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ICONICITY: MOTIVATIONS IN CHINESE GRAMMAR*

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1. Introduction

Iconicity in natural language is an important issue in the study of human language and mind. The existence of iconic patterns in human language constitutes a notable exception to an influential view held by Chomsky and his followers that the grammar of human language is autonomous and innate. As repeatedly pointed out by Chomsky, the 'innateness' of human language implies the 'innateness' of the human mind and hence the 'innateness' of human nature. The study of iconicity in natural language thus also has a direct bearing on the concept of human nature.

The dominant view among linguists and philosophers of language is that human language is essentially arbitrary and symbolic, which is in sharp contrast with the iconic nature of animal communication. For example, in his book *Language and Mind*, Chomsky (1972:69) states:

Animal language ... makes use of a fixed, finite number of linguistic dimensions, each of which is associated with a particular non-linguistic dimension in such a way that selection of a point along the linguistic dimension determines and signals a certain point along the non-linguistic dimension ... The mechanism and principle, however, are entirely different from those employed by human language...

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In his article "On the Representation of Form and Function", Chomsky (1981:3) states:

Our interpretation of the world is based in part on the representational systems that derive from the structure of the mind itself and do not mirror in any direction the form of things in the external world.

The two references cited above represent some examples of Chomsky's deliberation on the autonomy and innateness of human language. They are also in line with his rejection of functionalism in linguistics and his reservation on attempts to understand human language through evolution from pre-human to human (e.g., Chomsky 1979:85-88, 1988:150-170). It is necessary to note here that Chomsky's innateness hypothesis claims that human beings possess a language-specific faculty which is independent of their general cognitive capacities. He holds the position that the language-specific faculty cannot be derived from other cognitive systems of human beings.¹ Therefore, he considers functional and evolutionary explanations to be of little value to our understanding of the intrinsic structure of human language.

The dominant view that human language is arbitrary and symbolic has recently been challenged by Haiman (1980, 1983, 1985a,b), Hopper & Thompson (1984), Langacker (1987), Lakoff (1987) and others. They have demonstrated that linguistic structure, to a great extent, corresponds to our conceptual structure of the external world, and thus nonautonomous, nonarbitrary, and iconic. To the extent that linguistic structure can be shown to be iconic, corresponding to human's conceptual structure of the real world, Chomsky's innateness hypothesis must be more carefully examined than it has been. The main argument for the innateness hypothesis rests primarily on the evidence that grammatical rules are not random; rather, they are structure-dependent. The iconic patterns account for in part, if not in total, the nonrandomness of linguistic structure without recourse to the innateness idea. In other words, the structure-dependent nature of

linguistic rules can be derived from the natural correspondence between the composition of linguistic units and that of the conceptual world. As correctly observed by Campbell (1982), Chomsky's innateness hypothesis hinges upon the nonrandomness of linguistic structure. If the nonrandomness in human language can be accounted for otherwise, the appeal to innateness is weakened considerably.

The main purpose of this paper is to show the pervasiveness of iconicity in Chinese grammar. It aims to develop a nonautonomous view of linguistic organization in which Chomsky's innateness hypothesis can be more appropriately placed. This paper consists of three parts. Section 2 provides some background for Section 3. In 2.1, I will briefly discuss Saussure's arbitrariness principle in conjunction with his linearity principle, since the autonomous view of linguistic structure stands on the premise that linguistic structure is arbitrary. In 2.2, I will introduce the notion of iconic motivations in grammar as developed by Haiman. In Section 3, I will present some near universal iconic motivations as manifested in Chinese syntax. In Section 4, I will draw some conclusions and propose a nonautonomous view of linguistic organization.

