NUMERICAL EXPRESSIONS IN THE ORACLE-BONE AND BRONZE INSCRIPTIONS: QUANTIFICATIONAL TYPOLOGY AND THE ORIGIN OF THE CHINESE CLASSIFIER SYSTEM

by

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Abstract

This thesis will attempt to give a syntactic, semantic and pragmatic account of numerical expressions in the earliest attested stages of the Chinese language, the oracle-bone and bronze inscriptions. Early Inscriptional Chinese (EIC) numerical expressions can be classified into three different word orders: order I: Num N, order II: N Num and order III: N Num N. While order I is unmarked, orders II and III are marked, focus related structures. Specifically, when kind and number are being proposed or focused separately it causes the determiner phrase (DP) to be split in two, one part denoting kind and the second denoting number. Syntactically, the second DP is an adjunct of the first DP and co-referential to it, and together, they form a DP apposition structure.

Based on the fact that order III is also the unmarked structure for measure phrases, it is proposed that the second noun in this construction is a classifier. In support, we presented a cross-linguistic study of classifiers based on recent work on the semantics of plurality and mass. From this investigation we proposed a distinction between languages that take the singular as default ("bottom up" languages) and those that take transnumeral as default ("top down" languages). Within the "top down" languages there are those that perform the operation of transnumeral to singular with an affix, a clitic, a lexical item or nothing at all. EIC uses the default strategy of not marking number, but in focus related order III marks it with a lexical item (a classifier). This distinguishes EIC from modern Chinese dialects which have obligatory number marking and always use classifiers. Finally, we propose that this marked focus structure gradually lost its marked status and spread to non-focus contexts.
Table of Contents

Abstract ................................................................. ii
Table of Contents ....................................................... iii
Acknowledgements ....................................................... vi
Notational Conventions ................................................ viii

Chapter One  Introduction ........................................... 1
  1.1 Aim and Scope ................................................. 1
  1.2 The Nature of the Data ....................................... 2
     1.2.1 The Oracle-Bone Inscriptions ....................... 3
     1.2.2 The Bronze Inscriptions .............................. 5

Chapter Two  Numerical Expressions in the Oracle-Bone Inscription Language......................... 8
  2.1 Three Hypotheses ............................................. 9
     2.1.1 The Evolutionary Hypothesis ....................... 9
     2.1.2 The Appositive Hypothesis ....................... 12
     2.1.3 The New / Old Hypothesis ....................... 17

Chapter Three  Focus and Word Order .............................. 22
  3.1 Focus .......................................................... 29
     3.1.1 Towards a Definition of Focus .................... 30
     3.1.2 Presupposition, New Information, and Alternative Semantics ...................... 36
     3.1.2.1 Focus and New Information .................... 36
     3.1.2.2 Focus and Presupposition .................... 38
     3.1.2.3 Alternative Semantics ....................... 41
     3.1.3 Multiple Focus ....................................... 45
  3.2 Alternative Semantics and the New / Old Exceptions .............................................. 48

Chapter Four  Syntactic Analysis .................................... 55
  4.1 The Predicate Numeral Hypothesis ....................... 55
  4.2 The Quantitative Adjunct Hypothesis .................... 63
  4.3 The DP Apposition Hypothesis .............................. 66
Chapter Five  Numerical Expressions in the Bronze Inscription Language .................................................................................................................. 80
  5.1 Exceptional Examples ................................................................. 83
  5.2 Measure Phrases and NP2 ........................................................... 87

Chapter Six  Classifiers .............................................................................. 90
  6.0 Introduction ................................................................................ 90
  6.1 A Brief Taxonomy of Classifier Systems ...................................... 90
  6.2 Numerical Classifiers and Classifier Languages ......................... 93
    6.2.1 Quantification versus Qualification ...................................... 97
    6.2.2 The Semantics of Classifiers ............................................... 112
      6.2.2.1 Plurals .................................................................. 113
      6.2.2.2 Mass Nouns .............................................................. 116
        6.2.2.2.1 Landman’s Account ........................................... 116
        6.2.2.2.2 Chierchia’s Account ......................................... 117
      6.2.2.3 Measuring Mass Nouns ................................................ 122
      6.2.2.4 Group Words ............................................................ 124
      6.2.2.5 Singulative Classifiers ................................................. 125
    6.2.3 Classifier Languages .......................................................... 128
      6.2.3.1 Properties of Classifier Languages ................................ 133
      6.2.3.2 The Vietnamese Case ............................................... 139
      6.2.3.3 The Indonesian Case ............................................... 140
      6.2.3.4 The Tibetan Case ...................................................... 142
      6.2.3.5 Theoretical Consequences ........................................ 144
  6.3 Conclusion .................................................................................. 146

Chapter Seven  The Quantificational Typology of Early Inscriptional Chinese ........................................................................................................... 148
  7.1 The Case of OBIL ................................................................. 148
  7.2 The Case of BIL ................................................................ 156
  7.3 Classifiers and Grammaticalization ........................................... 162
  7.4 Where OBIL and BIL Classifier Languages? .............................. 165
  7.5 EIC in the Development of the Chinese Classifier System .......... 167
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Notational Conventions

In transcribing the oracle-bone inscriptions I make use of the following standard conventions: the number following the inscription is its reference number in the collection in question; the collection name will appear in abbreviated form before the number (see bibliography for full titles); where no collection number is given the collection in question is Heji. Ellipses of a single graph in the original inscription are marked by the symbol □, while ellipses of unknown length are marked by the symbol [/]. Standard English ellipsis notation “...” will be used to indicate that something was omitted from the quotation. For the bronze inscriptions the transcription is followed by the name of the vessel it was taken from. The notation RUK stands for “reconstruction unknown” and signifies that the graph in question is undeciphered.

In translating inscriptions I will follow the linguistic convention of giving a word for word translation followed by an English paraphrase in brackets, except in very short examples where there is no difference between the word for word translation and the paraphrase. In the transcriptions of the paleographs themselves I will generally only give the modern Chinese transcription of the word. Where there is controversy or the modern transcription is unknown, the original paleograph will be included.

The following linguistic notations will be used: mod. = modal, cop. = copula, CL = classifier, ASP = aspect marker, EMP = emphatic particle, and GEN = genitive marker.
Chapter One  Introduction

1.1  Aim and Scope

This thesis has three main objectives. The first is to account for word order variation in numerical expressions in the Oracle Bone and Bronze Inscription Languages (hereafter OBIL and BIL). The second is to settle the contentious issue of whether OBIL or BIL had classifiers or not, while the third objective is to determine the quantificational typology of OBIL and BIL. Throughout, the theoretical orientation will be that of generative syntax and the formal semantics that have been developed for it.

In tackling the first objective, we will examine the various word orders in OBIL and BIL from the standpoint of pragmatics, syntax and semantics. The pragmatics of OBIL and BIL numerical expressions will lead us to a discussion of linguistic focus, while an examination of the syntax and semantics will lead us to explore such structures as numerical predicates, quantitative adjunct arguments and DP\(^1\) apposition.

In dealing with the second and third objectives, a theory of classifiers and classifier languages based on recent work on the semantics of plurals and mass will be

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\(^1\) It is now commonly assumed that the structure of phrases like "the boy" are not nominal phrases, but determiner phrases with the following structure:

```
    DP
   /\  
  D'  
    /\  
   D  NP  
    /\  /\  
   the N  N'  
  /\  /\  
 N  N  
 /\  /\  
 boy  
```
developed. Using this theory, and building on our findings concerning the syntax and semantics of OBIL and BIL numerical expressions, the question of how to analyze their putative classifier structures as well as their quantificational typology will be addressed. Related to the third objective is the sub-goal of comparing archaic Chinese as recorded on in the oracle-bone and bronze inscriptions (Early Inscriptional Chinese (hereafter EIC)) quantificational typology to modern Chinese languages like Mandarin and postulating a scenario for diachronic change.

1.2 The Nature of the Data

A few words must be said about the nature of the data upon which this study is based. First of all, since the oracle bone and bronze inscriptions were written texts of peoples that lived from 3400 to 2400 years ago, it goes without saying that though the language reflected in these texts is universally believed to be ancestral to the modern Chinese languages, they cannot be considered living languages. Thus, this study must necessarily be corpus based, and based on a limited corpus at that. Before we discuss the nature of the texts themselves, the issue of the relationship of these texts to a spoken language must be addressed. In dealing with written text we are necessarily dealing with a dialect of the spoken language (Sampson 1985) which has diverged from its parent language to lesser or greater degree. Since the oracle bone and bronze inscriptions are the only surviving direct evidence of the languages of their respective times, their degree of divergence from the spoken language is unknown. Thus, we will make a distinction between the spoken language of the time Early Old Chinese (Sun (1999)), or Pre-Archaic Chinese (Peyraube (1991))\(^2\), and the written. Pulleyblank

\(^2\) Actually it is not clear that Peyraube (1991) makes a distinction between the spoken and written
(1995: 3) puts the oracle bone and bronze inscriptions together with early classics such as the Yijing 易經, the Shangshu 尚書 and the Shijing 詩經 in a stage of the written language he calls preclassical Chinese. However, following Takashima’s (1996-97: 345) “purist” approach I have not used any “soft text” materials, eliminating the possibility that the syntactic structures under investigation might be due to editing in later times. Given that soft text examples have been excluded, we will use the term Early Inscriptional Chinese when referring to the oracle bone and bronze inscriptions together and Oracle Bone Inscription Language (or OBIL) or Bronze Inscription Language (or BIL) when referring to them separately. The use of the term “language” does not necessarily mean that OBIL and BIL were different languages in the formal linguistic sense, but they were definitely different registers with their own specialized purpose.

1.2.1 The Oracle Bone Inscriptions

The oracle bone inscriptions are believed to date from the reigns of the Kings Wu Ding to Di Xin of the late Shang dynasty (1200 – 1045 B.C.). To date, between 150,000 and 200,000 inscribed bone and shell fragments have been collected and between 50,000 and 75,000 have been published. However, Keightley (1978: 139, forms.

3 Of course there is the possibility of forged inscriptions, but I have attempted to use examples from uncontroversial bones and bronzes.

4 This is according to the “short chronology” quoted in Keightley (1997, 2000). See also Shaughnessy (1985, 1991). These dates would mean the oracle bone inscriptions span a period of 155 years. Takashima and Yue (2000), on the other hand gives (1300–1050 B.C.) as the time between kings Wu Ding and Di Xing, which seems to combine the start of the long chronology with the end of the short chronology creating a super long chronology of 250 years. The traditional “long chronology” of Liu Xin assigns the dates (1324 – 1123 B.C.) for a total of 201 years. Chen Mengjia and Dong Zuobin both give longer chronologies (1238 – 1027 B.C.) for a total of 211 years and (1339 – 1112 B.C.) for a total of 227 years, respectively (see Keightley (1978: 226)).

5 Takashima and Yue (2000: 2) states that "well over 150,000 plastraon and scapula fragments ... have
appendix 3) conservatively estimates that the number of fragments collected only account for approximately 5-10% of the shells and bones actually inscribed in the Wu Ding to Di Xin period. Nonetheless we are dealing with a statistically significant, randomly obtained sample of the late Shang divinatory records. This brings us to our next point: the nature of the language and the context of the inscriptions.

The oracle bone inscriptions, as the name suggests, were mostly records of divinations for the most part performed by the Shang kings and their diviners. The majority of these inscriptions were concerned with aspects of Shang ritual, but others cover a wide array of topics from childbirth and weather, to warfare and hunting. The full form of a divination record included a preface (usually recording the day divined, who the diviner was and rarely where the divination took place), a charge (the proposition itself), a postface (usually the month of divination, but, in period V, also the place and the number of the ritual cycle), a prognostication (usually the King’s reading of the spirits’ response to the proposal), and a verification (what actually happened). There are also a number of non-divinatory inscriptions ranging from terse records of tribute to longer accounts of hunts and warfare. The divinatory charges, which made up the bulk of the inscriptions, were in the form of propositions; a fact

_..._". Keightley (1997: 15) on the other hand, states that “approximately 200,000 pieces of inscribed bone and shell have now been collected; about a quarter of that number has merited reproduction”. Thus Takashima and Yue suggest there are at least 75,000 published fragments, while Keightley suggests around 50,000. Given that the _Tinxu juagu keci moshi zongji_ contains some 52,486 fragments and is not exhaustive, we know that 50,000 is a bit too low.

There are also non-royal divination inscriptions _非正卜辭_, divined on behalf of members of the Shang aristocracy (see Chen 1987: 96-98 for discussion).

Period V inscriptions frequently record where the divination took place.

See Keightley (1978) for the standard introduction to the oracle bones in English, Chen (1987) for a good basic introduction in Chinese.

See Keightley (1978: 28-44).

Chen (1987: 92) notes that the majority of these purely historical records were inscribed on bones other than the kinds used for divination (eg. skulls) or on species not used in divination (eg. tiger, human).

It was traditionally believed that the charges were questions, but I believe the question has now been settled that they are not. Rather, they are propositions put to the spirits who responded regarding the
that will play a role in the pragmatic account of numerical expressions given in chapter three.

As a corpus, the oracle bones have been divided into five historical periods. Associated with these periods are different groups of diviners, the language of whom is presumably recorded on the bones. Given that the data ranges over a span of 150-250 years and all comes from the late Shang capital at Anyang, one might assume that the oracle bones represent a fairly homogeneous language. However, in Takashima and Yue (2000), it is proposed that there is a certain amount of dialect variation between some of the different diviner groups. Nonetheless, these dialect differences do not seem to play a significant role in the phenomenon examined in this study.

1.2.2 The Bronze Inscriptions

The Bronze Inscriptions refer to the body of text that was inscribed on ritual bronze vessels from the Shang down to the Warring States period. This practice attained its greatest period fluorescence in the Western Zhou (c. 1045 – 771 B.C.),

the period from which this study draws most of its examples. As von Falkenhausen...
(1993: 146) points out, these vessels were created as ritual implements to be used in religious ceremonies and “in order to understand the full meaning of a bronze inscription, therefore, we must consider it in conjunction with the use of the inscribed medium”. For our study this means that in examining the language of the bronze inscriptions we must keep in mind their ritual function, and thus the possibility that the language used is a marked ritual dialect\(^\text{15}\). From the point of view of comparison with OBIL this may seem like a good thing, but ultimately, the kind of language used and the context of the bronze inscriptions is not the same as the oracle bones. For one thing the content of the bronze inscriptions usually consists of “a date and place notation, the account of some event (usually a court audience), the record of gifts awarded, and the dedication of the vessel”\(^\text{16}\), as opposed to a series of propositions about who to perform what ritual to, using what victims, and how many. In addition, as von Falkenhausen (1993: 164) argues, “investiture documents were inscribed in bronze … because bronze was a sacred material fit for use in ritual as a medium for transmitting written messages to the spirit realm”. Thus, while the function of the oracle bones was to record communication of a series of propositions to the spirits for their approval (rather like transcendental memos), the bronzes\(^\text{17}\) inscriptions functioned as eternal reminders of the merit and piety of the caster and his descendants, and their claims to supernatural sanction (more like supernatural

\(^{15}\) This comment by von Falkenhausen is part of a larger argument against the implicit assumption in Shaughnessy (1991) that the bronze inscriptions can be seen as historical texts.

\(^{16}\) Shaughnessy (1997: 63)

\(^{17}\) In themselves representing massive expenditures of scarce resources. See Chang (1983: 101-106) for an account of the importance bronze vessels and the difficulties in producing them.
commemorative plaques). Thus, the language of the bronze inscriptions was formal, and from the point of view of semantics did not record propositions in the sense of offers to be accepted or rejected, but rather statements of fact.
Chapter Two Numerical Expressions in OBIL

In Shang Chinese, as evidenced in the Oracle Bone Inscription Language (OBIL), there are three basic orders in which numerals appear\(^\text{18}\):

1) Numeral Noun: 三羌 (32081)
   “three qiang”

2) Noun Numeral: 牛二 (tun 148)
   “cattle, two”

3) Noun Numeral Noun: 其有羌十人 (26918)
   “(We) will offer qiang, ten people”

Of these orders, the first is by far the most common, accounting for 85% of the examples of numerical expressions\(^\text{19}\). The second order is also the second most

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\(^{18}\) Chen (1956: 110) lists six different orders, while Shen (1992: 195-196) lists seven, but for reasons that will become clear later on, I believe that these orders can be assigned to one or the other of the three basic orders. That is to say, those orders with a numeral occurring first should be thought of as order one, while those with a noun occurring first are order two, unless there is also a noun at the end of the expression, in which case it is order three.

