* wei shu.  — *Tong Dian, Bing Dian Fan Chapter 15*
   槍十根為束·《通典·兵典凡十五卷》
   Ten spears bundled together.

In the examples (22a) and (22b), *gen* starts to function like a classifier that can modify and quantify objects, rafters in (22a) and guns in (22b). However, syntactically, *gen* still acts like a noun because the nouns it modifies do not follow the word *gen*. In (22a), *gen* is a nominal predicate rather than a classifier. In (22b), *gen* is the head of the subject rather than the classifier of the subject. Syntactically, *gen* preserves its nominal feature to act as a noun; while it starts to function as a modifier to measure objects semantically.

The classifier usage of *gen* is better developed in *Fujian Tong Zhi* 福建通志 (General History of Fujian, 1835) as example (23) shows. *Gen* precedes the noun *mu* ‘wood’ that it classifies.

(23) Qi jia ban chuan zhi jie yong zheng *gen* zhi mu.  — *Fujian Tong Zhi, Taiwan Government, Content Chapter 28*  (A.D. 1835) 其夾板船隻皆用整根之木·
   《福建通志·臺灣府·正文卷二十八》
   This plywood boat is made from one whole tree.

Tai (1994) points out that classifiers reflect human cognition. It seems that the semantics of the classifier *gen* relates to ‘wood’ or the shape of ‘wood’. However, as stated in section 4, *gen* may refer to ‘origin’, ‘dependence’, ‘ancestry’, ‘foundation’,
“basic”, “silver”, “meaning”, “rock”, “thoroughly”, “contents”, “spirit”, “life”, a classifier, “grow”, “root in”, “found”, “subsume”, “ground on”, “master”, and “time”. Obviously, the classifier *gen* does not contain all of *gen’s* semantic referents. It is assumed that the semantics of the classifier *gen* is derived from the shape of its original meaning, the root of a tree. The shape of the root of a tree is commonly assumed to be length-salient. Examples (22a), (22b), and (23) confirm that *gen* classifies long-shaped objects.

The classifier *gen* displays the first step of the development of classifiers as a nominal origin in A.D. 801 in *Tong Dian* 通典 (Comprehensive Guide). It extends the nominal origin to a central member in 1835 in *Fujian Tong Zhi* 福建通志 (General History of Fujian).

The classifier is a distinctive development of *gen*. Turning into a classifier brought an active syntactic element to *gen*, gradually suppressed its nominal function, and gave *gen* more possibility to generate verbs, such as “grow”, “root in” (see example 12), “found”, “subsume” (13), “ground on” (14), and “master” (15). Furthermore, turning into a classifier also gave an additional semantic property to *gen* and provided it with more possibility for other meanings, e.g., the abstract meaning “time” (16) was generated at this stage of development.

7. Conclusion

This study started by chronologically examining the semantic development of the plant name *gen*. We reviewed the Linguistic Coding of Concepts scheme of Heine et al. (1991), located the development of *gen* as a classifier, and concluded with a refined developmental sequence based on other linguistic research results as well as the semantic development of *gen*.

In Langacker’s cognitive grammar (1987; 1991), meaning is thought to embrace a person’s awareness of the physical, social, and linguistic context of speech events. Figures 1 and 2 illustrate that ‘plant’, a part of nature, works with ‘person’ as a whole and acts as the beginning of the development. When the root (*gen*), this part of plant, is also part of nature, is used to refer to humans: it indicates human sense and nature, such as spirit, life, ancestor, etc. When it is used to refer to objects or events, it means origin, foundation; a nature-dependent selection decides the semantic development.

At the end stage of the development (quality) in Heine et al.’s scheme, we see that *gen* means ‘life’ and afterward acts as a classifier, which is the turning point of *gen’s* development into verbs later on. The classifier *gen* is assumed to be generated from the noun *gen*. Semantically, the shape of the noun *gen* is adopted by the
classifier *gen* to classify ‘long-salient’ objects. Syntactically, *gen* can function as a classifier to appear when numbers combine with nouns. *Gen* displays the process of from-noun-to-classifier development and the classifier *gen* acts as a turning point of from-noun-to-verb.

In conclusion, the semantic development of *gen* in history agrees with the scheme proposed by Heine et al. (1991), and we can further refine that: person + nature > object > activity > space > time > quality in which the initial stage is a collaboration of person and nature. The last element of the development, ‘quality’, can be elaborated as origin, dependence > foundation > thoroughness > contents > spirit > life (noun) > grow (verb), as observed in the diachronic data, where the classifier *gen* marks the turning point of *gen*’s semantic development in Chinese history.
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漢語「根」的認知語意學研究

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本文從中央研究院古漢語語料庫中搜集語料，觀察漢語「根」字的歷時語意發展，同時檢視 Heine, Claudi & Hünnemeyer (1991) 所提出的 person > object > activity > space > time > quality 認知語意演變的法則。我們從「根」字的語料中一一耙梳出根字做為量詞以及其他和植物的根本質相關的語意發展。藝文類聚 (公元 624 年) 中「根」意義發展為『生命』，使得與根 “本質” 相關語意的發展序列更為完整。當「根」在通典 (公元 801 年) 出現了量詞的用法，「根」做為動詞的路接著就開展了。總的來看，「根」的歷時語意發展和 Heine 等人所提出的法則相符，然而這個法則最開始和最後的階段都應再加以補充，尤其是最後 “本質” 的這個階段有其細部的軌跡可循，漢語「根」字的發展清楚的指出這些線索。

關鍵字：植物詞彙、量詞、語意發展、概念的語言辨識

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