2. Background

2.1 Saussure's two principles of the linguistic sign

In his *Course in General Linguistics*, Saussure has postulated two basic principles for the nature of linguistic sign. Principle I states that the bond between the signifier and the signified is arbitrary. Principle II states that the signifier is linear in one single dimension. Both principles have been accepted in modern linguistics as self-evident. The acceptance of the two principles as truisms has led to some significant consequences for the development of modern linguistics as a science. The arbitrariness principle has justified the view that a linguistic system is a self-contained autonomous system independent of its function of representing the reality for communicative purposes. When a system is self-contained and autonomous, it can be properly treated as a mathematical system consisting of operations and mapping relations among elements and among sets of elements. Therefore, Saussure's Principle II has directed modern linguistic theories, especially syntactic theories, to focus on the abstraction of algebraic properties in natural language. This search for abstract, algebraic

¹Chomsky's view of human beings' innate language-specific faculty has been reiterated and more emphatically articulated in his latest books concerning language and knowledge, viz., Chomsky (1986) and (1988).

properties in human language has linked American structuralists from Bloomfield, to Hockett and Harris, and onto Chomsky.²

Saussure's Principle II is as fundamental as his Principle I. However, it is so obvious that many linguists find it too simple to be an interesting principle. But as Saussure (1916:103) has pointed out, the whole mechanism of language depends on it. Our visual world is composed of many three-dimensional objects in simultaneous groupings. Yet linguistic signifiers have at their command only the dimension of time. If we are concerned with the representation of reality by means of linguistic structure, linguistic inquiries should center around the question of how human beings represent the physical world in the single dimension of succession in time. To answer this central question, it is reasonable to start with the following three general assumptions. First, since language is used to represent reality, linguistic structure may reflect the structure of the physical world as human beings perceive it. Second, since human beings are capable of conceptualizing the same reality in different ways, linguistic structure may also reflect their different conceptualizations. Third, since language is used for communication in different societies and cultures, linguistic structure may likewise reflect different social structures and different cultural values.

In the *Course*, Saussure makes a distinction between absolute and relative arbitrariness. A sign is absolutely arbitrary if it is unmotivated; it is only relatively arbitrary if it is motivated. A sign is motivated if there is a natural connection between the signifier and the signified. In discussing the notion of motivation, Saussure seems to be more aware of the motivation in associative relations than the motivation in syntagmatic relations. Thus, most of the examples used by Saussure in his illustration of motivation pertain to word-formation. For instance, while French words *dix* "ten" and *neuf* "nine" are unmotivated, *dix-neuf* "nineteen" is relatively motivated,

²One might object to the grouping of Chomsky with the American structuralists before him, since he has launched a revolution against the structuralist paradigm. However, there are at least two senses in which he is very much part of the American structuralist tradition. First, he believes that a linguistic theory must be as scientific and precise as possible. And second, he believes that linguistics, being a science, should be concerned with form and pattern, and should leave aside meaning and use in context. See also Givon (1979) for a discussion of Chomsky as a structuralist.

for *dix-neuf* is composed of two elements, *dix* and *neuf*, which can also combine with other numbers. As pointed out by Saussure, French *vingt* "twenty" is in the same class as *dix* and *neuf* taken separately, yet it is unmotivated and arbitrary. In contrast, *ershi* (two-ten) "twenty" in Chinese is motivated.

While Saussure was clearly aware of the motivation in associative relationships, the motivation in syntagmatic relationships had somehow escaped his attention. Despite his own emphasis on the fundamentality of Principle II, Saussure was not able to see some of the very important consequences implied in this principle. First, at the most fundamental level, Saussure, perhaps because of his focus on Principle I, did not ponder sufficiently over the central question in syntax to which I noted earlier, namely, how do human beings employ the unidimensional linear linguistic structure to encode the multiple-dimensionality of the external physical world they perceive? Secondly, Saussure did not inquire whether or not there is an independently existing hierarchical syntactic structure which mediates between the multi-dimensionality of the external world and the unidimensionality of linguistic signs on the temporal dimension. Hence, he also did not raise the question of how hierarchical linguistic structure is to be expressed linearly. Indeed, the second question has been the central inquiry of modern as well as contemporary syntactic theories. But the first and most fundamental question has simply been neglected.³

2.2 *Diagrammatic iconicity and syntactic motivation*

The syntagmatic motivation was however clearly observed by Roman Jakobson (1971), Greenberg (1966), and others. Roman Jakobson has explicitly drawn attention to the syntagmatic motivation in various languages. Yet, it is John Haiman (cf. 1980, 1983, 1985a, b) who has systematically demonstrated the pervasiveness of the syntagmatic motivation across different languages. In Haiman's term, the syntagmatic motivation is one kind of 'diagrammatic iconicity'.