\(^{19}\) These statistics were arrived at by counting numerical expressions in Yao Xiaosui (1988): Yinxu jiagu keci moshi zongji, representing some 52486 bone and shell fragments. The absolute numbers arrived at in the count were, out of a total of 5242 instances of unambiguous cardinal number and noun combinations, 4468 order I, 656 order II, and 118 order III (of these 26 were measure phrases involving mass or group measures). Instances of numerals occurring by themselves were not counted, nor were ordinal number phrases and numerical expressions that were ambiguous between the three orders either because they were fragmentary or I could not decipher them. My reason for not counting examples of numerals is that these examples cannot tell us anything about numeral noun interactions since there is no noun, while my reason for not considering ordinal number examples is that for OBIL, ordinal expressions only occur in order I and so there are no other word orders to compare it with. Note that Djamouri (1987: 35) gives different statistics based on 1253 examples of noun and numeral combination. In his count order a) (my order I) accounts for 69.5% while order b) (my orders II and III) accounts for 25.8% order c) (which I would include in order II accounts for 2.8%, while d) and e) (which I would count as order I) account for 1.6% and 0.2% respectively. Thus Djamouri has order I at 71.3% and orders II and three at a combined 28.6%, yielding a significantly higher ratio of II and III to I. I suspect that this is due to a bias in his sample since orders II and III are not evenly distributed across all periods and topics. The period V inscriptions of the heji for instance have the following breakdown: order I: 59.5%, order II: 38.1%, order III: 2.4%. The reasons for this variation between
common, and occurs in about 13% of numerical expressions. The final order is the least common accounting for only 2% of numerical expressions. A question that many scholars have asked, and this section will attempt to address, is what, if anything, is the difference between these patterns.

To begin with, we will examine three previous attempts to explain the use of these patterns, each of which will contribute to a lesser or greater extent to our final hypothesis.

2.1 Three Hypotheses

2.1.1 The Evolutionary Hypothesis

The first hypothesis, presented in Huang (1964), is not so much a hypothesis about the order of numerals in OBIL, but the origin and development of classifiers in historical Chinese. These are, however, related issues, and Huang ends up formulating a hypothesis about the different word orders of numerical phrases in OBIL, albeit indirectly. For Huang, there are five stages in the evolution of the classifier phrase in Chinese, progressing from an absence to a presence of classifiers (從無到有)(439), with each stage characterized by its dominant form of numerical expression.: stage I: N Num (Noun Numeral), stage II: Num N, stage III: N Num N, stage IV: N Num Cl (Noun Numeral Classifier), and finally, stage V: Num Cl N. OBIL represents stage

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21 We will return to this issue of classifiers in a later chapter. For now suffice to say that when Huang speaks of classifiers he has something like the modern Chinese liangci (measure word) or danweici (unit word) in mind. These terms encompass everything from group measures (eg. yi qun “one group”) to mass measures (eg. yi bei “one cup”) to individual classifiers (eg. yi ge “one individual”).
two in this scheme, with its dominant form Num N; the stage when classifiers first begin to appear. Although the Num N form is the most common in OBIL, stages one to four all find their representatives in the inscriptions. Thus, for Huang, the N Num form represents a remnant of a more archaic form, while the N Num N and N Num Cl forms represent what OBIL is evolving towards. One of the underlying assumptions of this hypothesis then, seems to be that there were no semantic or pragmatic synchronic distinctions between the various forms of numerical expression, since their syntactic differences are explained purely in diachronic terms. In other words, “people ten” is just an archaic way of saying “ten people” in OBIL.

From the point of view of diachronic syntax, Huang’s analysis has some interesting implications. In his first stage of classifier development, there are no classifiers, and the dominant order is N Num. In later stages, the order is reversed and the noun that follows the numeral eventually becomes a classifier. Huang mentions that the development from noun to classifier was gradual, and that in Shang times, even the nouns that had already become classifiers still behaved “noun-like” (柯多尙 具有名詞的性格) (440). Although he doesn’t explicitly claim that when nouns began to appear after numerals in OBIL, they had already begun their evolution into classifiers, it is easy to draw this conclusion, especially when it is claimed that classifiers could appear without nouns in OBIL, as in this example:

(4) … 允戈伐二千六百五十六人 … (Hou xia 439)

Indeed dagger-axe decapitate two thousand six hundred fifty six people

“Indeed (we) dagger-axe decapitated two thousand six

22 My reason for not taking 伐 fa in the sense of “to attack”, is the very precise number of people who
hundred fifty six people”

If 人 “people” is indeed a classifier here, then it is unclear what distinguishes classifiers from common nouns, and suggests by extension that all nouns appearing in order I (Num N) are classifiers, making the unmarked order in OBIL numerical expressions “Num CL”.

Aside from this, there are problems with Huang’s diachronic analysis of Chinese classifiers as it applies to OBIL. The biggest and most obvious problem is that there is no direct evidence that the N Num form represents an archaism. Since OBIL is the earliest attested form of the Chinese language, any attempt to analyze pre-Shang syntax is necessarily speculative. In fact, it seems that the motivation for positing the N Num form as the earliest stage rests entirely on the basis that classifiers are assumed to have a linear development from absence to presence. Since OBI and the Bronze Inscriptions (BI) represents stage II (Num N), while stage III (represented by N Num N) is sometime later, the N Num stage must be consigned to an earlier stage in order to fit into this scheme.

A second problem is that Huang provides no motivation for the change from stage I to II to III. What causes the N Num order to dominate in one period, then give way to Num N and then N Num N? In short, Huang’s hypothesis is merely a descriptive explanation and a speculative one at that.

A final flaw with Huang’s hypothesis is that his diachronic model does not take
into account the synchronic relationship between the three orders. Specifically, the majority of scholars working on OBIL consider orders II and III to be variants of one another, lumping them together as post (head) noun numeral orders as opposed to the pre-noun numeral order (order I). If this is so then why does stage II (represented by my order I) intrude between these two related forms? Indeed, given Huang’s own analysis of order I as adjectival numeral plus noun (or perhaps proto-classifier), and III as noun plus numeral and classifier, it is easy to see order II (which he takes to be the oldest order) as a version of order III with the classifier elided. To come to any kind of explanation for diachronic change it is necessary to understand the structures involved synchronically. In short, without analyzing the structures involved, it is impossible to explain the necessary conditions for change and thus premature to make predictive diachronic models.

2.1.2 The Appositive Hypothesis

The appositive hypothesis is basically an analysis that explains the different word orders of numerical expressions in OBIL as a purely syntactic distinction without pragmatic effects. This is a view advocated for certain numeral phrases in classical Chinese in Ōta (1987), Pulleyblank (1995) and in OBIL, by Shen Pei (1992). In this view, in both orders one, and two (Num N and N Num), the noun and

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24 Peyraube (1991), on the other hand, claims that order I should be considered the oldest order and erroneously cites Huang (1964) as the source of this idea. However, as pointed out above, since OBIL is the earliest attested stage of Chinese, positing which of three synchronically occurring orders is the oldest is necessarily speculative.
25 This is the position that we will eventually take on the relationship between orders II and III.
26 Djamouri (1987) also calls the post-nominal numeral appositive but it is unclear just what exactly that entails. He feels the difference between orders I and II is “stylitques” (41), which, as we will argue below, misses an important pragmatic point.
numeral function as separate halves of an appositive pair. In the third order (N Num N/Cl), the first noun is the first half of the appositive pair while the Num N/Cl forms the second. The Chinese term that has been translated as “appositive” is tongweici 同位詞 literally “same position phrase”. Ōta (1987: 12), whose conception of appositive Shen follows, has this to say about appositives,

The properties of the appositive relation are exactly the same as the parallel relation. However, the appositive relation refers to the same thing, in this one semantic area there is a difference. 同位關係的性質和並列關係是完全相同的 但是 同位關係是表達同一個東西的 在這一意義上有差別.

By parallel structure Ōta is referring to nouns listed in parallel (basically conjunction structures), the only difference between the two structures then, is that all the phrases in an appositive relation refer to the same entity. This is basically similar to Crystal’s (1997: 26) definition of appositive.

A traditional term retained in some models of GRAMMATICAL description for a sequence of units which are CONSTITUENTS at the same grammatical LEVEL, and which have an identity or similarity of REFERENCE. In John Smith, the butcher, came in, for example, there are two NOUN PHRASES; they have identity of reference, and they have the same SYNTACTIC function (as indicated by the omissibility of either, without this affecting the sentence’s ACCEPTABILITY, eg. John Smith came in/The butcher
Using this definition, in patterns one and two, the noun and the numeral would have to be each functioning as noun phrases, refer to the same thing, and presumably have an interchangeable order. Pattern three would be analyzed the same way, the only difference being that the second noun phrase would contain a noun/classifier as well as a numeral. For Shen Pei, the advantage of this analysis is that since in the traditional view appositives have freedom of movement with respect to one another, the seeming randomness of the syntactic order becomes explainable.

The position of the constituents of an appositive phrase tends to be able to change so that N Num order and Num N order can both be mixed together on the same charge of an inscription. (208)

There are several objections to this hypothesis, the first being that for the N Num (order II) construction to be appositive, the numeral would have to be functioning as a noun phrase (NP), since according to this traditional definition of appositive, both parts of an appositive pair must have the same syntactic function. Thus, in Num N (order I) constructions, the numeral would also have to be acting as a noun rather than as an adjective. This, however, runs counter to the fact that the normal order of noun modification in OBIL is Modifier + Noun, and this includes quantifier expressions, such as 多父 (the many Fathers) and 少雨 (sparse or light rain). Given this, it would be more natural to assume that the Num N order is simply
the normal order of noun modification with the numeral acting as adjective rather than a separate noun. Nor does this hypothesis explain why the Num N form is so much more common than the N Num form. If their relative positions were really freely interchangeable, then one might expect that they would be equally common. On the other hand, if one of the NPs was a more general version of the other, we would expect it should be the first so as to avoid redundancy. For example, (5) (a) is felicitous while (5)(b) is not.

(5) (a) I saw ten birds, eagles.
(b) *I saw eagles, ten birds.

Since eagles are birds, the use of birds in the second NP is redundant. In (5)(a) however, there is no problem because “eagles” adds new information about the type of birds. Thus, if the word order III of OBIL were really appositional in Shen’s sense, we would expect that examples like (6)(a) would be ungrammatical, while the unattested (6)(b) should be grammatical.

(6) (a) 誠 仇 十 人 王 童 祐 (26910)
mod. offer qiang ten people king receive aid
"(The King) is going to offer qiang, ten people, (and in doing so) the King (will) receive aid"

(b) *敍 十 人 仇
offer ten people, qiang

This strongly suggests that NP apposition, in the traditional sense, cannot explain the word orders of numerical expressions in OBIL.

In Chen (1956) the observation was made that the Num N order is more common in inscriptions referring to sacrificial victims, while the N Num order is more
common in recording numbers of animals captured in hunting inscriptions (112). Shen (1992) takes this observation a step further, saying that it is not only hunting inscriptions, but verifications in general, which tend to use the N Num order. With this in mind, and noting that in inscriptions where the number of sacrificial victims has not been determined, the order is nearly always$^{27}$ Num N, Shen makes the claim that when the N Num order appears, it generally means that the number has been determined (203)$^{28}$.

Another hypothesis based on a pragmatic distinction that Shen puts forward is that the N Num order is used when the type of victim was to be determined, as in this set of inscriptions:

(7a) 三豚此雨    (31191)
(We should offer) three piglets, (for) this (will bring) rain.

(b) 未成年人一此雨
(It) should be dogs, one, that we offer, (for) this (will bring) rain.

(c) 二犬此雨
(We should offer) two dogs, (for) this (will bring) rain.

---

$^{27}$ There are, in fact, exceptions to this rule such as (1051).
$^{28}$ This is however, logically flawed since the use of the Num N order when the number had not been determined does not entail that the opposite order entails the opposite pragmatic effect. It would be simpler to assume that the N Num order signifies that the noun has not been decided on rather than that the numeral has. In any case, there isn’t necessarily a one-to-one relationship between word order and information structure. This is something that must be determined empirically not simply assumed a priori.

$^{29}$ Shen (1992: 203) transcribes this graph as 猪 “swine”, but following JGWHJSW I transcribe it as 犬 “dog”. 
(d) 三犬此雨

(We should offer) three dogs, (for) this (will bring) rain.

The N Num order is used in (7b) to show that "the type of sacrificial victim has changed" (祭牲的類發生了變化)(203). Although Shen doesn't try to apply this principle beyond sacrificial victims, this is really a case of contrastive focus: a type of focus where the focused noun, in this case "swine", contrasts with a previously mentioned noun, "piglet". As we will attempt to show in chapter 3, it is focus that is the real motivation behind the choice of one numeral order or another.

There is, however, a problem with the first of these two pragmatic hypotheses, which is its incompatibility with the contrastive hypothesis. If the N Num order means that the number has been decided on, then there should be no need for (7)(c) and (7)(d) in the example above. While it is possible that the Shang used the N Num order for more than one unrelated purpose, that these purposes should be contradictory seems unlikely in the extreme. Thus, it would seem that another hypothesis is needed to explain the prevalence of the N Num order in the verifications, other than the number already having been determined. One such hypothesis, proposed in Itō & Takashima (1996 [Takashima 1984]), is the New / Old hypothesis discussed in the next section.

2.1.3 The New/Old Hypothesis

In Itō & Takashima (1996 [Takashima 1984]) the hypothesis was presented that the decision to use the Num N order, or the N Num order was pragmatically based, and more specifically, a function of whether a given piece of information was
considered, by the speaker, to be new, or old information, to the listener. Takashima states “that when the pattern Numeral + Noun appears, the numeral serves as the focal point carrying new information in a series of divinations, while the noun retains old information” (222). In the case of the N Num and N Num N orders, both the noun and the number are considered new information (214). Applying this to the example above, we note that the N Num form in (7) (b) occurs when a new sacrificial victim is used and that the numeral is new also. In (7) (c) and (d), where the numeral comes first, we note that the noun is now old information. The following example demonstrates that this also holds for order III.

(8) a) 王其俽于小乙羌五人王受祐

king mod. offer to Xiaoyi qiang five people king receive aid

“The King is going to offer to Xiaoyi qiang, five people and (in doing so) the King will receive divine aid”

(b) 十人王受祐

ten people king receive aid

“(The King should offer) ten people, (for in doing so) the King will receive divine aid”

(c) 劝俽羌

should not offer qiang

“(The King) should not offer qiang”

From the fact that kind of victim and number are still being proposed in (b) and (c) it

30 In translating qi as “going to” I am using the idea proposed in Takashima (1996:11) that there is “‘anticipative’ or ‘prospective’ aspect, lexicalized (or represented) by qi”. Thus, the king intends to make an offering and qi expresses both modality (in the sense of wish/intention) and aspect.
is easy to see that both “qiang” and “five people” are new information in (a).

Takashima’s new / old hypothesis can also offer an explanation for the prevalence of the use of the N Num pattern in the hunting inscriptions, and verifications in general, and without the contradictions that Shen’s hypotheses run into.

(9) 乙未卜, 爰申壬田獲, 允獲鹿九 (10309)

Cracked on Yi Wei day, on the coming Bingshen day, (if) the King hunts (he will) catch (something). Indeed (he) caught deer, nine.

In this typical hunting inscription, the charge divines about a proposal that the King will catch something on a certain day, but doesn’t mention what he will catch. In the verification, that he caught something is verified, but what he caught, and how many, are entered into the discourse for the first time. Thus, as the new / old hypothesis predicts, the order is N Num.

More evidence supporting Takashima’s hypothesis can be found in Shen’s (1992) examples of hunting verification exceptions, where the noun comes after the numeral.

(10) (a) 壬辰卜, 王, 我獲鹿, 允獲八豕 (10951)

Renchen cracked king we catch deer indeed caught eight swine

“Renchen day cracked, the King (tested), we will catch deer. Indeed, (we) caught eight swine”
(b) 庚戌卜，彭貞：亡災撻[／]撻三鹿  (28325)

*Genxu* cracked Peng tested not have disaster capture … capture three deer

“*Genxu* day cracked, Peng tested: (There will be) no disaster, (we will) capture … (we) captured three deer”

(c) 辛巳卜，才箋，今日王遂撻擒 允撻七兎  33374 反

*Xinsi* cracked at Ji now day king pursue buffalo capture indeed capture seven buffalo

“*Xinsi* cracked, (tested) at Ji, today the King should pursue buffalo, (for if he does he will) capture (some). Indeed (he) caught seven buffalo.

(d) [／]扶：□豕獲 允獲七豕  (20736)

… Fu … swine catch indeed catch seven swine

“… Fu (tested) … swine, (for if we do we will) catch (some).

Indeed, (we) caught seven swine”

The above four examples are quoted from Shen (1992: 198) and represent exceptions to his rule that hunting verifications always use the N Num order. Disregarding (10) (a) and (b) for a moment, we can readily see how the new / old hypothesis can be applied to (c) and (d). In both (c) and (d) the type of animal captured is mentioned in the charge and thus is old information in the verification. As expected, the order is Num N. In (10) (b), it is possible that the graph *lu* (鹿) was inscribed on the missing part of the text, this would explain why “deer” is treated as old information in the verification.
In (10) (a), as the translation suggests, there is an anomaly. Why the Shang would divine about deer and then verify that they caught swine is a mystery. The fact that the word *yun (允)* is used, meaning “indeed”, suggests that the diviner meant to inscribe *lu (鹿)*, but inscribed *shi (豕)* by accident instead.

