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A SEMANTIC STUDY OF THE CLASSIFIER TIAO (条)*

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1. Introduction

Categorization is one of the most important aspects of human cognition. As pointedly noted by Jackendoff (1983:77 and 1987:134), 'An essential aspect of cognition is the ability to categorize: to judge that a particular thing is or is not an instance of a particular category.' In the words of Lakoff (1987: 5-6), 'There is nothing more basic than categorization to our thought, perception, action, and speech ..... An understanding of how we categorize is central to any understanding of how we think and how we function, and therefore central to an understanding of what makes us human.'

Human language deeply involves the categorization not only of linguistic structures but also of the reality represented by linguistic structures. When we call an object *shu* 书 in Chinese, we put the object in the category of 'book.' By the same token, when we name an activity *kan* 看 in Chinese, we take the activity as an instance of the category 'to see.' Two categories can intersect to form a new category. Thus, the expression *kan shu* 看书 defines a new category 'to read books.' When we name an activity *kan shu*, we assign the activity in the category 'to read books.' What is interesting and intriguing in Chinese as well as in other languages with classifier systems is the fact that nouns are further categorized by classifiers. For example, the classifier *ben* 本 'volume' puts *shu* 书 'book,' *zidian* 字典 'dictionary,' *zazhi* 杂志 'magazine,' etc., in the same category.

While it is obvious that classifiers in Chinese categorize nouns into different classes, it is not immediately clear whether they reflect conceptual structures or are merely arbitrary forms without a conceptual basis. In this paper, we wish to argue that classifiers in Chinese to a great extent reflect human categorization in Chinese culture, and that they are arbitrary only in those cases where the original salient conceptual basis has become conventionalized.

The classical view of categorization holds that categories are formed by certain objective properties inherent to the entities in the world, and that

these properties are discrete, serving as necessary and sufficient criterial conditions for categorization. This view of categorization is fundamentally important in the development of many branches of natural and social sciences. Mathematics, logic, and formal semantics and syntax totally depend on this classical view of categorization. However, the view has been challenged in recent years by a wealth of new data on human categorization. Of special relevance to the study of classifiers in natural languages is the study of color categories in anthropological linguistics (Berlin and Kay 1969, Kay and McDaniels 1978), the study of categorization of concrete objects in cognitive psychology (Rosch 1975, 1978; Tversky and Hemenway 1984), and the study of lexical categories in linguistics (Ross 1972, Hopper and Thompson 1984). From these studies, a new theory of categorization, known as prototype theory, has emerged and influenced the thinking of many linguists. Departing from the classical theory of categorization, the prototype theory views human categorization as resulting primarily from the interaction between the human body and the physical environment in different socio-cultural contexts. In this theory, categorization can be achieved through association with the prototype(s), or the central member(s). Members of a category may be associated with one another in *family resemblance* (*à la* Wittgenstein). It is thus not necessary for all members of a category to possess a common property which criterially defines that category. In prototype theory, categorization contains the notions of 'centrality' and 'gradation.' Thus, some members of a category, being prototypes, may serve as 'typical' or 'better' examples of that category than others. Rosch (1973, 1975) has shown that people regard some birds as more typical and better examples of the category than other birds. For example, robins and sparrows are judged as better examples of birds than pelicans and penguins. Furthermore, in prototype theory, human imagination plays a crucial role in categorization. Thus, metaphor, metonymy, and imagery all enter into the formation of a category, as clearly demonstrated by Lakoff (1986) in his explication of Dyirbal classifiers and the classifier *hon* in Japanese.

Although Chinese classifiers provide linguists and cognitive psychologists with rich data for the study of the intricate relationship between cognitive and linguistic categories, existing linguistic studies of Chinese classifiers have been confined to their occurrence conditions in terms of structural principles, especially their co-occurrence with different classes of nouns. To the best of our knowledge, there is no systematic study of Chinese classifiers as a system of human categorization in Chinese culture. Nor is there any attempt to search for the cognitive basis of the system.

This paper is a pilot study with which we wish to show that a cognition-based study of classifiers in Chinese is not only feasible but also of high explanatory value. It will focus on the classifier *tiao* 条. For two important reasons, we have chosen *tiao* for the present pilot study. In the first place, it is one of the most frequently used classifiers with an extensive domain; the concept of 'extension in length' underlying *tiao* is also very common in other classifier languages (Allan 1977).[1] In the second place, we have more data about historical development and about child language on *tiao* than on other classifiers (Erbaugh 1985). *Tiao* appears to be the first classifier generalized to various kinds of object by shape. In her data collected in Taiwan of Mandarin used in Mandarin-speaking families, Erbaugh has found that *tiao* is the most frequently used and most frequently extended classifier in child and adult Mandarin.