The term 'iconicity' itself stems from Peirce's (1932) taxonomy of signs in terms of 'icon', 'index', and 'symbol'. Peirce's taxonomy is

³This fundamental question was implied in the tradition of Boas-Sapir-Whorf in which linear linguistic structure is assumed to reflect human beings' conceptual structure in different cultures. The question has been made more explicit in the recent development of cognitive grammars, e.g., Langacker (1987) and Tai (1989).

intended to reflect three degrees of 'naturalness' of signs: from the most natural 'icon', to the less natural 'index', and then to the least natural 'symbol'. Furthermore, Peirce made a crucial distinction between two types of iconicity, which Haiman has referred to as "imagic" and "diagrammatic." Haiman (1980:515) defines imagic iconicity as follows: "An imagic icon is a single sign which resembles its referent with respect to some (not necessarily visual) characteristics." Photographs, statues, paintings, and the Chinese characters formed by the principle of 'imitative drafts' are among the clear examples of imagic iconicity.⁴ Diagrammatic iconicity is defined by Haiman (1980:515) as follows: "An iconic diagram is a systematic arrangement of signs, none of which necessarily resembles its referent, but whose relationships to each other mirror the relationships of their referents." Technical diagrams, campus maps, and Chinese characters formed by the principles of 'indicative symbols' and 'logical aggregates' are good examples of diagrammatic iconicity.

Three kinds of diagrammatic iconicity have been identified by Haiman (1985a). They are motivation, isomorphism, and automorphism. In this paper I will be concerned with motivation only.⁵ If a linguistic structure bears a diagrammatic resemblance to a nonlinguistic structure, then the linguistic structure is 'iconically

⁴The Chinese philologists divide the characters into six categories. Following Wieger (1965), I have translated the first three as follows: *xianxing* as "imitative drafts," *zhishi* as "indicative symbols," and *huiyi* as "logical aggregates." The last two categories are mentioned later in the same paragraph of the text.

⁵Isomorphism denotes a one-to-one correspondence between a system of signs and the concepts it denotes. Thus, natural languages tend to use different words for different objects in the world. See Haiman (1980) for a detailed discussion. The commonly observed proliferation of compound words in modern Chinese can be attributed to the limited number of monosyllables coping with an ever-extending vocabulary in the modern world. The proliferation of compound words in Chinese is then a clear result of obeying the isomorphism constraint. Notice that in Saussure's terms, compound words in Chinese as in other languages are motivated by the associative relation.

Automorphism denotes a similar correspondence between two or more parts of the system. For example, as Lyons (1977:718-724) points out, all languages display different degrees of localism. That is, temporal expressions and other abstract expressions are often patterned on more concrete spatial expressions. Chinese is no exception to automorphism in this regard. See Tai (1989) for a discussion of localism in Chinese.

motivated'. A syntactic construction is thus iconically motivated if it bears a diagrammatic resemblance to the structure of the physical world or to the human being's conceptual world.

3. Iconic Motivations in Chinese Grammar

In this section, I will present several cases of iconic motivation in the Chinese language which have not been systematically identified in the literature on iconicity. Five iconic motivations will be presented here: (1) order motivation, (2) distance motivation, (3) separateness motivation, (4) juxtaposition motivation, and (5) reduplication motivation.

3.1 Order motivation

We have earlier stated that a syntactic construction is iconically motivated if it bears a 'diagrammatic resemblance' to the structure of the physical world or to human's conceptual world. To survive in the real world, human beings need certain cognitive concepts. One of the most important of these concepts pertains to the order of events in time and the order and distance among objects in space. As Greenberg (1966:103) observes "the order of elements in language parallels that in physical experience or the order of knowledge." I will refer to it as the 'order' motivation. For the purpose of this paper, it can be stated as follows:

- (1) The order of linguistic expressions corresponds to their order in the conceptual world.

The most obvious and important order motivation is temporal sequence. The notion of temporal sequence has been adopted by Tai (1985) to account for a whole array of word order phenomena in Chinese. The temporal sequence principle, stated in Tai (1985:50), is given below:

- (2) The relative word order between syntactic units is determined by the temporal order of the states which they represent in the conceptual world.