Thus, of the three hypotheses, we can see that Takashima’s is the simplest and the most broadly applicable, indeed, it is the only one that doesn’t resort to the claim that the ordering of noun and numeral in some cases is simply not rule governed. We can see that Huang’s hypothesis that the N Num order is an archaism, doesn’t explain its synchronic use in OBIL (although admittedly that wasn’t the purpose of his paper). Likewise, we can see that Shen Pei’s use of the appositive nature of numerical modification in OBIL to explain the apparent way that the N Num, and Num N orders are “mixed together”, is unnecessary, because, in fact, this “mixing” can be explained in terms of new and old information.
Chapter Three  Focus and Word Order

While Takashima’s (1984) New / Old hypothesis works well in the examples shown in Chapter two, examples of “mixed order” offerings such as the following (Djamouri’s (1987) example (62), Peyraube’s (1991) example (5)), have been cited to refute it.31

(11) 癸未卜禨妣庚伐甘其三十三牢$\text{RUK}$

(22136, Qian 4.8.2)32

32 Djamouri (1987), and Peyraube, apparently following him, transcribe (Qian 4.8.2) as 癸未卜禨妣庚伐甘其三十三牢$\text{RUK}$ mistakenly transcribing what is clearly the graph for 其 as 曲. Yao Xiaosui (1988: 489) ignores the two instances of 三 (perhaps interpreting them as crack numbers) and interprets 三三牢 as belonging to a separate charge yielding,

i) 癸未卜禨妣庚伐甘其三十 巴兹
ii) 三三牢

However, as I believe the rubbing shows, this should be considered a single charge.

Moreover, it does not make any sense that on a bone with no other inscriptions there would be two
Guiwei cracked lustrate Ancesstress Geng decapituri twenty
perhaps thirty thirty specially reared cattle captives three three X
“Guiwei cracked, (we should) lustrate (someone) (in the presence of) Ancesstress Geng (with) decapituri, twenty, perhaps thirty, thirty specially reared bovines, captives three, three X”

In this example it has been claimed that the “discourse-level distinction (of new and old information) is hard to maintain” (Peyraube 1991: 107) and that orders I and II, “jouent un rôle syntaxique identique” (play an identical syntactic role) (Djamouri 1987: 38). Actually, it is not hard to maintain such a discourse level distinction, it only requires that 伐 fa “decapituri”, and fu “captives” are being introduced into the discourse for the first time while 牝 lao “specially reared bovines” and whatever (the last word) refers to are not. Thus, if it was previously decided that specially reared bovines and (last word) were to be offered in the lustration ritual and everything else is new information, then there is no problem with Takashima’s interpretation. Since there is no context to Qian 4.8.2 one cannot test this hypothesis. Thus, the only examples that are relevant to the testing of discourse hypotheses in OBIL are those where there are multiple divinations about the same topic, and thus, have a recoverable context.

instances of the crack number three. Also notice that the graph  that Peyraube and Djamouri transcribe as 給, and Yau as 茲 does not really resemble their oracle bone form 66. Since I have no idea what word this graph represented or even how to transcribe it, I think it is better to leave this as “reconstruction unknown” (RUK).

Though not directly relevant to the matter at hand, it should be noted that the use of 作 qi here is highly unusual. Although 荀 “lustrate” is a controllable verb, and thus 作 should express its modality on the scale of “intention/wish” rather than “possibility/certainty” (Takashima 1996: 7-8), the fact that two different quantities were proposed for the same victim suggests uncertainty in this case. Having said that, this uncertainty does seem very strange.
Djamouri's comment about syntactic roles is equally irrelevant since the distinction between new and old information is not syntactic in nature as the following English example shows.

(12) (a) I saw birds yesterday. (Answer to: What did you see yesterday?)
(b) I saw birds yesterday. (Answer to: When did you see birds?)

As we can see from (12) (a) and (b) have the same surface syntax and “birds” plays the role of internal argument to “see” in both cases, but the pragmatics are quite different: in (a) “birds” is new information, while in (b) it is old.

Another objection that could be raised to the new / old hypothesis is the low frequency of order II. If, as Takashima asserts, order II is used when numeral and noun are both new information, and if, as seems logical, it is necessary to introduce the thing being counted before or simultaneous to its quantity, then we would expect one of two things: either widespread use of order II in single divinations about sacrificial victims, or frequent use of bare nouns in preliminary divinations followed by divinations using order I. The reasoning for the first expectation is that if the Shang were just going to make one divination about “what” and “how many” to sacrifice, we would expect that they would use order II, since the victim must be introduced before its quantity can be determined. Since the majority of the divinations regarding ritual use order I without first introducing the noun by itself or with order II, we see that neither of our expectations is fulfilled. However, one could object that in the majority of cases the Shang diviners had already decided what their victim would be beforehand and were only interested in the quantity. Again the only way to test the new / old
hypothesis is with examples that have recoverable discourse context.

As it turns out, when one looks at examples where the context can be recovered, there do appear to be exceptions to the rule that order I is used when the numeral is new information and the noun is old, and that orders II and III are used when both noun and numeral are new information.

(13) (a) 猪豚 (30867)
mod. cop. piglets
“(It) should be piglets (that we offer)”

(b) 犬.
mod. cop. dogs
“(It) should be dogs”

(c) 犬犬又豚用.
mod. cop. dogs and piglets use
“(It) should be dogs and piglets that (we) use”

(d) 豚三.
piglets, three
“(We should use) piglets, three”

(e) 犬三.
dogs, three
“(We should use) dogs, three”
Since both *tun* 豚 and *quan* 犬 were mentioned in inscriptions (a) – (c), they are no longer new information in (d) and (e). Why then are (d) and (e) N Num and not Num N as the new / old hypothesis would predict?

(14) (a) 河燎二牛 (34246)
River offer in holocaust two bovines
“(To) the River offer in holocaust two bovines”

(b) 河燎三牛
River offer in holocaust three bovines
“(To) the River offer in holocaust three bovines”

(c) 河燎五牛
River offer in holocaust five bovines
“(To) the River offer in holocaust five bovines”

(d) 河燎射件羊二
River offer in holocaust mod.cop. sheep
“(What is) (to) the River offered in holocaust should be sheep, two”

(e) 河燎射件羊三

34 In translating the verb 燎 liao "to offer in holocaust" I am following Ito & Takashima (1996 [Takashima 1984]: 215).
River offer in holocaust mod.cop. sheep three

“(What is) (to) the River offered in Holocaust should be sheep, three”

In (14) (e), even though “sheep” has been introduced into the discourse in (d), the numeral still follows the noun contrary to what the new / old hypothesis would predict.

(15) (a) 罣五牢王受祐  (Tun 817)
Pierce five specially reared bovines king receive aid
“(We should) pierce five specially reared bovines, (for in doing so) the King (will) receive divine aid”

(b) 罣十牢王受祐
pierce ten specially reared bovines king receive aid
“(We should) pierce ten specially reared bovines (for in doing so) the King (will) receive divine aid”

(c) 𰀁五牢王受祐
mod.cop. five specially reared bovines king receive aid
“(It should) be five specially reared bovines (that we) pierce (for in doing so) the King will receive divine aid”

(d) 𰀀十牢王受祐
mod.cop. ten specially reared bovines king receive aid
"(It should) be ten specially reared bovines (that we) pierce (for in
doing so) the King will receive divine aid"

In (15) (c) and (d) we notice that both the noun and the numeral are old
information in (c) and (d) yet they use order I and moreover are preceded by هى hui,
despite Takashima’s (Ito & Takashima 1996 [Takashima 1984]: 216) assertion that
“hui and wu wei [the negation of hui] are used to introduce a noun or a noun phrase
which is highlighted or focused and carries new information”.

(16) (a) 甲午卜亀于父丁犬百羊七劉十牛 (32698)
Jiawu day cracked offer to Father Ding dogs hundred, sheep one
hundred, liu-cut ten bovines
“Jiawu day cracked, offer to Father Ding dogs, one hundred, sheep
one hundred, liu-cut ten bovines”

(b) 犬犬七星劉七
mod.cop. dogs hundred liu-cut seven specially reared bovines
“(It) should be dogs (that we offer), one hundred, (we should) liu-
cut seven specially reared bovines”

In example (16), even though 犬 quan is mentioned in (a) and 牠 lao is not, in (b)
quan appears in order II, while lao appears in order I, exactly opposite to what the
new / old hypothesis predicts.

To sum up, we have shown examples where order II appears, but the noun is old
information (13, 14, 16), where هى hui introduces old information (14, 15, 16), and
where the numeral is old information, yet order I is used (15, 16), all contra Takashima (1984). Is there really no rule that governs the use of the different word orders in OBIL numerical expressions as Shen (1992) and Djamouri (1987) suggest? I believe that there is, and that Takashima (1984) was basically on the right track with the new / old hypothesis. In the quotation from Ito & Takashima ([Takashima 1984] 1996) above, he notes that hui introduces a phrase that is “highlighted or focused”.

The intuition behind this and behind the difference between orders I and II/III is that word order change is used to create linguistic prominence to bring attention to something that is in psychological focus. Does this prominence necessarily have to coincide with new information? The answer to that I believe is no. In Campbell (2000) the idea was introduced that the word order distinction between post and pre-numeral noun position is based on linguistic focus rather than simply new versus old information. But what exactly is linguistic focus and how does it relate to psychological prominence? To tackle this question properly, it is necessary to explore the much studied, but as yet not fully understood, linguistic phenomenon of focus.

3.1 Focus

[35 In Campbell (2000) Rochemont's (1986) definition of focus was used which makes a distinction between presentational and contrastive focus, but treats them both as a unitary phenomenon based around the idea of new versus old information. Example (12) above was given as an example of Rochemont's contrastive focus, but, in fact, this does not follow. Under Rochemont's definition, something is contrastive focus if the expression it is extracted from becomes old information upon extraction. Note that this would not be true in the case of (12) (d) and (e) where extracting tun and quan leave behind an expression that contains new information (the numeral). In Campbell (2000) I argued that the noun and numeral were focused together, but, as I will argue in a later section, the noun and numeral in order II do not form a constituent. The problem, I believe, is that Rochemont's definition of contrastive focus cannot deal with multiple focus.

36 In the next section I will come to argue for a position that views linguistic focus as introducing a contrasting set of alternatives rather than simply being based on new information.

37 Bosch & van der Sandt (1999: xii) write, “There is not yet a complete theory that simultaneously handles all these notions [of focus] in a coherent way, let alone a comprehensive theory that integrates the intonational and syntactic realization, the interpretation, and the discourse functions of focus.”]
In the preface to Bosch & van der Sandt (1999: xi) the authors note that “from the point of view of natural language discourse, focusing is a means of structuring a series of utterances and, at the same time, from the point of view of processing discourse, it is a way of partitioning information”. Probably no one involved in the study of focus would argue with the claim that focus structures discourse and partitions information, the question then, is how? To address this question it is perhaps best to isolate and clarify what different scholars mean when they say focus, for they are not necessarily talking about the same phenomena.

3.12 Towards a Definition of Focus

Gundel (1994) makes a useful distinction between three kinds of focus, psychological focus, semantic focus and contrastive focus. The psychological focus is the current center of attention, while semantic focus is new information predicated about the topic and contrastive focus is linguistic prominence for the purpose of contrast or emphasis. Since what is in psychological focus is not necessarily linguistically focused (298), we will not concern ourselves with psychological focus. Looking at the last thirty some years of studies concerning linguistic focus, Gundel (1994: 295) defines semantic focus as follows,

38 Gundel (1994: 298) gives the following example to demonstrate the difference between these three kinds of focus.

a. And there was this temporary when George went over to econ.
b. And HE was in my office when SHE came in to borrow something.
c. And she said, she said, “Georgy-porgy puddin’-an –pie, kissed the girls and made them cry”.
d. And HE got this look on his face and he said, “THAT was only the three thousand, eight hundred and ninety-second time I’ve heard that!

In this example bold marks intonational or “semantic focus”, capital letters marks “purely contrastive
The term 'focus' has also been used to refer to that part of a sentence that is prosodically (and sometimes also syntactically) prominent. This use was introduced in Halliday 1967 and later developed in the generative literature by Chomsky 1971, Jackendoff 1972, Erteschik-Shir 1979, Rooth 1985, Rochemont 1986, Sgall et al. 1973, 1986, inter alia. But there are different reasons why a speaker might want to call attention to a constituent by making it more prominent, and this use of the term ‘focus’ thus covers at least two distinct notions (with different semantic and pragmatic correlates), which have often been conflated in the literature. One of these represents the new information that is being asserted (questioned, and so forth) in relation to what has variously been called the topic (for example, Sgall et al. 1973, 1986, Gundel 1974/1989, 1985, 1988), the presupposition (Chomsky 1971), the background (Jacobs 1991), and the common ground (Vallduvi 1992). Following Cutler and Fodor (1979) I refer to this type of linguistic focusing as semantic focus. (295)

From this description, it should be clear that what Gundel is referring to as “semantic focus” is the same thing as Takashima’s “new information” and Rochemont’s “presentational focus”.

Contrastive focus on the other hand, Gundel (1999: 296) defines as follows,
The semantic focus is given linguistic prominence because of its newness in relation to the topic of the sentence. But this is clearly not the only reason for calling attention to some constituent. Constituents may also be made prominent because the speaker/writer doesn’t think the addressee’s attention is focused on a particular entity and for one reason or another would like it to be, because a new topic is being introduced or reintroduced (topic shift), or because one constituent (topic or semantic focus) is being contrasted, explicitly or implicitly, with something else.

Example (17) (Gundel’s example (10)) illustrates the difference between semantic and contrastive focus, where semantic or presentational focus is marked in bold, while the contrastive focus is capitalized.

(17) (a) What did Bill’s sister do?
(b) Bill’s YOUNGEST sister kissed John.

Here the answer to the Wh-question is supplied by “John”, while “youngest” introduces a contrast between Bill’s sisters. Gundel further notes that,

... all sentences (at least all sentences used as communicative acts) have a semantic focus, because the distinction between relevant context (topic) and new information predicated in relation to that context (semantic focus/comment) is an essential part of the function of sentences in information processing; but not all
sentences have a purely contrastive focus… (296)

Thus, purely contrastive focus is outside of, or in addition to, the normal topic / comment information structure of the sentence. Contrastive focus in and of itself is not concerned with the new / old dichotomy:

What distinguishes contrastive focus from semantic focus is that contrast is its primary function. Constituents that receive contrastive focus (such as new topics) are emphasized in contrast to other elements that might occupy that position; constituents that receive semantic focus are emphasized because they represent new information being predicated of the topic. The fact that this new information is (implicitly or explicitly) in contrast with other things that may have been predicated of the topic is a secondary effect. (298)

In this we can see that Gundel is using two independent, but overlapping parameters to define contrastive and semantic focus. In the case of the former, the parameter is ± contrast, in the latter it is ± new. Naturally, these features can overlap so that semantic focus is implicitly in contrast with other possibilities (see Rooth (1992, 1996, 1999)). However, as Gundel pointed out above, while it may be that all new information is in contrast, not everything being contrasted is new. This latter situation is what Gundel refers to as “purely contrastive focus”. From this then, we could say that the litmus test is whether or not a given focus is new information.39

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39 This formulation implies that “newness” takes priority over “contrast”. This, however, is a
In terms of the realization of contrastive focus Gundel notes,

Like semantic focus, contrastive focus may be marked by virtually any linguistic means (prosodic, syntactic, or morphological) across languages, and the same device may mark both in any given language. (296)

One might wonder if this mean that in a language that marks both contrastive and semantic focus with the same means, the only way to distinguish them is through “newness” Gundel, however, claims that another distinction is that semantic focus is truth-conditionally relevant, while contrastive focus is not. To illustrate this, she gives the following examples (her (24) and (25)).

(18) (a) The largest demonstrations took place in Prague in November 1989.

(b) The largest demonstrations took place in PRAGUE in November 1989.

Gundel claims that unlike (a), (b) would still be true if the largest overall demonstrations took place in Budapest, while the largest that were in Prague were in November. However, this confuses two readings of the sentence, paraphrased as (19) (a) and (b).

questionable assumption since there are examples where “contrast” is arguably at least as important as “newness”, such as in i) below.

i) A: Did you hear that John hit Bill yesterday?
B: Actually, John hit Bob.
(19) (a) The largest demonstrations that took place in
Czechoslovakia in November 1989 took place in Prague.

(b) The largest demonstrations that took place in Prague were in
November 1989.

Since the structure of (19) (b) will not allow Prague to be semantically focused\(^{40}\). (18) (a) only has reading (19) (a). However, for (18) (b) Gundel only considers reading (19) (b) (which actually is harder to get than (19) (a)). If we use reading (19) (a) then if the largest demonstrations took place in Budapest, (b) is false\(^{41}\). Thus, from this we can see that contrastive focus can also be truth-conditionally relevant.