It is hoped that the present pilot study will lead to a comprehensive study of the Chinese classifier system as a system of human categorization.[2]

2. Classifiers versus measure words

In the literature of Chinese grammar, classifiers are often treated on a par with measure words. With rare exceptions, the term *shuliangci* 数量词 'number-measure-word' has been adopted by Chinese linguists in mainland China and Taiwan to cover both classifiers and measure words. Chao (1968:584-620) has treated classifiers as 'individual measures.' Li and Thompson (1981:106) have blended classifiers with measures words and stated that 'any measure word can be a classifier.' Thus, they treat *bang* 磅 'pound' in *shi bang rou* 十磅肉 'ten pounds of meat' and *qun* 群 'crowd' in *yi qun yang* 一群羊 'a crowd of sheep' on an equal footing as *tiao* in *yi tiao yu* 一条鱼 'a fish' and *zhang* 张 'piece' in *yi zhang zhi* 一张纸 'a piece of paper.' However, it is desirable and feasible to differentiate classifiers from measure words in order to better understand the cognitive basis of a classifier system. Having examined the kinds of things that are grouped together by classifiers in more than fifty languages, Allan (1977:285) concludes that 'a classifier denotes some salient perceived or imputed characteristic of the entity to which the associated noun refers.' The imputed characteristics of entities picked up by classifiers are relatively 'inherent' in comparison with the 'contingent' characteristics of entities assigned by measure words. Thus, a classifier is set only to a certain number of nouns which are associated with one another in one single category. Measure words can, however, accompany different kinds of nouns which may not be related categorically. To illustrate,

The measure word *bang* 磅 'pound' can be used to weigh iron, sand, apples, cotton, etc., which take different classifiers as shown in the following.

1) yi bang tie 铁 — yi kuai tie 一块铁
一磅 'a pound of iron' — 'an (piece) iron'
shazi 沙子 — li shazi 一粒沙子
'a pound of sand' — 'a (grain-like) sand'
pingguo 苹果 — ge pingguo 一个苹果
'a pound of apples' — 'an (general thing) apple'
mianhua 棉花 — tuan mianhua 一团棉花
'a pound of cotton' — 'a (ball-like) cotton'

In our view, Chao's 'temporary measures' such as *dui* 堆 'pile,' *shen* 身 'body,' and others should be treated as measures rather than classifiers. Thus, we can substitute *bang* 磅 with *dui* 堆 for the examples in (1). In turn, both *bang* and *dui* 堆 can be replaced by other measure words such as *jin* 斤 'catty,' *dun* 吨 'ton' or other Chao's 'temporary measures' such as *chuan* 船 'boat' and *wuzi* 屋子 'house.' All these measure words designate 'contingent' or 'temporary' properties. In contrast, classifiers denote relatively 'inherent' or 'permanent' properties and therefore can not substitute for one another freely. Thus, expressions such as *yi li tie* *一粒铁 and *yi tuan pingtuan* *一团苹果 are unacceptable in normal contexts.

We propose to adopt the distinction between 'permanent' and 'temporary' properties of entities as the fundamental cognitive basis for the distinction between classifiers and measure words. We would like to avoid the term 'inherent properties,' which can easily be misconstrued as 'objective properties' of the entities in the world and independent of the experience of human beings in different cultures. We thus propose the following distinction between classifiers and measure words.

2) A classifier categorizes a class of nouns by picking out some salient perceptual properties, either physically or functionally based, which are permanently associated with the entities named by the class of nouns; a measure word does not categorize but denotes the quantity of the entity named by a noun.

In essence, (2) amounts to saying that while a classifier 'categorizes' an object, a measure word simply 'measures' an object.

This functional distinction between classifiers and measure words also has some desirable consequences in describing different languages or different

dialects of the same language. First, every language has measure words, but only some languages have classifiers. Thus, like Chinese, English has measure words such as *pound* and *pile* which are equivalent to *bang* 磅 and *dui* 堆 in Chinese; but, unlike Chinese, English does not have classifiers such as *tiao* 条 for counting fish and *ke* 棵 for counting trees. Secondly, many measure words such as *pile* and *group* presumably have similar, if not identical, meanings across languages. Thus, *dui* 堆 in Chinese has roughly the same meaning as *pile* in English; *qun* 群 in Chinese is semantically equivalent to *group* in English. By extension, we should not be surprised to find that measure words do not vary much from one Chinese dialect to another, whereas classifiers may vary greatly.[3] Thirdly, the conceptual distinction between classifiers and measure words will help us tease apart the complexity of the Chinese classifier system as exhibited in Chao's description, where classifiers are treated as subgroups of measure words. We believe that once we regard a classifier as serving to categorize an entity and a measure word as simply serving to measure, the perplexity in Chao's analysis of Chinese classifiers can be mitigated.[4]

We hasten to add here that the distinction in question, like other prototype-based categorical distinctions, is a graded distinction with fuzzy boundaries. On one hand, we have classifiers like *kuai* 块 'piece' and *pian* 片 'slice' which also function as measures in the sense that they denote a portion of an object, in addition to the shape of the portion. Thus, we have *yi kuai rou* 一块肉 'a piece of meat,' *yi pian rou* 一片肉 'a slice of meat,' *yi kuai tie* 一块铁 'a piece of iron,' *yi pian tie* 一片铁 'a slice of iron,' etc. On the other hand, we have measures like *wan* 碗 'bowl,' *bei* 杯 'glass' which involve containers with a clear visible shape and thus are closer to classifiers than other strictly quantitive measures such as *pang* 磅 and *jin* 斤.