In this paper, I will not reiterate the detailed explication of the temporal sequence principle in Chinese syntax. For the present purposes, it suffices to illustrate this principle with a couple of key

examples from Tai (1985). Consider the meaning contrast induced by the different ordering of *dao* "to arrive" in the following two sentences:

- (3) Ta zuo gonggong-qiche dao zher.
he ride bus arrive here
"He came by bus."
(4) Ta dao zher zuo gonggong-qiche.
he arrive here ride bus
"He came here to ride in a bus."

In (3), "riding in a bus" precedes "arriving here". However, the reverse is true in (4). Similarly, the word order in (5) cannot be changed without affecting the grammaticality.

- (5) Ta cong S.F. kai qiche jingguo Chicago dao N.Y.
he from drive car pass-through arrive
"He drove to N.Y. from S.F. through Chicago."

The order motivation yields a natural word order in relation not only to temporal sequence but also to spatial arrangement. Recall in 2.1, I alluded to Saussure's Principle II wherein the signifier is linear and unidimensional in time to represent human beings' multidimensional visual world. In our daily life, to give directions to a certain location, we do so by following the order of our imaginary course of travelling in time. Thus, as Linde & Labov (1975) have reported in their survey, when subjects were asked to describe the layout of their apartments, 97 percent of the subjects described their apartments in terms of 'imaginary tours' which transform spatial layouts into temporally organized narratives.

Another natural strategy to linearize the spatial relation in speech is to follow the containment structure in space either from the whole to the part or from the part to the whole. I have noted elsewhere (Tai 1989) that while Chinese tends to order elements from the whole to the part, English tends to do the converse. If we think of travelling through our eyes rather than by walking, as in imaginary tours, Chinese appears to employ what Clark (1973) has referred to as the moving-ego strategy, by which we move our body toward the target in a container. In contrast, English appears to use the moving-object

strategy as if we were moving the target out of the container.⁶ The contrasting strategies can be illustrated by the Chinese sentence in (6) and its English equivalent in (7).

- (6) Zai chufang-li-de zhuozi-de shangmian-de hezi-li you qian.
at kitchen-in-PRT table-PRT top-PRT box-in have money
(7) There is money in the box on the top of the table in the kitchen.

Thus, (8) and (9) represent two basic principles of spatial arrangement in Chinese.

- (8) Zhuozi-shang you qian. (container-contained)
table-top have money
"There is money on top of the table."
(9) Qian zai zhuozi-shang. (trajector-landmark)
money at table-top
"The money is on top of the table."

It can be seen that while the word order in (8) is based on the principle of container-before contained, that in (9) is based on the principle of trajector before landmark.⁷

3.2 Distance motivation

Distance motivation is stated by Haiman (1983:783) as given below:

- (10) The linguistic distance between expressions corresponds to the conceptual distance between them.

⁶For a discussion of the fundamental importance of the container schema in human beings' conceptualization of the physical world, see Johnson (1987).

A related cognitive approach to the differences between Chinese and English word order with respect to spatial arrangement is proposed in Chan (1989). Extending the container-contained concept, a nesting image is suggested in which a 'nesting inwards' applies in Chinese, where a larger unit is viewed or ordered before a smaller one; that is, the smaller unit is embedded or contained within the next larger one. The effect, she suggests, is similar to the use of a video camera that first shows a long shot with foreground, which then slowly disappears as the camera lens eventually zooms in for a close-up of the intended object. The converse then holds true for English, where the zoom lens first focuses on the object, receding to the distant background for a broad view in the final, longshot of the scene.

⁷For a detailed discussion of the notions 'trajector' and 'landmark' in spatial relations, see Talmy (1978) and Langacker (1987).

Haiman (1983) has gathered several kinds of evidence for the distance motivation. We can add more evidence from Chinese syntax for the distance motivation. Consider the presence and absence of *de* as a modifier marker between adjectives and nouns as illustrated in the following sentences.