To summarize, it seems that if we use Gundel’s (1999) taxonomy of linguistic focus, then semantic focus is that which is predicated with respect to the topic and thus new information, while purely contrastive focus is that which the speaker wishes to draw attention to, but which is not new information.

### 3.12 Presupposition, New Information and Alternative Semantics

Thus far we have been using concepts such as “new information”, “predication with respect to the topic” and “emphasis” in a rather vague and intuitive way. In fact, there is a good deal of controversy about how to define these terms and Gundel’s characterization of the distinction between contrastive and presentational focus,

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\(^{40}\) This is because the phrase “that took place in Prague” acts as the topic for the rest of the clause, preventing “Prague” from being understood as the semantic focus.

\(^{41}\) This reading could arise in the following context:

A: Do you know if the largest demonstrations that took place in Czechoslovakia in 1989 took place in Prague or Belgrade and what month were they in?

B: The largest demonstrations took place in PRAGUE in November 1989.
although a good starting point, is not necessarily accepted by everyone. For instance, not everyone agrees on the nature of what Gundel has lumped together as "the topic", "the presupposition", "the background" and "the common ground", their relationship to focus, nor even whether these things can be taken as equivalents. Yet, since this is what focus (or at least presentational focus) is supposed to be predicated with respect to, distinctions in this area can make a great difference in one's formulation of focus. To clarify the issue and come to our own understanding, we will explore a few of the more recent proposals in the literature.

3.1.2.1 Focus and New Information

In Rochemont (1986) the idea was introduced that focus is basically defined in terms of whether a given constituent is "context construable" or not. This in turn is linked with the vague notion\(^{42}\) of "under discussion". This notion is distinguished from Chomsky (1971) and Jackendoff's (1972) "presupposition", because factive verbs, which are accounted to be presuppositional, can be freely focused. Thus according to Rochemont & Cullicover (1991: 22) "the term 'presupposed' in this usage is undefined". Presentational focus then, is basically determined by not being "under discussion" and is thus new information. Contrastive focus, as noted above, is defined as that constituent in a string with new information which upon extraction from the string will render the string context construable. In other words, a constituent that although previously introduced into the discourse, still manages to introduce new information in its relationship with other constituents. This seems like an elegant way

\(^{42}\) As Rochemont & Cullicover (1991: 20) admit, "we recognize that this account is vague, in that the term 'under discussion' is not defined".
to unify focus under the concept of newness, but what about sentences like (20)?

(20) A: I saw Rob yesterday

B: No, you saw Bob.

A: I saw Rob. I think I’d know, and who is BOB anyway?

B: BOB is Rob’s twin brother from Australia, they are changing places for a month.

Although both “Rob” and “Bob” are introduced in the first two sentences and cannot be considered new information, “Rob” would seem to be focused in the third sentence where it cannot be interpreted as contrastive focus under Rochemont’s (1986) definition since with or without “Rob” the sentence is context construable.

Rochemont & Cullicover (1991: 23) deal with this problem by claiming that examples like the second occurrence of Rob in (20) are not focus, but special cases of “contexts of repair”: where the assignment of stress is “in violation of principles of grammar with the sole function of repair”. This amounts to stipulating that in situations where a proposition is stressed and repeated without introducing new information, it is functioning to “repair” an error in communication and cannot be considered focus.

Since as Rochemont & Cullicover admit themselves, there is no simple one-to-one correlation between focus and intonational stress, ruling examples like (20) out simply because they fail to obey predicted rules of stress assignment is rather arbitrary.

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43 I have continued to use bold to indicate presentational focus and capitals to indicate contrastive focus although now I am using Rochemont’s definitions of the terms. Note that although “Bob” is new information in the second sentence, it is also clearly contrasting with “Rob”. This raises a problem for Gundel’s vague distinction between contrastive and semantic focus being based on primary function: is the primary function here “newness” or “contrast”? My intuition is that “Bob” should be considered contrastive focus.
3.1.2.2 Focus and Presupposition

Zubizarreta (1998) on the other hand, claims that focus is presuppositional, and that it doesn’t have anything to do with newness except superficially. She refutes Rochemont’s (1986) argument that stative verbs, although inherently presuppositional, can be focused, by saying that such lexically imposed presupposition does not entail context presupposition. In other words, even though “I didn’t realize Mary was bald” presupposes that Mary is bald, Zubizarreta argues that this presupposition was not originally part of the speaker’s set of presuppositions. The problem with new and old information, according to Zubizarreta, is that focus cannot be uniformly defined in terms of new information alone and “a unitary definition is a priori desirable” (161). Having said that however, she goes on to define, in addition to regular focus, contrastive focus and emphasis. Contrastive focus, she claims, is like focus only its context is provided by a statement rather than a question. In addition, it negates the assertion in its background (or negates part of it) and introduces an alternative as in ((21), Zubizarretta’s (14)).

(21) John is wearing a RED shirt today (not a blue shirt)\(^4\).

[John is wearing a blue shirt today].

In this example the context is provided by the sentence in square brackets. Thus, we can see that for Zubizarreta contrastive focus has the quality of contrariety (see also van Deemter (1999)) and that it can’t be the answer to a question. Also, as we can see

\(^4\) Note that in Gundel’s system one would now have to decide which the primary function was, "newness" or "contrast", while in Rochemont’s system this is either presentational focus or a context of repair.
from the example above, “red” is not presupposed, so contrastive focus still falls under Zubizarreta’s definition of focus. What about cases where the focus is old information as in (22)?

(22) JOHN kissed MARY and MARY kissed JOHN.

[Who kissed who]

Despite this being an example of what Rochemont (1986) would call contrastive focus, it is not clear how Zubizarreta could deal with this. On the one hand the focus on “John” and “Mary” in the second sentence don’t negate anything in the first sentence, while on the other hand, their existence is clearly presupposed if existential presupposition is the sense of presupposition that Zubizarreta has in mind. This brings up Rochemont & Cullicover’s (1991) objection that presupposition, in the Chomsky (1971) and Jackobson (1972) framework (which Zubizarreta is following), does not mean what it usually does, and that it is ill-defined.

A further problem with Zubizarreta’s account is that like Rochemont and Cullicover she assigns everything that doesn’t fit into her definition of focus to an exception category she calls “emphasis”. To this she assigns such diverse phenomena as focused nouns that can’t be stripped of their quantifiers ((23) (a)), complete negations of assertions ((23) (b)) and contexts of repair (or at least those ones that aren’t contrastive focus) ((23) (c)).

(23)(a) Every COOK came to the party.

(b) NOBODY wrote a book about rats.

[Who wrote a book about rats?]
(c) I TOOK the garbage out.

[Why didn’t you take the garbage out?]

The first example seems especially arbitrary since “COOKS” in “Few COOKS came to the party” is focus according to Zubizarreta. Zubizarreta’s problem is that she can only get one reading for (23) (a) while she can get two for “Few COOKS came to the party”45. However, it is quite well established that weak quantifiers can have a strong reading as well as a weak one (Hiem 1988, Diesing 1992 etc.). The problem for Zubizarreta is that she would like this to be focus related and when she cannot make it work, she consigns the misbehaving examples to “metagrammatical” purgatory. The example (23) (b) is also quite telling. Despite the fact that (b) is a well formed response to a WH- question (Zubizarreta’s archetypal focus situation) and “NOBODY” is clearly accented, it does not count as focus, because to allow it would undermine the idea that focus is based on presupposition. Since in Zubizarreta’s view, focus is the non-presupposed part of the sentence which is predicated with respect to

45 Actually, I believe the problem here is Zubizarreta’s concept of focus. If we compare the unfocused i) with its focused counter part ii) we can see that though there is a truth-conditional difference, Zubizarreta’s characterization of the facts may not be correct.

i) Few cooks came to the party.
ii) Few COOKS came to the party.

Example i) is ambiguous between the strong and weak readings (“few of the cooks came”, versus “the cooks were few in number”), while ii) gives a focus reading as well (see Herburger (2000)) “few that came to the party were cooks”. Now is it true that iv) exhibits no focus reading?

iii) Every cook came to the party
iv) Every COOK came to the party

While iii) does in fact have only one reading (the strong, “Everyone who is a cook came to the party”), iv) has yet another reading, “The cooks all came to the party but only some of the bakers and waiters made it”. It seems to me that this reading is really the same as the focus reading of ii) in that “COOKS” are being contrasted with other types of people to yield the above reading. If this is true then the focus reading of ii) should really be “few cooks came to the party, but lots of bakers and waiters made it”. If this is so then it strikes a blow against both Herburger’s and Zubizarreta’s accounts where focus is explained in terms of variables taking scope over their restriction rather than as a set of alternatives.
the presupposed part, but (b) denies the original assertion, and thus that it is
presupposed, there is no presupposition in (b) and thus there can be no focus
predicated with respect to it. Given that (b) is well formed, we might legitimately
question whether focus really has anything to do with presupposition at all. The same
point could be made about (c) which also denies a presupposition and is banished
from the realm of focus for its crimes.

3.1.2.3 Alternative Semantics

A different, and more semantically oriented account of focus is given in Rooth
(1992, 1996, 1999). In these accounts focus introduces a contrast set which serves to
evoke alternatives constrained by context. Thus, in the sentence “Ede wants [coffee]”,
(where [ ] signifies focus), the set of alternatives is “the set of propositions of the
form ‘Ede wants y’”. Although Rooth’s various formulations of his “alternative
semantics” account of focus are quite a bit more involved than what I have presented,
for our purposes, the idea of focus introducing a contrast set will suffice. Under this
analysis there is no problem with examples (20) or (23) (a) – (c). In (20) this is
because the second occurrence of “Rob” is in contrast with other people that the
speaker could have seen and since there is no reference to newness or presupposition
in this formulation of focus, the fact that “Rob” was mentioned before is immaterial.

46 A characteristic of many accounts of focus, especially those by syntacticians, is a preoccupation with
issues of quantifier scope and its interaction with focus (see Chomsky (1971, 1977), Rochemont (1986),
Hajicova, Partee and Sgall (1998), Partee (1994), Herberger (2000), etc.). This preoccupation may have
more to do with the concerns and present orientation of generative syntactic theory than with the
semantics of focus itself. It may turn out that focus – quantifier scope interactions are but one aspect of
focus and that characterizations directed at this issue alone will ultimately fail to account for all the
data. In any case, unless quantifier – focus scope interactions occur overtly in the surface structure of
the oracle bone and bronze inscriptions (and they do not appear to) then, as the relevant data is
unrecoverable, this kind of analysis is not directly relevant to the question at hand.
This lack of relationship with presupposition also saves examples (23) (b) and (c). Example (23) (a), on the other hand, as argued above (footnote 22), is actually an argument for Rooth’s alternative semantics over a Herburger (2000) or Zubizarreta (1998) style scope analysis since a focus reading is attainable. Adding another nail in the coffin of the “focus as non-presupposed material” hypothesis, is Rooth’s (1996, 1999) argument that the non-focused element is not necessarily presupposed as the following examples (Rooth’s (1999) examples (36) & (37)) show.

(24) A: Did anyone win the football pool this week?
B: Probably not, because it’s unlikely that [Mary]F won it, and she’s the only person who ever wins.

(25) B: *Probably not, because its unlikely that it’s [Mary]F who won it, and she’s the only person who ever wins.

Example (24) shows that with just focus, B’s answer is felicitous and does not presuppose that anyone won the football pool (to do so would contradict the assertion “probably not”). Example (25) however, where the focus is cleft, forces the presupposition that someone won and consequently cannot be uttered without contradiction.

This leads us to another point, as mentioned above, Rochemont (1986) and Rochemont & Cullicover (1991), treat cleft sentences as an instance of the larger phenomenon of focus which also includes intonational focus. Zubizarretta (1998) and Herburger (2000), on the other hand, only attempt to account for intonational focus. In this respect Rooth (1992, 1996, 1999) is the same. This is not to suggest that cleft
sentences do not introduce a contrastive set, only that cleft sentences and certain phenomena included under the rubric of focus in English and other languages (such as focus movement in Hungarian) do not necessarily have the same set of semantic features in common. In fact, Rooth (1996: 296) makes an argument against uncritically extending his account of intonational focus in English to other constructions.

I have argued that intonational focus in English has a weak semantics of evoking alternatives. This conclusion has no immediate bearing on the semantics of other constructions in English and other languages which we choose to describe as focusing constructions.

However, despite his caution, he suggests below that the weak semantics of alternatives might be the common core of cross linguistic “focus” phenomenon.

... the common core might turn out to be the weak semantics of the prominence feature in English, with some constructions and morphemes expressing additional semantic content – such as existential presupposition or exhaustive listing ... (296)

Ultimately then, with the present state of research into focus as it now stands, the applicability of any of the above formulations to the OBIL case might seem questionable. Indeed, doing so without reference to the semantics of OBIL structures in question would be premature, but, as we will show below, the semantics of weak
alternatives does offer a uniform explanation of the new / old hypothesis exceptions
given as examples (13) – (16) above. Whether there is also an exhaustive listing and
existential presupposition, however, is another matter. Keeping Rooth’s (1996)
cautionary note in mind I will continue to call the structures involving alternative
listings in OBIL and BIL focus, while remaining cognizant of the fact that these
structures might also have additional semantic features.

Now that we have a working definition of focus, let us return to the original
taxonomy of focus and the distinction between presentational and contrastive focus.
Unlike the other authors mentioned above, it does not seem necessary to make a
distinction between contrastive and presentational focus in Rooth’s account. In other
words, whether something is new information or old, it can still give rise to an
alternate set when focused. The only distinction that might be made is how
constrained this alternate set is as in (26) where the implicature of A could be said to
constrain B’s set of alternatives.

(26) A: Did Bob eat my cake or did Joe?
B: [Bob]r ate your cake.

This argument is easily defeated by a negation of the implicature, however, as in the
alternative answers to A given in (27).

(27) (a) B: Neither, [I]r did.
(b) B: [Nobody]r did, its right here.

As we can see, the semantics of alternatives cannot be constrained by the assumptions
of the speaker in (27), but does that mean that B's answer in (26) does not imply an alternative set that only includes Joe? I believe the answer is negative, and that in cases where the presupposition of the speaker is defeated, the alternative set that he asserts is also defeated and replaced with one unconstrained by his presupposition. This is similar to a situation where new information is introduced, such as in the reply to the question “who ate my cake?”. The alternative set to the answer is only constrained by being a member of the set of things that could be “x” in the string “x ate my cake”. It seems then that we could still make a distinction between a type of focus where the alternative set is constrained to a limited set and one where the set is unconstrained. This in turn could be linked to the idea of new information in that a focus that is new information will necessarily have an “unconstrained” alternative set. Thus in effect, I am assuming that while focus does not necessarily entail new information, new information does entail focus.

3.1.3 Multiple Focus

There is one final theoretical issue that must be tackled before we can return to the OBIL examples. This is the issue of multiple focus. If we are going to rephrase Takashima’s (1984) hypothesis concerning new and old information in terms of focus, then in orders II and III, since both the noun and numeral are new information, we must ask whether this is a case of multiple focus? In other words, is “bovines, two” a possible proposition regarding the underlying WH-question, “what and how many”, or is the numeral simply part of the question “what” like an ordinary adjective.

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47 It should be clear that when we say “unconstrained”, we do not mean totally unconstrained, only that the set is not a fixed number of alternatives.

48 I am aware that this formulation may be too strong, but I think that it does capture a generalization that is basically correct.
Since we know that number and noun can be proposed separately as in (28), and as we will see below there is reason to believe that the numeral does not form a constituent with the noun in order II (or the first noun in order III), it seems that we are dealing with a multiple focus situation.

(28) (a) 甲戊卜, 翌乙亥侑于祖乙  (557)

*Jiaxu* cracked next *Yihai* offer to Ancestor *Yi*

"*Jiaxu* day cracked, next *Yihai* day (we should) offer to Ancestor *Yi*"

(b) 貳: 其侑于祖乙牢
tested perhaps offer to Ancestor *Yi* specially reared bovines

"Tested: (we should) perhaps offer to Ancestor *Yi* specially reared bovines"

(c) 貳: 三十牢
tested thirty specially reared bovines

"Tested: (we should offer) thirty specially reared bovines"

(d) 貳: 五十牢
tested fifty specially reared bovines

"Tested: (we should offer) fifty specially reared bovines"

This means that the Shang diviners had the option of proposing victim type and number in separate proposals or they could combine two proposals in one (or rather a
main proposal and a subproposal). This would be something like Keightley’s (1972: 22) “package deal”. In the hunting and war verifications that list trophies, the noun and numeral function as answers to two unspoken WH-questions, “what did you capture or kill, and how many”.