3. A prototype theory of the classifier *tiao* 条

Based on the historical data of *tiao* documented by Chinese scholars including Wang Li (1980,1965) and Chou Fa-kao (1959), Erbaugh (1985) has constructed an historical development consisting of four stages for *tiao*. In the first stage (the Shang dynasty, ca. 1400 B.C.), the word *tiao* appeared in oracle bone writings as a noun meaning 'small branch.' In the second stage (the Post-Han, ca. 25 A.D.), it was used as a classifier for the lengths of cloth and strings of gold ingots. In the third stage (by the Tang, 600-900 A.D.), *tiao* as a classifier had expanded its reference to snakes, ropes, and cloths. In the fourth stage (by the Song 960-1117 A.D.), it had further extended to long objects in general including roads and articles of law, which were written

vertically on the page. From the developmental history of *tiao*, we can gain an important insight into its categorical extension in modern Mandarin Chinese. In the following, we construct a prototype theory for the classifier *tiao* consisting of four subcategories: (a) nominal origins,[5] (b) central members, (c) naturally extended members, and (d) metaphorically extended members.

3.1. *Tiao* as a noun

We have mentioned that *tiao* began as a word meaning 'branch.' In Modern Mandarin, as a noun it still retains this meaning. It is defined in *Xiandai Hanyu Cidian* (现代汉语词典*Modern Chinese Dictionary*) as *xichang de shuzhi* 细长的树枝 'slender tree branch.' It can occur alone, but more frequently occurs as a bound morpheme in compound words such as *liutiaor* 柳条儿 'willow twig,' *xiantiaor* 绲条儿 'line,' and *miantiaor* 面条儿 'noodle.'[6]

3.2. Central members of *tiao*

The historical development of *tiao* shows that in its inception as a classifier, it was used to refer to long things. We can treat as the central members those nouns in Mandarin Chinese denoting three-dimensional concrete objects with a long shape. The list below exemplifies the central members.

3)	yi tiao yu	一条鱼	'a fish'
	yi tiao kuzi	一条裤子	'a pair of pants'
	yi tiao tui	一条腿	'a leg'
	yi tiao chuan	一条船	'a boat'
4)	yi tiao huanggua	一条黄瓜	'a cucumber'
	yi tiao maojin	一条毛巾	'a long towel'
	yi tiao dengzi	一条凳子	'a long bench'

It is noteworthy that among the *gua* 瓜 'melon' class, only *huanggua* 黄瓜 'cucumber,' *kugua* 苦瓜 'bitter gourd,' *sigua* 丝瓜 'towel gourd,' and other kinds of *gua* which have a long-shaped body take the classifier *tiao*. For those melons such as *xigua* 西瓜 'water melon' and *donggua* 冬瓜 'wax gourd,' the general classifier *ge* 个 is used, since they do not have a long-shaped body. Similarly, only long-shaped *maojin* 毛巾 'towel' and *dengzi* 凳子 'bench' take *tiao*. Otherwise, the classifier *kuai* is used for *maojin* and the classifier *zhang* 张 'flat surface' or *ge* 个 is used for *dengzi*. These facts

clearly indicate that *tiao* is semantically as well as cognitively based and not merely an arbitrary linguistic device for noun classification.

3.3. Natural extension of *tiao*

In Mandarin Chinese, *tiao* is also used as a classifier for noun classes denoting entities which possess a visible long shape but which have only two dimensions. They can be construed as the extended members of the *tiao* category. Below are listed some of the members created through natural extension.

5)	yi tiao jie	一条街	'a street'
	yi tiao he	一条河	'a river'
	yi tiao lu	一条路	'a road'
	yi tiao yingzi	一条影子	'a shadow'
	yi tiao shanmai	一条山脉	'a mountain range'

The reason we refer to this group as consisting of naturally extended members is because the entities involved are still concrete and with a visible long shape. They are different from the central members in two important respects. First, although they have clear spatial boundaries, they have only two dimensions rather than three dimensions as in the case of the central members. Second, they do not interact with the human body as closely as the central members, most of which can be grasped by the hand. When a long-shaped entity has only two dimensions, the salient perceptual feature naturally falls on the 'extension in length' of the entity. This is especially clear in the imagery of *he* 河 'river' and *lu* 路 'road.'

The membership by natural extension should include *xian* 绲 'line' as in *yi tiao xian* 一条绲 'a line,' which has only one dimension but nevertheless visible. The word *xian* 绲 can also denote 'thread,' a three-dimensional object. In referring to *xian* in the latter meaning, the classifier *gen* 根 'root-like' is preferred. In section 4, we will discuss the essential perceptual differences between *tiao* and *gen*.

The proposed distinction between the central members and the naturally extended members in terms of their different manners of interaction with the human body is in line with a view of language held by many anthropologists and psychologists that human language reflects the biological make-up of human beings. (Clark 1973, Miller and Johnson-Laird 1976, Johnson 1987).