- (11) hutu de jiaoshou
 muddle-headed PRT professor
 "muddle-headed professor"
 (12) hutu jiaoshou
 "muddle-headed professor/Muddle-headed"
 (13) huang de dou
 yellow PRT bean
 "yellow beans"
 (14) huang dou
 "soybeans"

Sentences (11) to (14) are taken from Li & Thompson (1981:119-120). They account for the presence and absence of *de* in these sentences as due to a general principle in Chinese. They state (p. 119) that "in general, adjectives that modify a noun without the particle *de* tend to be more closely knit with the noun." Thus, in (12) and (14), without the modifier marker *de*, the noun phrase becomes a name for an entity (as in (12)), or for a category of entities (as in (14)). In contrast, in (11) and (13), with *de*, the adjective denotes a property separable from the entity which it modifies. The meaning differences inferable from the presence versus absence of *de* in numerous adjective-noun phrases in Chinese can thus be accounted for by the distance motivation.

Consider also the presence versus absence of *de* between the possessor and the possessed. When the possession relationship is an intimate one, the possessive marker *de* can be omitted as in (15); otherwise it must be present as in (16).

- (15)a. Wo xihuan ni de meimei
 I like you PRT younger-sister
 "I like your younger sister."
 b. Wo xihuan ni meimei.

- (16)a. Wo xihuan ni de chezi.
 I like you PRT car
 "I like your car."
 b. * Wo xihuan ni chezi.

It is significant to note that the notion of intimacy here is psychologically based rather than physically based. Thus, in Chinese, the possessive marker between the body and the body parts cannot be omitted as can be seen in (16b) and (17b).

- (17)a. Wo da-le ta de shou.
 I hit-ASP ta PRT hand
 "I hit his hand."
 b. * Wo da ta shou.

Interestingly, the presence/absence of *de* as a possessive marker in Chinese presents a counterexample to a tentative hypothesis suggested by Greenberg (p.c. to Haiman), and is stated in Haiman (1983:793) as follows:

- (18) In no language will the linguistic distance between X and Y be greater in signaling inalienable possession, in expressions like 'X's Y', than it is in signaling alienable possession.

More importantly, it shows that our conceptual structure can be anchored in our psychological experience as well as in our physical experience, and that the former can take precedence over the latter in our conceptual structure.

3.3 Separateness motivation

Correlated with the distance motivation is the separateness motivation. This motivation is stated by Haiman (1983:783):

- (19) The linguistic separateness of an expression corresponds to the conceptual independence of the object or event which it represents.

As pointed out by Haiman (1983:795), "A separate word denotes a separate entity; a bound morpheme does not. A separate clause denotes a proposition which is independent; a reduced clause does not." Haiman gives many examples to demonstrate this generalization. One of his examples involves the formal distinction between Verb+Noun

Phrase and Verb+Noun across languages. To add one more example, we can observe that in Mandarin Chinese, an incorporated noun is nonreferential and cannot be separated from the Verb+Noun compound. Thus, in (20), *shu* "book" is nonreferential and cannot be separated from the verb. In (21), (22), and (23), it is referential and is separated from the verb.

- (20) Wo zai kan shu.
I at read book
"I am reading."
(21) Wo zai kan yi ben shu.
I at read one CL book
"I am reading a book."
(22) Wo ba shu you kan-le yi bian.
I BA book again read-ASP one time
"I have read the book one more time."
(23) Shu wo kan-le.
book I read-ASP
"I have read the book."

The use of a classifier (CL) to give the referential meaning in (21) is especially instructive. As pointed out by Lyons (1977:453-466), many languages use classifiers for the purpose of individuation and enumeration. It is not arbitrary then that in Chinese one cannot count objects in the real world without a classifier. The collocation between classifiers and nouns are not arbitrary either. Classifiers in Chinese have been shown to be semantically based either in terms of intrinsic physical features or in terms of contingent functional features.⁸

3.4 Juxtaposition motivation

Distance and separateness motivations reflect the discrete structure of the real world. In our conceptual world, we also need to see individual objects relating to each other from different perspectives. We can single out any two objects at any given location and talk about their relationship. We can assign various kinds of relationship to the two objects that are singled out. One of the most fundamental

⁸See Tai & Wang (1990) for a semantic analysis of the classifier *tao* and related classifiers in Mandarin Chinese. See also Tai (1990) for a cognitive analysis of variation in classifier systems across Chinese dialects.

relationships comes from the concept of 'prominence' in the cognitive system of human beings. When we decide to establish a relationship between two individual objects, they are either equally prominent to us, or one is more prominent than the other. Three logical possibilities then arise for any two objects X and Y with respect to the particular relationship we wish to establish for them in our conceptual world. All three logical possibilities are reflected in natural languages. To wit,

- (24) X and Y are identical.
(25) X is identical to Y.
(26) Y is identical to X.