This is not to be confused with what Krifka (1991: 130) calls “complex focus”, with which it bears a superficial resemblance. A “complex focus” is one in which two foci are related to one focus operator as in “John only introduced [Bill] to [Sue]”. In Rooth’s account the alternative set of the focus would be the set of pairs x, y such that “John only introduced x to y” is a possible sentence. Note, however, that it is impossible to find a single operator that could bind an example such as “We should offer swine, ten of them”. Nor is it possible to ask “What should we offer and how many of them” without a conjunction. This suggests that the above cannot be construed as a multiple WH- question but rather two separate questions, with VP ellipsis. If we combine the observation that “how many” is subsidiary or parenthetical to “what”, with the fact that examples like (29) seem to be a single sentence, then we must come to the conclusion that order II and III examples form a kind of “nested focus”.

(29) 己巳卜, 彭貞: 禦于河羌三十人 (26907)

*Jisi* cracked Peng tested lustrate to River *qiang* thirty people

“*Jisi* day cracked, Peng tested: (We should) lustrate (someone) to the River with *qiang*, thirty people”

Conceptually, “*qiang*” would first evoke a set of alternatives with respect to the proposition “(We should) lustrate (someone) to the River with x”, then a second
contrast set would be created with respect to the proposition “qiang, y people”. In this way, the first noun provides the primary focus and the numeral provides a secondary focus, dependant on the first.

3.2 Alternative Semantics and The New / Old exceptions

At this point, it is time to attempt to apply our account of focus to examples (13) – (16), repeated below as (30) – (33).

(30)(a) подобник  
mod.cop. piglets
“(It) should be piglets (that we offer)”

(b) подобник собак
mod.cop. dogs
“(It) should be dogs”

(c) подобник собак и подобник
mod.cop. dogs and piglets use
“(It) should be dogs and piglets that are used”

(d) подобник

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49 The focus semantic values would be as follows,

$[[\text{Lustrate to the river with } \text{qiang}]^F]]^f = \text{the set of propositions of the form “Lustrate to the river with } x \text{” and the subsidiary,}$

$[[\text{qiang} \cdot [\text{thirty}]^F \text{ people}]]^f = \text{the set of propositions of the form “qiang, } x \text{ people”}.$
piglets, three

“(We should use) piglets, three”

e)

dogs, three

“(We should use) dogs, three”

Explaining this example in terms of alternative semantics is fairly straightforward: the first occurrence of 豬 tun “piglet”, evokes a contrast set of other things that the Shang could use in the sacrifice (perhaps constrained to only a few choices). Example (b) can be likewise explained except that its contrast set now includes “piglet” (although possibly other things as well). In (c) the contrast set includes both “piglet” and “dog” considered individually. Example (d), our problematic one for the new / old hypothesis, has tun “piglet” and 看 san “three” focused separately. The contrast set of “piglet” are the alternatives “dogs” and “piglets and dogs” and perhaps other unmentioned possibilities. The contrast set of “three” is the set of cardinal numbers. Example (e) can be analyzed analogously to (d), while the fact that 犬 quan “dogs” is contrasted with tun “piglets” in (d) shows that the kind of thing to be used has not been decided.

(31)(a) 河燎二牛 (34246)

River offer in holocaust two bovines

“To the River, we should offer in holocaust two bovines”
(b) 河燎三牛
River offer in holocaust three bovines
“To the River, we should offer in holocaust three bovines”

(c) 河燎五牛
River offer in holocaust five bovines
“To the River, we should offer in holocaust five bovines”

(d) 河燎申羊二
The River offer in holocaust mod.cop. sheep, two
“To the River, (what is) offered in holocaust should be sheep, two”

(e) 河燎申羊三
The River offer in holocaust mod.cop. sheep, three.
“To the River, (what) is offered in holocaust should be sheep, three”

In this example the problem for the new / old hypothesis was that in (e), even though “sheep” was already mentioned it appears in the new information position. This can now be explained by saying that “sheep” in (e) is still focused50 and forms a contrast set with “bovines” and perhaps other sacrificial alternatives. In other words, the diviner had still not decided what the appropriate kind of victim would be and thus continues to make propositions about kind in addition to number.

50 That “sheep” is still in focus is clearly demonstrated by the modal copula 会 hui which serves to mark for focus.
(32)(a) 奏五牢王受祐 （tun 817)

pierce five specially reared bovines king receive aid

“(We should) pierce five specially reared bovines (for if we do) the
King (will) receive divine aid”

(b) 奏十牢王受祐

pierce ten specially reared bovines king receive aid

“(We should) pierce ten specially reared bovines (for if we do) the
King (will) receive divine aid”

(c) 奏五牢王受祐

mod.cop. five specially reared bovines pierce king receive aid

“(It should) be five specially reared bovines (that we) pierce (for if
we do) the King will receive divine aid”

(e) 奏十牢王受祐

mod.cop. ten specially reared bovines pierce king receive aid

“(It should) be ten specially reared bovines (that we) pierce (for if
we do) the King will receive divine aid”

In this example our original problem was that hui introduces old information
since in both (c) and (d) the focus has been previously proposed. As in the examples
above we can take refuge in the claim that the propositions in (a) and (b) obviously
didn’t get a satisfactory response and so they are being proposed again. The
interesting thing now, though, is to decide whether the noun is part of the focus as in (32) (d) and (e) and thus evokes an alternative set, or whether only the numeral does so. If we wish to keep in the spirit of Ito & Takashima (1996 [Takashima (1984)]) then we would propose that the diviner was not interested in the type of victim and only mentions it as an overt realization of what the number is quantifying. If this is so then the alternative set evoked by the focus in (c) is of the form x number of 牠lao “specially reared bovines”, although this set might be restricted to five or ten. Proposition (d) can also be handled in the same way.

(33) (a) 甲午卜侑于父丁犬百羊百劉十牛 (32698)

*Jiawu* day cracked offer to Father Ding dogs hundred sheep hundred *liu*-cut ten bovines

“*Jiawu* day cracked, (we should) offer to Father Ding dogs, one hundred, sheep one hundred, *liu*-cut ten bovines”

(b) 勢犬百劉七牢

mod.cop. dogs hundred *liu*-cut seven specially reared bovines

“(It) should be dogs, one hundred (that we should offer), *liu*-cut seven specially reared bovines”

In this example there were two problems for the new / old hypothesis: that 犬百 “dogs, one hundred” appears in order II even though neither numeral nor noun can be considered new, and both the number and numeral are new in the phrase 七牢

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51 There are also examples where this noun is not realized overtly, see (Bing 632, 540) for examples with context.
“seven specially reared bovines”, yet order I is used. The first point is easily explained by pointing out that the alternative set of “dogs” is at least “dogs and sheep” and perhaps the larger set of things that could be offered to Father Ding. The second problem, however, is more difficult to solve. If we wish to hang on to the hypothesis that the noun in order I is unfocused, we must contradict our proposal that new information is always focused. If we allow the noun in order I to be focused then what is the difference between orders I and II? In fact, this is not as much of a conundrum as it would first appear. Remember that we claimed that orders II and III are in fact examples of multiple focus with one focus subsidiary to the other. If order I may be considered an instance of complex focus where two things are focused together, answering the question “How many should we offer of what?” as opposed to “What should we offer, and how many?”, then we have a natural account of not only examples like (33) (b), but why order I is so common in the sacrificial inscriptions contrary to what we would expect if only the numeral was focused. Put another way, the difference between order II and cases like (33) (b), is that in the former, but not the latter, the diviner is interested in kind of victim independent of number and then number secondarily. In the latter case the diviner is inquiring about the number of instances of the noun in question. It must be mentioned that this account ultimately limits the predictive powers of the focus hypothesis. According to Ito & Takashima (1996 [Takashima 1984]), the information structure of the inscriptions was transparent and predictable based on word order. In our present account however,

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52 I say at least because “dogs and sheep” are overtly contrasted with “dogs”, but we have no way of knowing if the question behind the proposal is “What should we offer?” or “Should we offer dogs and sheep or just dogs?”.

53 Note that this does not imply that order I is always a case of complex focus. It is the unmarked case and can be used when neither numeral nor noun is focused, when only the numeral is, or when the numeral and noun are focused together as complex focus.

54 Eventually I will come to argue that in order II the noun is transnumeral and refers to the properties true of the kind in question, while in order I the noun refers to individuals.
word order is not enough to reconstruct information structure in all cases. Naturally this ambiguity is not a desirable outcome from the point of view of explanatory adequacy, but given the data, the restrictions imposed in working with a dead language, and the complicated nature of focus phenomenon, it seems unavoidable.

55 As pointed out above, the unmarked order is ambiguous between several readings. To distinguish them in actual speech, the Shang may have had phonological as well as morphological and syntactic means of marking focus as is the case in Modern Chinese (see Fang (1995)), English and many other living languages.
Chapter Four  Syntactic Analysis

4.1 The Predicate Numeral Hypothesis

As pointed out earlier, the null hypothesis with regard to order I is that the numeral is functioning as an adjective, as it does in many languages. In order I, the numeral occurs in the pre-nominal modifier position, immediately before other adjectives when they appear (as in English), as in (34) (a). Weak quantifiers such as 多 duo “many” and 少 shao “few” also appear to be modificational when they appear in the pre-nominal position (as opposed to functioning as predicates post-nominally) (35). Numerals also pattern with adjectives in being able to form “name compounds” in OBIL (36).

(34) gui-cut ten small specially reared sheep.

“We should gui-cut ten small specially reared sheep”

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56 Milsark (1977) and Diesing (1992) argue for the now standard account that numerals function as adjectives on their weak reading, simply assigning cardinality through predicate modification in Fregean compositional semantic terms. See Herburger (2000: 133) however, for the opinion that weak unary determiners (like numerals) are unrestricted quantifiers rather than adjectives. The syntax and semantics of numerals in modern Mandarin is more complicated since there is also a classifier that appears between the noun and numeral (see Tang (1996), Li (1999) and Cheng & Sybesma (1999), for various proposals for the syntactic structure of Mandarin DPs). It should be noted that many scholars believe that, like in Classical Chinese, OBIL numerals are basically verbs. From a semantic point of view whether one wishes to call a numeral an adjective or an intransitive verb makes no difference, either can function as a modifier or a predicate. In fact, Pulleyblank (1995: 24) claims that adjectives are a subclass of verbs in Classical Chinese. The question of whether numerals are adjectives or verbs or whether there is any difference between the two categories, is strictly a syntactic question. However, at the moment I am unable to conceive of any syntactic tests that might determine whether adjectives/verbs are one category or two, or to which numerals belong.

57 Actually the word shao 少 “few” is hard to semantically distinguish from 小 xiao “small” in OBIL (where 少 is taken to refer to quantity) and Li Xiaoding claims they mean the same thing (see JGWZJS: 247). The two words are still used interchangeably in some cases in the Bronze Inscriptions (see JWCYZD: 76, Schuessler (1987: 529). According to Baxter (1992) they were similar in OC, differing only in initial (he reconstructs the former as *h(l)jew? and the latter as *s(l)jew?).
In general, as Itô & Takashima (1996 [Takashima 1984]: 230) notes, the order of attributive phrases in OBIL is modifier + noun, where the modifier is an adjective. Given that numerals pattern as adjectives in OBI, and indeed in later stages of the language, the null hypothesis is that they are adjectives in order I, functioning attributively\(^{58}\).

Itô & Takashima (1999 [Takashima 1984]: 230) also notes that adjectives can function predicatively\(^{59}\) in OBIL as they do in Classical and modern Chinese.

\(^{58}\) In formal semantic terms they are one place predicates that combine with other adjectives and the head noun through predicate modification.

\(^{59}\) By this it is meant that it behaves like an intransitive verb. In formal semantics, the “predicative” adjective would still be of type \(<e,t>\) (looks for an entity and maps it to a truth value), but unlike in the attributive case, it combines with a DP through functional application, rather than an N through predicate modification.

\(^{60}\) This is exactly the type of context in which 小 xiao “small” and 少 shao “few” are hard to distinguish. Since their meanings are similar this might simply be a case of overlapping use, where
indeed, rain small

"Indeed, the rain was small"

\[(39)\] 殺天疾畏 \(\text{（毛公鼎）}\)

stern Heaven urgently awesome

"Stern Heaven is most awesome"

Since we are claiming that numerals are adjectives, it would be strange if they did not also appear predicatively in a post-noun order. Indeed, this is how such structures in Classical Chinese are normally understood (see Pulleyblank (1995: 58), Drocourt (1993: 223-227)).

\[(40)\] \(\text{滅國者五十} \text{（Meng 3B/9）}\)

to extinguish country nom. part. fifty

"His extinctions of countries were fifty"

As we can see from the English translation this predicate adjective structure is the equivalent of the English “x is y” type sentence, only the copula does not need to be realized. As noted above, the semantic type of the adjective \(<e,t>\) remains the same in both the pre-nominal and post-nominal orders, but the role it plays in the semantic
despite being different words they mean almost the same thing in this context. On the other hand, their meanings might have been distinct, \(\text{多} \text{ duo } \text{ “many” also occurs in the same environments but it certainly does not mean the same thing as either} \text{ xiao or shao. Notice that} \text{ 大} \text{ da “big” can also occur in this context. Further research needs to be done to see if the use of} \text{ da / xiao and duo / shao in rain inscriptions are in complementary distribution between diviners. If this were found to be the case it would be evidence that} \text{ duo / shao yu and da / xiao yu were simply stylistic or dialect variations expressing the same meaning.}\)

\(^{61}\) This example is taken from Guan (1981: 15).

\(^{62}\) This example is taken from Pulleyblank (1995: 58), Pulleyblank’s translation.
composition is different. One important syntactic correlate of this is that in the
"predicative" uses adjectives combine with a determiner phrase (eg. "[The dog]\_DP is
smart") rather than just a noun (eg. "The smart [dog]\_N"), and form a sentence rather
than just an NP. Given this, if the numerals are acting as predicates in order II we
would expect them to form sentences or clauses with the nouns they predicate, not
just NPs. This seems not to be the case where the noun in order II (N Num) appears as
an argument to a verb as in example (33) (a) repeated here as (41).

(41) 甲午卜侻于父丁犬百羊百劉十牛  (32698)

Jiawu day cracked offer to Father Ding dogs hundred sheep
hundred liu-cut ten bovines

"Jiawu day cracked, (we should) offer to Father Ding dogs, one
hundred, sheep one hundred, liu-cut ten bovines"

If the numeral was behaving as predicate, we would have to translate (41) as "offer to
Father Ding dogs are one hundred, sheep are one hundred, liu-cut ten bovines". This
is simply ill-formed without some kind of relative clause construction such as "dogs
that number one hundred" or "dogs, numbering one hundred". Given the pragmatics

63 What I mean by this is that in compositional Fregean semantics, adjectives, common nouns and
intransitive verbs are all one-place predicates of type <e, t> which means they take an entity and assign
a truth value to it. Thus "The man is crazy" would be composed as follows, "The man" refers to an
entity and so is type <e>, while "is" plays no semantic role and "crazy" is a one-place predicate <e,t>. Thus "crazy"
requires an entity in order to yield a statement that can be judged true or false. This is the
"predicative" use of an adjective. As a modifier, as in "The crazy man", the composition is as follows:
both "crazy" and "man" are one-place predicates and combine through predicate modification (which
functions like a semantic conjunction so that they create a single predicate that is true of entities that
are both "crazy" and "a man". "The" takes a one-place predicate and maps it to an entity (in effect
making a property refer to a definite entity in the world of discourse). Thus, in its "modificational" use,
the adjective combines with the noun to create a "conjoined" one-place predicate, while in its
"predicative" use it combines with a noun to form a truth-value. Syntactically the first corresponds to a
noun phrase, while the second corresponds to a sentence or clause.

64 Once a relative clause is introduced, whether restrictive, like the former, or non-restrictive, like the
latter, a different semantic structure is created from the simple predicational adjective. In the case of the
of order II worked out in Chapter 3, the first possibility can be ruled out because it implies a pre-existing group of a hundred dogs. The second possibility is admittedly attractive and closely resembles the structure that I will eventually argue for, namely DP apposition. The chief difference is that in the case of an unrestricted, or appositive relative clause like "dogs, numbering one hundred", the Num is interpreted as a clause as opposed to a simple DP. If we consider order III (N₁ Num N₂), the Num N₂ part is likewise analyzed as a clause instead of a modifier + noun structure. Given that we have already analyzed order I as a modifier + noun construction, and that Num N₂ is in apposition to N₁ (whether a clause, or a DP), it seems simpler to understand Num N₂ simply as a modifier + noun in apposition to N₁ rather than as a predicate numeral structure.

Another problem of the numeral as predicate hypothesis is that quantity can only be predicated of referential nominals. Thus, while one can say "three were the pigs", the indefinite "*three were pigs" is infelicitous. In other words, in order to predicate the inherent properties of something, that something must refer to specific entities in the world of discourse. Thus, in the predicate numeral examples given above from OBIL, BIL and the classics, (37) – (40), the nominal element is always referential. However, as we have pointed out above, in orders II and III the first noun is generally new information, which makes it non-referential. Thus, the predicate numeral hypothesis is at odds with the pragmatic phenomenon associated with the different word orders of numerical expression in OBIL.

restrictive relative the head noun would combine with the restrictive clause (the numeral) through predicate abstraction and then predicate modification (see Heim and Kratzer (1998)). In the case of the unrestricted relative (or relative appositive) the numeral clause must combine with a DP rather than just an NP meaning that "entity modification" must take place analogous to predicate modification. In any case, the adjective does not combine with the head noun through functional application like a simple noun + intransitive verb combination.

65 This includes the names of kinds, definites, and specific indefinites.
Given that numerals should be able to act as predicates if they are adjectives in OBIL, the question arises as to whether there are any clear examples of predicate numerals in OBIL? Shen (1992) gives two examples that he feels must be understood as such. The second example, involving the use of the modal 其 qi, will be examined below.

(42) (a) 白牛二，有正 (29504)
white bovines mod.cop. two, have correctness
“(The number of) white bovines (we offer) should be two, (for this) will be correct”

(b) 白牛三，有正
white bovines mod.cop. three, have correctness
“(The number of) white bovines (we offer) should be three, (for this) will be correct”

In this example the copula\(^66\) hui appears. In the examples above where hui and its non-modal counterpart 未 wei appears, I have been translating the sentence as a cleft or pseudo-cleft in English. However, despite the fact that cleft sentences may provide a good English translation, I do not believe that the OBIL structure is necessarily syntactically analogous to English clefts. Rather with Peyraube & Weibusch (1994), I consider hui and wei to be purely markers of focus in some instances\(^67\). The use hui

\(^66\) See Ito & Takashima (1996 [Takashima 1990]).

\(^67\) Though Peyraube & Wiebusch (1994: 385) give the following example were wei is obviously functioning as a copula (their translation),

i) 其 雨 佳 (Cui 799)
and *wei* in OBIL may be analogous to the use of the copula *shi* in modern Mandarin\(^{68}\), where it sometimes functions purely as a mark of focus\(^{69}\). Indeed, (42) might simply be translated as “(If we offer) white bovines, TWO, it will be correct”. If this is so then (42) does not necessarily provide an example of a numeral being used as a predicate in OBIL.

In Shen’s second example, the modal *qi* 其 appears, something that he apparently feels indicates the following word to be a verb\(^{70}\).

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this rain be calamity
“This rain is a calamity”
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there are also many examples where the object is pre-posed that may be seen as pure focus marking as in Peyraube & Wiebusch’s example (6) (their translation).

ii) *#JI^fflW*S (30300)

hui black sheep utilize-in-sacrifice there-is big rain
“(If) it is a black sheep that (we) sacrifice, there will be abundant rain”

Notice that despite the fact that P&W translate ii) as a cleft sentence, they claim in note 6 that *hui* and *wei* are not needed for the object to be pre-posed, as in the following examples show.

iii) *勿于九山燎* (709)

should not to the Nine Mountains offer in holocaust
(We) should not TO THE NINE MOUNTAINS offer in holocaust”

iv) *#34223*

Foc. Yue perform the you-cut
(We should) (to) YUE you-cut

Thus, either there are both cleft structures that pre-pose, and non-cleft structures that pre-pose in OBIL, or pre-posing is independent of the copulas, which can simply function as focus operators. This object pre-posing might be similar to focus movement in languages such as Hungarian (see Szabolcsi 1981, Hovarth 1986) where the focus moves to a pre-verbal focus position (focus P). This kind of movement might also explain the preverbal position of WH-words in Classical Chinese (also analogous to Hungarian). Getting back to *hui*, this argument begs the question of why it needs to be used at all if the pre-posed object is already focused. It is possible that *hui* (and *wei*) introduce additional semantic effects such as existential presupposition or exhaustive listing, but more work needs to be done.

\(^{68}\) See Zhao (1968), Li & Thompson (1981), Li (1990) and Fang (1995) for details.

\(^{69}\) I should be noted however, that in Mandarin *shi* cannot mark post-verbal constituents for focus without nominalizing the verb. Li (1990: 36) argues that this is due to a case adjacency condition in Mandarin, whereby nothing can intervene between the verb and its case assignee. This is something that needs to be explored in OBIL. If OBIL were also shown to have a case adjacency condition then post verbal uses of *hui* and *wei* would all have to be taken as marking predication between the nominalized verb and the object and examples like (32) would have to be taken as cases of predicate numerals.

\(^{70}\) See Shen (1992: 50-51) for his arguments supporting this position.
(43) (a) 群其十人  (26911)
qiăng perhaps ten people
“(We should offer) qiăng, perhaps ten people”

(b) 其十人又五
perhaps ten people and five
“(We should offer) perhaps fifteen people”

(c) 其廿人
perhaps twenty people
“(We should offer) perhaps twenty people”

While it certainly makes sense that a modal should be associated with a verb, and indeed this is generally the case, this is by no means the only position that 其 qi can appear in, nor are verbs the only things that qi can precede as examples (44) and (45) show.

(44) 甲申卜，爭貞：燎于王亥其珏⁷¹  (14735, Bing 112)
Jiashen cracked Zheng tested offer in holocaust to Wanghai
perhaps linked jades
“Cracked on Jiashen day, Zheng tested: (We should) offer in holocaust to Wanghai, perhaps with linked jades.”

⁷¹ The translation of this graph as jue 瑙 “two pieces of jade fastened together” is problematic from the point of view that jade was not normally used as a burnt offering by the Shang. Takashima (personal communication) suggests that this graph may be better transcribed as 綸 and that it is probably a phonetic loan for something else.
Although it is possible that 其 qı is being used pronominally here, implying a copulative relationship between 其 and the following noun, it is equally possible that qı can be placed directly in front of the phrase it takes scope over, thus, the modality only takes scope over “ten” and not “qıang”. If this is so, then although the analysis of numerals as adjectives in OBIL admits the possibility of use as predicates, it is uncertain that OBIL has any clear examples of numerals being used predicationally. Moreover, for the majority of order II (N Num) and III (N Num N) examples, for syntactic and pragmatic reasons given above, a simple predicate numeral analysis will not suffice.

4.2 The Quantitative Adjunct Hypothesis

In Itō & Takashima (1996 [Takashima 1985]) a hypothesis is put forward that in orders II-III the numeral is acting as a numerical complement. Examples such as (46)(a) and (b) (Takashima’s (a) and (b) were used to motivate this analysis.

(46) (a) 來甲午侑伐上甲十 (Bing 233)
coming Jiawu day offer decapituri (to) Shangjia ten

“On the coming Jiawu day (we should) offer decapituri to Shangjia, ten”

(b) 來甲午侑伐上甲八
coming Jiawu day offer decapituri (to) Shangjia eight

"On the coming Jiawu day (we should) offer decapituri to Shangjia, eight"

As we can see the head noun is separated from the numeral by the indirect object. Takashima sees this as evidence that the numeral is acting as a “kind of adverb” or “quantitative complement” Ito & Takashima (1996: 301 [Takashima 1985]). In addition, he proposes that the numeral expression in (a) has the underlying form 伐十 伐 “decapituri, ten decapituri”. The first noun then undergoes leftward movement for “contrastive” reasons and the second noun is deleted 72.

In Pulleyblank (1995: 58) a similar analysis is used to explain examples in Classical Chinese such as (47) below (Pulleyblank’s (190)).

(47) 西喪地於秦七百里 (Meng 1A/5)
West lost land to Qin, seven hundred li.
“In the west we lost seven hundred li of land to Qin” 73

As we can see this is the same surface structure as example (46), with 地 “land” separated from its quantity 七百里 “seven hundred li” by the indirect object 秦 “Qin”. Pulleyblank claims that “the syntax may be compared to that of a locative complement”(58) 74 which can appear without the “coverb” 乎 as in (48).

(48) 鄭人有欲買履者. 先自度其足而置之其坐. (Han Feizi 32: 309)

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72 Since we also have order III, we must add that this deletion should be optional.

73 This is Pulleyblank’s translation.

74 Takashima says virtually the same thing in Ito & Takashima (1996: notes, 102 [Takashima 1985]) “this [the quantitative complement] can be compared with the “locative compliment” which occurs in the post-verbal position” (the comments within the square brackets are mine).
There was a man of Zheng who wished to buy shoes. He first measured his feet himself and placed it (the measure) on his seat.

Since locatives are generally assumed to be assigned a thematic role by the verb (location where the action took place), the implication is that if the "quantitative compliment" is comparable to the "locative compliment", it should also be assigned a thematic role by the verb. If this is so then in examples like (46) the verb must assign separate thematic roles to the direct object (theme) and the quantitative complement (oblique).

At this point it should be obvious that Ito & Takashima (1996 [Takashima 1985]) and Pulleyblank (1995) mean something more general by "complement" than is assumed in the contemporary generative syntactic literature where verbal complements are distinguished from adjuncts in their receiving case and thematic roles from the verb. In terms of more recent generative syntactic theory, the "quantitative complement" should be considered some kind of adjunct. Now the question remains, does it receive a thematic role from the verb as Takashima and Pulleyblank's comparison to "locative compliments" would seem to imply? If it were so, then one would have to consider the numerical adjunct to be a kind of adjunct argument that receives an oblique thematic role from the verb. One problem with this is that the numeral seems semantically related to the first noun, not the verb, since the "ten" in (46)(a) refers to the number of "decapituri" and not the number of times there was an offering.

If we set aside the comparison to locative phrases for the moment, there is another way in which Takashima's comments that the numeral in (46) functions as a

75 Just such a proposal has been put forward in (Tang 1996) to explain a similar structure in modern Mandarin. However, she claims that the noun must have specific interpretation (ie. referential). This suggests that whether or not her analysis can account for the Mandarin data, it cannot be extended to
“kind of adverb” or “quantitative complement” could be understood. This is that the “quantitative compliment” is a compliment of the noun and not the verb. Thus, in (46) (a) “ten” is a compliment of “decapituri” not “offer”. This immediately overcomes the difficulty that the numeral seems to be semantically related to the noun and not the verb. If the “numerical compliment” is a “kind of adverb”, then syntactically it should be adjoined to the verb phrase (VP) as Cullicover and Rochemont (1990: 33) suggest. This, in fact, is what we will come to argue for the structure of examples like (46).

4.3 The DP Apposition Hypothesis

Above it was argued that the numeral (in order II), or numeral and noun (in order III) could not be considered appositive, at least in the way that Shen (1992) understood the term. We will now argue that orders II and III are indeed DP appositives, but that this does not imply a flat structure, as in (49), rather adjunction to DP, as in (50).

(49)

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 NP
 / \  
 NP NP
 /   |
 N1   Num (N2)
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One crucial difference between these two structures is that (49) predicts that either NP should be able to precede the other, while in (50) the numeral and second noun form an adjunct of the main DP and thus are subsidiary to it. This captures the fact that DP appositives do not necessarily allow free interchange of position as examples (51) and (52) show.

(51) (a) I saw eaglesi, big onesi, during my hike yesterday  
(b) *I saw big onesi, eaglesi during my hike yesterday

(52) (a) I saw big birds, eagles, during my hike yesterday  
(b) *I saw eagles, big birds, during my hike yesterday

In (51) the adjective “big” modifies “ones”, co-referential with “eagles” which functions as an antecedent. This lack of antecedent in (b) causes its infelicity. In (52) (a) the second noun is not a pronoun and is more specific than the first. Example (52) (b) however, is infelicitous because “birds” is redundant. If this account is correct, it

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77 This sentence does have a grammatical reading, but only if “birds” is given a reading analogous to “ones”.

78 Note that if the antecedent of “ones” had been uttered in a previous sentence, “eagles” would be redundant, and the sentence would still be infelicitous.
predicts that there will be two different orders of felicitous apposition depending on whether one of the DPs contains a word requiring an antecedent\textsuperscript{79}.

If we apply this insight to the $N_1$ Num $N_2$ (order III) examples of OBIL, then the second noun ($N_2$) would have to be an "antecedent requiring nominal" in order to avoid redundancy, since as pointed out earlier $N_2$ is more general than $N_1$ where it is not identical. This accords well with the focus phenomenon associated with this structure since as we have attempted to show in Chapter 3, the first noun is focused and is proposed to determine the kind of entity, while the numeral is secondarily focused to propose the number. This leaves the second noun as a prosodically unstressed element, providing no new information which leads to its being ellided in the majority of cases (ie. order II is more common than order III in OBIL). Thus, though a common noun, its de-stressing forces on it an "epithet-like" interpretation. I say "epithet-like" rather than "pronoun-like" because although it is not possible to test this distinction empirically\textsuperscript{80} in OBIL, it seems reasonable to assume that since the $N_2$ position is normally filled by a common noun\textsuperscript{81} that it should behave more like a referring expression (since common nouns are usually classed as r-expressions for binding purposes) than a pronoun with respect to binding conditions. Given that it is a property of epithets that they cannot be c-commanded\textsuperscript{82} by their antecedents (see Hornstein 1995: 24), if $N_2$ is, in fact, a kind of epithet, we would expect that in

\textsuperscript{79} Both pronouns and epithets would fall into this category.

\textsuperscript{80} Pronouns must obey binding condition B, while an epithet acts like a referring expression (r-expression) in this respect and thus, according to Reinhart (1983), Grozinsky and Reinhart (1991), is outside binding theory. Instead the notion of co-reference that applies to epithets is based on pragmatic principles. It is not possible to test this distinction in OBIL because of limitations inherent in the corpus.

\textsuperscript{82} I am using the standard notion of c-command given in Chomsky (1986): $\alpha$ c-commands $\beta$ iff $\alpha$ does not dominate $\beta$ and there is no $\delta$ that dominates $\alpha$ and not $\beta$. I am further assuming that $\delta$ must be a maximal projection.
whatever syntactic structure accounts for order III (N Num N), the Num N₂ must be structurally “higher” than its discourse antecedent\(^{83}\) (N₁). In fact, the appositive DP structure given in (50) displays this kind of structure since the second NP is only partially dominated by DP and thus the first maximal projection that dominates NP₁ (namely DP) fails to completely dominate NP₂.

At this point it is perhaps advisable to refine the term “epithet-like” and take a closer look at the function of N₂. In Fiengo and May (1994: 85) it is noted that epithets are like pronouns in that,

although they can clearly inherit their reference from some other expression – *John went to the 7-11; then the idiot robbed it* – they do not lexically determine any reference in and of themselves. Although unlike names in this fashion, as Lasnik observes, they are like names in that (51) is understood comparably to the way *He thinks that I like John* is understood:

\[(51) \text{He thinks that I like the fool}^{84}\]

\(^{83}\) Indeed, following Reinhart’s model of intrasentential coreference (Grozinsky and Reinhart 1991: 79),

NP A cannot corefer with NP B if replacing A with C, C a variable A-bound by B, yields an indistinguishable interpretation.

whether we see the second noun as an epithet or simply a common noun, the antecedent cannot c-command it. If it were to do so, then it would be possible to replace the second noun with a bound variable. Since this is exactly the kind of case where co-reference is not allowed (since its interpretation is indistinguishable from the bound variable interpretation), if the second noun is not a pronoun, then the antecedent cannot c-command the second noun.

\(^{84}\) That is to say in (51) “He” and “the fool” cannot refer to the same individual, just as “He” and “John” cannot refer to the same individual. Note that if the epithet or name is changed to a pronoun no such problem arises.
In other words an epithet, unlike a name, needs an antecedent to give it reference, but also unlike a pronoun, cannot be bound by that antecedent. Returning to \( N_2 \) we note that it does not appear to be a pronoun in so much as OBIL pronouns do not appear in \( N_2 \) position and the kinds of nominals that appear in \( N_2 \) do not behave as pronouns elsewhere. The next question then is whether they are really epithets. To answer this it is necessary to decide whether or not \( N_2 \) really needs to inherit its reference from an antecedent like, for instance, “the fool”. If we compare the second half of an order III expression (羌十人 “qiang, ten people”) with an order I expression (十人 “ten people”), we might draw the conclusion that since “people” in order I doesn’t require an antecedent, “people” in order III shouldn’t require an antecedent either. This, however, blurs an important distinction in the semantics of the two phrases. In order I expressions where “people” is focused it not only denotes a set of individuals true of the properties of human beings, it contrasts with a set of other kinds of things that could be enumerated. In order III, however, and indeed in order I where the noun is old information, the noun is de-accented and carries no new information about kind. In a sense, the focus phenomenon observed with order III requires a partitioning of the content of a single noun into two parts: the first part \((N_1)\) denotes the name of the kind of entity in question with no reference to number, while the second part \((N_2)\) refers only to individuals to which the numeral gives a cardinal value. Given this, the second noun can be seen to receive its reference from the first noun where the second noun is de-accented. To illustrate this distinction let us use an analogy from English.