Therefore, to complement the distance and the separateness motivations, I propose a juxtaposition motivation which can be stated as below:

- (27) The juxtaposition of two linguistic expressions corresponds to the juxtaposition of two objects or events in our conceptual world.

The juxtaposition motivation can account for a number of syntactic patternings in Chinese, including many interesting syntactic phenomena involving the juxtaposition of two verbal expressions. For instance, the aspect marker *-zhe* is used to subordinate one verbal expression to another, as shown in the following:

- (28) Ta [chi-zhe fan] kan shu. ([background]-foreground)
he eat-ASP rice read book
"He is reading while eating."
(29) Ta [kan-zhe shu] chi fan. ([background]-foreground)
he read-ASP book eat rice
"He is eating while reading."

In (28) the bracketed verbal phrase, *chi-zhe fan*, is subordinated to the main verb phrase, *kan shu*. In (29), however, *kan-zhe shu* is subordinated to the main verb phrase *chi fan*. In terms of information structure, the subordinate phrase carries the background, and the main phrase the foreground. The contrast between background and foreground often reflects the distinction between ground and figure in

our visual world.⁹ For example, the ungrammaticality of (30b) shows that in some situations, the juxtaposition of two verbal expressions can only be done in one way, since the other way of juxtaposition does not make sense in our conceptual world.

- (30)a. Ta dai-zhe yanjing kan shu.
he wear-ASP glasses read book
"He is reading with his glasses on."
b. *Ta kan-zhe shu dai yanjing.
? "He is wearing glasses while reading."

The subordination pattern involving *-zhe* in Chinese reflects the natural patterning in our conceptual world by making one of the two co-existing situations into the main action, and the other one as the accompanying circumstance.

3.5 Reduplication motivation

In our real life, we can group two or more identical objects together, we can repeat the same action for a period of time, and we can increase the degree of a certain state. Thus, reduplication in morphology and syntax are iconically motivated. A motivation of reduplication can then be given as below:

- (31) The reduplication of a linguistic expression corresponds to the reduplication in our conceptual world.

Thus, in Chinese some nouns and most classifiers can be reduplicated to yield the meaning of "every".¹⁰ This is illustrated in

- (32) ren-ren
person-person
"every person"
(33) ge-ge ren
CL-CL person
"every person"

⁹See Talmy (1978) for adopting the concepts 'ground' and 'figure' from gestalt psychology in treating complex sentences.

¹⁰The reduplication of bare nouns is more restricted than the reduplication of classifiers. This is simply a consequence of the individuating function of classifiers, which we have discussed earlier.

Similarly, the reduplication of adjectives in Chinese means the intensification of a state.

- (34) gan-jing → gan-gan-jing-jing
"clean" "very clean"

An activity verb can be reduplicated in Chinese. It is often said in Chinese grammar that the semantic function of reduplicating the verb is to signal the actor's doing something "a little bit" (cf. Li & Thompson (1981:29)). However, verbal reduplication can be viewed as representing the meaning of "trying to carry out some task". Since it usually takes more than one attempt to accomplish a task, the reduplication of action verbs is well motivated.

- (35) Ni jiao-jiao ta.
you teach-teach he
"You teach him."
(36) Ni da-da ta.
you hit-hit_{he} he
"You hit him."

In contrast, achievement verbs or resultative verb compounds cannot be reduplicated, since they indicate the result rather than the attempt of an action.

- (37) *Ni wang-wang ta.
you forget-forget he
"You forget him."
(38) *Ni dasi-dasi ta.
you kill-kill he
"You kill him."

Let us now turn to the verb-copying phenomenon which has intrigued a number of Chinese syntacticians working in recent years within the framework of GB theory (cf. Ernst 1988; Huang 1988; Li 1990). The verb-copying phenomenon in Chinese cannot be sufficiently accounted for by formal syntactic constraints including the well-known Phrase Structure Condition (PSC) proposed by Huang (1988). There is ample evidence that verb-copying in Chinese is semantically motivated. For the present purpose, three pieces of