Take the measure phrase “three cups of water”: although “cups” can refer to drinking

\(^{85}\) Actually this would only hold for those examples of order I which are examples of complex focus, or in other words where the noun and numeral are focused together. In the cases were the noun is not
containers and needs no antecedent when doing so, when it functions as measure or mensural classifier it requires an antecedent (like “water”) in order to be interpreted. Likewise the de-accented counter noun in order III requires an antecedent to specify kind, for “ten people” in “Qiang, ten people” does not really refer to how many “people” there are, but rather how many individuals of Qiang type. This may seem like an abstract point, but though “Qiang” is a subset of “people”, “people” does not necessarily entail “Qiang”. Thus, focus aside, “Qiang, ten people” is the equivalent of “ten Qiang”, but not “ten people”. This, in addition to the fact that “Qiang, ten Qiang” has exactly the same truth conditional value as “Qiang, ten people”, clearly demonstrates that in order III the second noun gets its interpretation from the first. This in turn suggests that N should behave like an epithet with respect to binding and coreference: it must be coreferential with its antecedent, but cannot be c-commanded by it (ie. it’s not a pronoun).

Thus the DP apposition hypothesis fits the independently motivated criterion that N cannot be c-commanded by N, as well as predicting the impossibility of a Num N order in OBIL (N needs an antecedent) and offers a natural account of order II in terms of the numeral being followed by a covert nominal (perhaps a null epithet) instead of an overt one. This kind of structure would take care of the issue of thematic roles in that the verb assigns a single theme or instrument role (depending on the verb) to the entire DP which shares this role between the appositive pair. This captures the intuition that in a sentence such as “offer decapituri, ten qiang”, “ten qiang” shares the role of theme with “decapituri” since they both refer to the thing focused and thus old information, it necessarily has a discourse antecedent.

86 See section 6.2.2.3 for details.
being offered. The fact that the head noun and the numeral phrase form two separate
DPs is also convenient from the point of view of explaining the focus effects
associated with orders II and III. Since they are two separate DPs, there is no problem
with focusing or proposing them separately.

At first this proposal looks like it might run into problems with examples like (46)
where the numeral phrase is separated from the head noun by the indirect object.
However, if we assume with Itō & Takashima (1996 [Takashima 1985]) that
“decapituri” is moved leftwards for focus reasons we arrive at the following
structure for (46) (a) based on Larson’s (1988) proposal for double object
constructions.

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87 There are two issues related to this assertion. The first concerns the association of leftward
movement with focus, contra Shen’s (1992: 116) hypothesis that it should be the rightmost constituent
that is focused. The first thing to notice in this regard is that the normal word order for double objects
in OBIL and the bronze inscriptions (Takashima, personal communication) is V+OI+OD. This means
that (46) represents a marked word order. What Shen fails to distinguish is the difference between the
focus due to the normal prosodic stress (nuclear stress rule), which appears to be the rightmost
constituent in OBIL, and what Zubizarreta (2000) calls “contrastive focus” (in effect, focus other than
that associated with NSR). As Itō & Takashima (1996 [Takashima 1985]: 299) shows, the inscriptions
that preceded (46) clearly show that both the type of victim and recipient were being contrasted in (46)
(a) and (b). The second issue is why “fa” needs to move leftward. Perhaps it is simply that focus could
be marked structurally through the use of marked structures, which serve to prominence the focused
elements in a manner analogous to intonational stress.
Thus, according to this analysis, 伐 fa “decapituri” moves up from its normal position to mark the structure as focused, leaving behind a trace “e_i”. The numerical phrase, on the other hand, remains adjoined to “e_i”, while the “n_i” (perhaps a null epithet) element is co-referenced to “fa”. However, there is a problem with this analysis, namely the coreference criterion noted above does not allow referring expressions to be c-commanded by their antecedents (which presumably applies even to covert r-expressions). Since this rule applies at surface structure, the structure in (53) is ruled out.

An alternative that captures the observations about the information structure put

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88 One might legitimately ask why the numeral phrase is left behind by “fa”, instead of adjoined to it next to the verb, since the numeral is obviously new information. This, I believe, is due to a hierarchy of focus in multiple focus constructions. Under this analysis, example (51) (a) is a proposal based on the question “what should we offer who and how many?”, rather than the question “what and how many should we offer who?”, which would have corresponded to a proposal where both the type and number preceded the recipient. I am assuming that the order in which the proposals are made is directly related to their prominence in the mind of the diviner.

89 See Grodzinsky and Reinhart (1993: 79).
forward in Itô & Takashima (1996 [Takashima 1985]) which does not involve movement is that the numerical phrase forms an adjunct to the verb phrase instead of the determiner phrase. For this structure we might use Culicover and Rochemont’s (1990) notion of an “extraposed complement” which receives its interpretation through the Complement Principle\(^\text{90}\) which basically states that for A to be a compliment of B one of the two must c-command the other (and no barriers may intercede, but this is irrelevant to the structures at hand). Since the adjunct is base generated in this position, the focus associated with the “extraposed complement” is structural. Thus, instead of having to move “decapituri” up to receive a focus interpretation, the sentence is simply constructed to reflect, in a straightforward manner, the information structure of what I am assuming was the underlying question: “What should we offer to whom and how many?” The syntactic structure of (46) would then be as in (54).

\(^{90}\) This principle is formulated as follows (Cullicover and Rochemont 1990: 41),

i) \(\beta\) is a potential complement of \(\alpha\) \((\alpha, \beta = X^{\text{max}})\) only if \(\alpha\) and \(\beta\) are in a government relation.

ii) \(\alpha\) governs \(\beta\) if \(\alpha\) c-commands \(\beta\) and there is no \(\delta\), \(\delta\) a barrier for \(\beta\), that excludes \(\alpha\).

iii) \(\delta\) is a barrier for \(\beta\) iff (i) \(\delta\) is an \(X^{\text{max}}\) that dominates \(\beta\) and (ii) \(\delta\) is not \(\theta\)-governed (directly \(\theta\)-marked).

iv) \(\delta\) \((\delta = X^{\text{max}})\) excludes \(\alpha\) if no segment of \(\delta\) dominates \(\alpha\).

v) \(\delta\) \((\delta = X^{\text{max}})\) dominates \(\alpha\) only if every segment of \(\delta\) contains \(\alpha\).
Here we can see that the first maximal projection that dominates the first DP (i.e., VP) doesn't dominate the second DP because not all of its segments do. Thus, DP₁ doesn't c-command DP₂, but DP₂ does c-command DP₁, since the first maximal projection to dominate DP₂ will necessarily dominate DP₁ as well. Thus "ten" can be interpreted as the compliment of "decapituri" by the Complement Principle and can share its thematic role. In addition, in not being c-commanded by DP₁, DP₂ can be coreferential to it according to Reinhart's rule of intrasentential coreference.

Given that we have proposed that in examples like (46) the Num N part of order III (N Num N) is an extraposed compliment adjoined to VP, it might seem attractive to explain the cases where nothing intervenes between the first DP and the second in the same manner. In other words, instead of proposing that orders II (N Num) and III (N Num N) involve adjunction to DP most of the time and adjunction to VP in cases of "extraposition", propose that all cases of orders II and III involve extraposed compliments adjoined to VP. Although this would yield a simpler account it ultimately runs into difficulties with examples like (55).
In this example, “five” comes between the direct object, “decapituri”, and the indirect object, “Greater Yi”. This would not be possible if “five” were adjoined to VP as proposed above. Thus, on the strength of examples such as (55) above, we must conclude that when the second DP is not “extraposed” it must adjoin no higher than DP. At the same time, given our proposal that DP₁ and DP₂ are coreferential, and given the Reinhart’s “intrasentential coreference” rule, the second DP cannot be c-commanded by the first and so can be adjoined no lower than DP.

While DP-apposition and adjunction to VP can explain the syntax of the intrasentential examples of order II and III, there are examples such as (56) where the second DP though clearly coreferential with the first, is not in the same sentence.

(56) (a) … 木과 희고의十二月 (8984)
… X bring horses from Bi twelfth month
“… X (will) bring horses from BI. Twelfth month”

(b) 木과 三丙

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91 Many scholars transcribe 賀 as 以 or 氏. In transcribing it as 賀 I am following Takashima (2000).
indeed bring three pairs

"indeed (X) brought three pairs"

In this example, N1 and Num N2 are separated by a sentential boundary. Obviously then, the second DP cannot be said to be an adjunct of the first DP, or even an extraposed complement. In (56) (b), the DP 三丙 san bing “three pairs”, is an argument of the verb 騎 ji “to bring”, parallel to 马 ma “horses” in (a). This makes san bing an instance of order I, but with the requirement that there is a discourse antecedent co-referential with bing. In other words, since DP2 is a full DP, it can appear in an argument position, but since it specifies quantity only, it needs to have an antecedent that specifies kind. This naturally raises the question, how does one distinguish between “pure order I” and “inter-sentential order III”? The answer to this question has two parts: one syntactic, the other pragmatic. Syntactically there is no distinction between “pure order I” and “intersentential order III”: they are syntactically both examples of a numeral modifying a noun. Pragmatically, however, as pointed out in section 3.2, there are at least a couple of ways in which order I (Num N) can be interpreted. When the noun is un-stressed (ie. is non-focused old information), and receives its reference to kind through an antecedent, it is

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92 The word bing 丙, written \( 倍 \) in the Oracle Bones bears a striking resemblance to a doubling of the early form of the BI graph for liang, \( 彈 \), “a pair”. Moreover, bing and liang were pronounced similarly in Old Chinese according to Li Fanggui’s reconstruction (*pjætsx and *ljanəx respectively) and differed only in the voicing of the initial according to William Boltz (he reconstructs liang as **bjiangx and bing as **pljætsx (qtd. in Ito & Takashima 1996: vol 2. 62 [Takashima 1984])). Takashima (Ito & Takashima 1996: vol. 2, 62 [Takashima 1984]) takes this line of reasoning a step further to suggest that “the classifier for chariots [in OBI] was in fact pronounced **bjiangx, which in modern Chinese would be liang not bing”. In other words, when functioning as a counter for horses or chariots, the OBI graph \( 併 \) really represents the word 彈 liang “a pair”. Baxter (1992: 272) also notes this (though he doesn’t cite Takashima (1984)), reconstructing liang as: *b-rjætsx.

93 Intersentential order II corresponds syntactically to the occurrence of bare numerals, something that we have not explored in this thesis. The analysis, however, follows straightforwardly from the proposals presented here and need not be gone into.
pragmatically, prosodically and semantically identical to the second noun in an order III construction. When the noun in order I is not unstressed (it provides new information or is focused) then it forms part of a complex focus with the numeral. In this case it refers to individuals of a kind with no reference to an antecedent. In practice, where there is no context for an inscription, either through scribal ellipsis, or the fragmentation of the original text, it may be difficult to determine whether the noun in a given example of order I should be taken as a full noun, or an unstressed, semantically bleached counter, receiving its reference from an unknown antecedent. However, it can probably be generally assumed that in complete inscriptions with context where a numeral expression is proposed only once, that the noun has no antecedent and receives full interpretation. Cases like (43) however, where the first proposal uses order III and the following ones use order I, from a pragmatic point of view, we must consider as being extended cases of order III. To this should be added examples like (28) where the kind of sacrifice is first proposed and then the number questioned separately in succeeding propositions.

To summarize, I have argued that the traditional flat-structure concept of appositive NPs is not accurate and cannot explain the word order variation in OBIL numerical expressions. I have further argued that although it should be possible to have predicate numerals in OBIL, orders II and III cannot be uniformly accounted for by such an analysis. Furthermore, the idea of a quantitative "complement", if this is taken to mean a kind of adjunct analogous to locative adjuncts, runs into difficulty with the theory of thematic role assignment. Instead I have argued that while order I

94 Another logical possibility that hasn’t been discussed here is that neither noun nor numeral are focused. This situation would arise if the Shang wanted to talk about a quantity of something referentially, like "those three deer the King caught" (unfortunately I don’t have any real OBIL examples of this, but this doubtlessly the Shang could have referred to previously mentioned quantities of something). In this case, the noun and numeral are definite and receive reference together from a
(Num N) should be taken to be a simple modificational structure with the numeral acting as a modifier, orders II (N Num) and III (N Num N) should be seen as appositive DP structures with the second DP adjoined to the first. In cases where an indirect object intervenes between the first and the second DP we have proposed that the second DP is adjoined to VP. Syntactically, interpretation of the second DP is achieved through the complement principle, making the second DP a compliment of the first. Semantically, the interpretive device is coreference, with the second DP getting its reference to kind from the first DP, while the first DP gets its reference to quantity from the second DP. Since coreference applies intersententially, it comes as no surprise that there are examples where a cardinal DP (ie. Num N) receives its reference to kind through an antecedent in a previous sentence (as in (43) (b) and (c), (56) (b)). In functioning as a kind of counter which gets its reference through its antecedent, the second noun in order III (N Num N) becomes prosodically unstressed and semantically reduced, which often leads to its being ellided (order II: N Num).

\[95\]

This could be one understanding of Takashima’s (Ito & Takashima 1996 [Takashima 1985]) “quantitative compliment”.

discourse antecedent.
Chapter Five  Numerical Expressions in the Bronze Inscriptions

Like OBIL, numerical expressions in the bronze inscription language (hereafter referred to as BIL) can be divided into orders I (Num N), II (N Num) and III (N Num N) (examples (57) (a), (b), and (c) respectively).

(57) (a) 軰伯庶人取環章于裘障(財)^86八十朋 (裘障盈)
Ju lord follower took a fine jade zhang from Qiu Wei value eighty strings

“The Lord of Ju’s follower took a fine jade zhang from Qiu Wei, it’s value was eighty coupled strings^97 (of cowrie shells)”^98.

(b) 軰^99駕二百徒千 (禹鼎)
servant driver two hundred infantry one thousand

“charioteers^100, two hundred, infantry, one thousand”

(c) 存車十乘 (多友鼎)

^86 In reading 才 as 財, I am following JWCYZD and Schuessler (1987). Ma (1988: 127) believes that it should be read as 創, “約制的意思” (means stipulated or agreed upon).

^97 This translation of 朋 is due to the fact that the graph seems to be a pictograph of two strings of shells joined at the top (Takashima personal communication) (see also Itô & Takashima 1996: 206 [Takashima 1984], for a translation of 朋 as “dual string”).

^98 Schuessler (1987: 499, 50) translates this line as “The Bo of Ju’s man accepted [as a present] an insignium of precious stone from me, Qiu Wei, with a value of eighty strings of cowries”. From my translation it should be evident that I believe 十朋 “eighty coupled strings of cowries” is acting predicatively.

^99 In transcribing 斯 as 軒 I am following Ma (1988: 283) and Schuessler (1987: 578).

^100 By “charioteers” I mean to include both the driver of the chariot and the “servant” men at arms in the chariot.
capture chariot ten rides

"... captured chariots, ten rides"

However, in comparing OBIL and BIL, one is immediately struck with not only how much more frequently order III is used in BIL\textsuperscript{101}, but also its increased variety of forms\textsuperscript{102}. In a count of 1808 cardinal expressions found in the QTQMWJS, 1311 (72.5\%) were of order I, 137 (7.6\%) were of order II and 359 (19.9\%) were of order III\textsuperscript{103}, including 44 cases of measures. If one discounts the 1052 cases of idiomatic expressions such as 萬年 “ten thousand years” (940 instances) and 四方 “the four quarters” (38 instances)\textsuperscript{104}, then out of 755 examples order I accounts for 259 (34.3\%), order II (18.1\%) and order III (47.5\%). Indeed, order I is most frequently used with idioms (example (58) (a)), units of measurement (example (b)), and definite DPs

\textsuperscript{101} Despite this Peyraube (1991: 109) has the following to say about BIL numerical word orders, “A [my order I] is still by far the most common one while B [my order II] is much less used. So is the C-form [my order III] though we still have the possibility of the N2 being different from the N1 and the N2 being the same as the N1” (the comments in the square brackets are mine). Since he doesn’t cite any figures for the bronze inscriptions, this seems to be based on his impression rather than on a quantitative study. In any case, the implication that order III is much less common in BIL as compared to OBIL is simply incorrect.

\textsuperscript{102} In Campbell (2000) it was argued that there was an animacy hierarchy in OBIL such that the only count nouns that could use order three were those that referred to human beings. While this hypothesis is falsified by examples such as 35211 and 35216,

甲辰甲骨十骨 (35211)
“On Jiachen we requested bones, ten bones”

the fact that 90 out of 92 instances of non-measure order III in OBIL involve human beings, must still be accounted for. Perhaps the animacy hierarchy need not be abandoned, only modified so that other nouns can also use order III, but with less animate things (something which is culturally determined) the second noun is not usually overt.

\textsuperscript{103} I would like to qualify these statistics by saying that concordances like the QTQMWJS, while convenient, leave one at the mercy of the editor’s interpretation of the lines in question. A better (but more time consuming) approach would be to work from the rubbings themselves. I offer these figures as rough estimates.

\textsuperscript{104} These idiomatic uses should not be considered because they do not represent cardinal expressions in the sense of something being counted. If they were to be included, the 940 formulaic examples of 萬年 “ten thousand years” (52\% of the total) would tell us nothing of the language of the time, other than that this was a common expression in blessings.
(example (c)), and only infrequently with indefinite count nouns (example (d)).

(58) (a) 其萬年寶用 (中白簋)
may ten thousand years treasure use
“... may (this vessel) be treasured and used for ten thousand years”

(b) 一斗半正十三斤八兩十四朱 (私官鼎)
one *dou* half exactly thirteen *jin* eight *liang* fourteen *zhu*
“one *dou* and a half (in volume), exactly thirteen *jin*, eight *liang*
and fourteen *zhu* (in weight)”

(c) 王迺命西六 収殷八 (禹鼎)
kings then command west six armies Yin six armies
“... the king then commanded the six armies of the West and the
eight armies of Yin ...”

(d) 于大巫司誓與大司命用璧兩壹八鼎 (洹子孟姜命一)
to great mage master oaths and great master fate use *bi* pair *hu*
eight *ding*
“... to the Great Mage Master of Oaths and the Great Master of
Fates use a jade *bi*, a pair of *hu* vases, eight *ding* cauldrons”

That definite DPs, idioms and units of measure should use order I is unremarkable
since in the first case, the numeral is part of the definite expression and thus cannot be
focused separately from the noun it modifies, in the second the numeral is part of
the idiom and thus cannot be separated, while in the last case units of measure require
a quantifier to be meaningful in anything but an abstract sense. Basically then,

105 Actually the example of an indefinite noun using order I comes from an Eastern Zhou bronze. In an
examination of the 533 Western Zhou bronzes found in Ma (1988), not one example of order I with an
indefinite non-measure noun could be found.
106 According to Wen’s (1992) estimations for each of these weights and measures, the vessel in
question should be able to hold about three liters and weigh about three and a half kilograms. This kind
of inscription only becomes common in the Warring States period.
107 Except, of course, when the expression is partitive.
108 One can of course speak of meters and inches abstractly, but when one is dealing with concrete
examples of measurement some kind of quantification is obligatory. Note also that measures cannot be
when non-referential nouns are being enumerated in BIL, order III is by far the most common. Does this mean that there was a massive change in the language between the time of OBIL and the time of BIL? While I do not wish to rule out the possibility of diachronic change or even dialect influence, I believe the main factor is discourse. By this I mean OBIL is a fundamentally different kind of discourse than BIL. For one thing, it is a widely accepted fact that the bronze inscriptions were inscribed in a more formal style, both calligraphically and linguistically. If we are correct in our proposal that order II is merely a reduced form of order III, then the decrease in order II and increase in order III is readily explained by the formal writing style of the bronze inscriptions. A second point is that the majority of the oracle-bone inscriptions are proposals, sometimes multiple proposals concerning the same issue. The bronze inscriptions, on the other hand, are most frequently records of meritorious deeds or rewards bestowed upon the vessel owner. Thus, when it comes to numerical expressions in BIL, (idioms aside) the most common context is that of lists of gifts awarded, or of trophies taken in battle. As we noted in OBIL, lists of hunting and war trophies almost always use post-nominal numerals. This can partly be explained in terms of being an innately presentational context where both the noun and numeral are inherently focused. On the other hand, that kind and number were habitually focused separately in a list may simply be a matter of style.

5.1 Exceptional Examples

Given that the majority of BIL numerical expressions can be accounted for with considered kinds of entities the way “dogs”, or “people” can.

109 There is no linguistic reason why noun and numeral couldn’t be focused together in a single DP as is generally the case in English lists (inventories excepted).
the analysis proposed for OBIL, we will turn now to some unusual structures involving numerals in BIL.

(59) 王親旨駒易兩 (駒駒等)

king personally point\textsuperscript{110} X colts present pair

“The King personally pointed out some colts to me, X, and presented (me) with a pair”

In (59), the expression of quantity appears in a separate sentence from the expression of kind, reminiscent of (56). In this case, however, the quantity is implicit in the measure noun 兩 liang “a pair”. There is another, more fundamental, difference, however. In (59), I have translated 駒 ju as “some colts” rather than the generic “colts”. I believe this is justified by the fact that the King is pointing them out which makes them referential\textsuperscript{111}. This means that (59) cannot be analyzed with our proposal for order II above. Instead, what we have here is a partitive structure, as in the English “two of the colts the King pointed out”\textsuperscript{112}.

(60) 丁亥騄騄(賞)右正騄騄(在)穆朋二百 (麤方鴻)

*Dinghai* Huai reward right governor X Y cowries at Mu strings

\textsuperscript{110} I am following Schuessler (1987: 835) in translating 明 as 指 “to point”. Ma (1988: 190), following the Guang Ya 廣雅 and Wang Yi’s 王逸 commentary to the Chuci 楚辭, claims that although 明 is a loan for the word 指 here, it means 語 “to tell, to talk”. According to Ma the line means 「王親語于駒以駒兩匹」 “the King personally talked to X, presenting by means of colts, two horses”. Crucially, he sees 駒駒兩 “colts present a pair” as being a constituent and says it is simply 駒駒兩 “present colts, a pair” written backwards「倒文」.

\textsuperscript{111} The first noun in orders II and III is always non-referential, a point to which we will later return.

\textsuperscript{112} This structure can also be found in OBIL.

(i) 丁亥卜 賞 用纖費羊十... (257)

*Dinghai* cracked tested use Huo brought *qiang* ten ...

“Cracked on *Dinghai* day, tested: use the *qiang* that Huo brought, ten of them ...”
two hundred

"On Dinghai day Huai rewarded right governor X (with) Y cowries at Mu. The coupled strings were two hundred".

In example (60) the measure word \( \text{peng} \) "coupled strings of cowries" appears in the N1 position of what looks like an order II numerical expression. Given that \( \text{peng} \) is a measure this seems rather odd. However, if one considers that "coupled strings" are a kind of entity then there is no problem in analyzing \( \text{peng二百} \) as "coupled strings, two hundred"\(^{114}\). However, given that \( \text{bei} \) "cowry", which presumably denotes the kind of thing awarded, has already been mentioned, \( \text{peng} \) should probably be understood in its usual sense as a measure. This suggests that "coupled strings" and "two hundred" are in a predicative relationship. Thus (60) is not an example of order II as we have analyzed it above.

(61) \( \text{易田于敏五十田于早五十} \) (敏纂一)

present fields at X fifty fields\(^{115}\), at Zao fifty fields

\(^{113}\) It is not known what word the graph \( \text{敏} \) represents. It also appears on the Yu gui yi 敏纂一 immediately preceding the word \( \text{bei} \) "cowry shells". Ma (1988: 287), and Wu (1933: 179) both take it to be a place name.

\(^{114}\) Unless of course \( \text{peng} \) is analyzed as a pure measure like "kilogram", in which case it cannot refer to a kind. See the section on the semantics of plurals and mass above.

\(^{115}\) Wen (1992: 94) claims on the basis of classical Chinese texts that \( \text{tian} \) "fields" are usually referred to in units of 100 \( \text{mu} \) 歩, therefore the second \( \text{tian} \) "field" in a \( \text{tian ji tian} \) "fields number fields" should refer to 100 \( \text{mu} \), therefore \( \text{tian} \) is a unit of surface area. Thus, (61) should be "five thousand \( \text{mu} \) not "fifty fields". This line of reasoning is extremely weak. For one thing the bronze in question, according to Ma (1988), dates to the reign of Li Wang (c. 864-828 B.C.) (see Nienhauser 1996: 70), while the classics Wen refers to such as Mengzi date from no earlier than the 4\(^{th}\) century B.C. (Lau: 331) an interval of about 500 years. In addition, these classics only commonly mention fields in terms of 100 \( \text{mu} \), nowhere is it said that the word \( \text{tian} \) means 100 \( \text{mu} \). Thus Wen's hypothesis appears to be without concrete evidence.
"... presented fields, at X, fifty fields, at Zao, fifty fields"

Example (61) presents a case where the second noun is coordinated with a location adjunct. At first this appears to be problematic to the hypothesis that the numeral phrase is an adjunct of the head noun, in this case [tian] "field". As we argued in (55) the head DP moves up from the position of the NumDP for focus reasons. However, in this case that would mean that the original position of tian was lower than the locative adjunct. Given the usual assumptions that adjuncts are lower on the thematic hierarchy\textsuperscript{116} than arguments, and, thus, should have a lower position at deep structure\textsuperscript{117}, this should be impossible. However, upon closer inspection it can be seen that the locatives 于E “at X” and 于早 “at Zao” are not really part of the argument structure of the verb, but are rather complements of the noun. In other words, “at Zao” does not refer to where the action of “presenting” took place, but where the fields that were presented were located. This in turn makes the NumP an adjunct of the complex DP “fields at Zao” rather than “fields” alone as in the structure in (62).

\textsuperscript{116} See for instance the thematic hierarchy given in Larson (1988: 382) “AGENT > THEME >GOAL > OBLIQUES (manner, location, time, ... ).

\textsuperscript{117} An explicit formulation along these lines is Baker’s (1985) UTAH (uniformity of theta-assignment hypothesis). Which states that “identical thematic relationships are represented by identical structural relations between the items at the level of D-structure”.

Thus, although there are some statistical differences between OBIL and BIL in the distribution of the three orders of numerical expression, and there is evidence for more variety in quantificational expression (e.g., numerals in predicational structures such as (60)) in BIL, the analysis put forward for OBIL numerical expressions also seems to work for BIL. If a diachronic trend in numerical expressions can be discerned, it would seem to be a decrease in the use of order I with indefinite DPs and an increase in the use of order III, along with a corresponding increase in the variety of nouns found in N2 position, although, as mentioned earlier, it is difficult to tell how much the apparent distinction between OBIL and BIL is due to the nature of the discourse involved.

5.2 Measure Phrases and NP2

Until now we have made the implicit assumption that expressions with measure phrases in the N2 position are examples of order III. There is, in fact, widespread
recognition of a strong resemblance between measure words and the second position nouns in order III. As is well known, measure phrases in OBIL and BIL take the form of N1 Num M.

(63) (a) 芳一 向 (15795)
“aromatic wine, one you-bucket”

(b) 貝廿朋 (Jia 777)
“cowry shells, twenty coupled strings”

(c) 弓五秉 (習鼎)
“arrows five, bunches”

(d) 禾十秈 (習鼎)
“grain, ten zī”

Note that in the cases of mass nouns like 芳 “aromatic wine” and 禾 “grain”, some kind of measure seems logically obligatory. For countable nouns habitually

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118 Ito & Takashima (1996 [Takashima 1984]: 205) calls N2 “a classifier/counter/measure word”. Peyraube (1991: 108) although listing measure phrases separately says, “this pattern is not different than from C [order III], as the MW [measure words] are nouns”. Huang (1964) considers all second position nouns to be 量詞 “liangci” of some sort, whether mass measures or nouns that behave like classifiers. Shen (1992: 196) divides order III into cases where N2 is definitely a measure, where it is definitely not a measure and where it is uncertain whether it is or not, but in any case he lists them all as instances of N Num N.

119 There are also examples of order I, but with a measure the head noun must have been understood, otherwise the listener would not know what the measure is of. Likewise with the cases of order II, the measure must be understood when it does not appear overtly, perhaps as in “three coffees”.

120 Ma (1988: 172) says that according to Han sources ten zī would have been a cart and a half worth of grain, although he notes that there is no way of knowing if this was also true in the Western Zhou.

121 See section 6.2.2.2 for the semantics of mass nouns.
occurring in units larger than one, such as 貝 “cowry shells” and 矢 “arrows”, the measure is a kind of group noun. In either case, the first noun refers to the kind of thing being quantified, while the numeral and second noun refer to the quantity. This is exactly analogous to our account of non-measure order III, with one difference. In order III where the second noun is not a group or mass measure, we have argued the first noun and the numeral are necessarily focused separately. When they are not focused separately the noun and numeral use the unmarked order I. In the case of mass nouns, this is not an option, there needs to be a measure to be quantified over. Thus, for measure phrases, order III is not necessarily a focus order, or alternatively, order III creates a measure structure for mass and count nouns alike. This fact has prompted some scholars to claim that N2 is a classifier. However, to adequately assess this possibility we must first understand what a classifier is. This is the subject of the next chapter.
Chapter Six  Classifiers

6.0  Introduction

In this chapter the issue of whether or not Early Inscriptional Chinese had classifiers will be dealt with. This will lead us to the larger but related question of whether EIC can be thought of as a classifier language, and given its strategy for quantification, what its nominal typology with respect to grammatical number is.

We will answer the above questions through a four-stage approach. Firstly, we will distinguish numerical classifiers from other classifier systems. Then we will do a brief survey of the literature on classifiers looking at how this term has been understood both by Sinologists and linguists with a more general focus. Sorting through the ideas and the data, and dealing with the contentious issue of the primary function of numerical classifiers, we will come to a preliminary understanding of what a classifier is. We will then attempt to refine this definition with a study of the semantics of mass and plurality. Once the semantics of numerical classifiers are understood, we will outline a general theory of numerical classifiers and numerical classifier languages, and test its applicability on some modern classifier languages. Using this theoretical apparatus, it is hoped that fundamental questions about EIC typology can be answered, and the question of whether it had classifiers, or not, finally put to rest.

6.1  A Brief Taxonomy of Classifier Systems

The word “classifier” is a much used, but often poorly defined term. Many different systems in many different languages have been called “classifier systems.”
In this section we will give a brief taxonomy of classifier systems in order to delimit
the scope of our discussion to the classifier system we are interested in.

Croft (1994) lists four different types of classifier system, “Noun Class”,
“Numerical Classifier”, “Possessive Classifier”, and “Predicate Classifier”. He gives
them the following functions respectively, “determination (reference)”, “enumeration”,
“possession” and “spatial predication”. Dealing first with noun classes, Croft says that
“their function is simply to identify and refer to the concept so classified”(147) and
that they are found as “determiners, concord markers within the noun phrase, and
occasionally as agreement forms on predicates”(147). Examples of noun classes can
be found in the Bantu languages.

Skipping over numerical classifiers for the moment, “possessive classifiers are
found exclusively with alienable possessors”(Croft 1994: 154) such as are found in
Oceanic languages (see also Downing 1996: 5). He gives the following examples
from Ulithian,

(64) (a) lawu -yi yixi
    CL  -my fish

    “my fish that I am keeping” (intimate property possession)

(b) xala -yi yixi
    CL  -my fish

    “my cooked fish food” (cooked food property) (154)

Croft’s final category, predicate classifiers, are not separate morphemes and
modify verbs depending on the nature of their object. This phenomenon only occurs
in Athapaskan and Hokan languages and as Croft himself admits “they may not be classifiers at all” (157). As an example he gives the following verbs from Dakota,

(65) nazi ‘to stand’: for men and animals;
ha ‘to stand’: for long, upright inanimate objects or those that stand upright in a definite way;
yuka ‘to lie’: mostly for animate beings;
hpaya ‘to lie’: mostly for inanimate objects; (157)

In addition to the types of classifier system given by Croft (1994), Downing (1996) has the category “generic classifier systems” which “are not required in enumerative contexts” and “rarely seem to be organized around the shape based notions which are commonly encoded in numerical classifier systems” (4). In addition, in at least one language with generic classifiers (Yidiny), more than one generic classifier can simultaneously appear with a noun, each adding its own semantic content to the noun phrase. Downing says that these types of classifier systems occur in some Australian languages and Amerindian languages like Jacaltec. Interestingly, the two examples that Downing gives for systems of this type, Yidiny and Jacaltec, Croft (1994) groups under noun class. Since there does not seem to be any functional distinction between Downing’s generic classifiers and noun classes, it seems that generalized classifiers may simply be noun class markers that have not undergone phonological reduction as Croft (147-148) implies.

The fourth type of classifier system, and the one we will be investigating in this

\[\text{122 The distinction seems to be purely morpho-syntactic: general classifiers tend to be free, while noun class forms tend to be bound (Craig 1986: 248, Downing 1996: 6).}\]
chapter, is the numerical classifier system. Numerical classifiers are generally used in constructions involving numerals, and it is generally true that nouns cannot be enumerated in numerical classifier languages without the use of a numerical classifier (Greenberg 1972, Denny 1983: 298, Croft 1994: 151, Downing 1996: 2, etc.)\(^{123}\).

Following Croft (1994), we will distinguish between numerical classifier systems and other types of classifier systems in terms of function: numerical classifiers enumerate, and thus belong to the morpho-syntactic category of “number” that includes measures, as well as singular and plural marking.

### 6.2 Numerical Classifiers and Classifier Languages

A distinctive feature of modern Chinese dialects is the widespread use of numeral classifiers. The point at which classifiers began to appear, however, is a matter of some debate. For instance, Guan (1953), Chen (1956), Huang (1964), Ma (1983), Yang & He (1992) and Wang (1994) all claim that classifiers are already attested in OBIL. On the other hand, Wang (1958), Zhou (1981), and Yau Shun-chiu (1988) believe that true classifiers only began to emerge in the Western Zhou, while Peyraube (1991) claims that classifiers did not begin to appear until the Han. Complicating this debate is a lack of consensus as to what a classifier is, and what constitutes a classifier language. It is this issue of defining classifiers that this and the following sections will focus on.

In the Chinese literature, classifiers are generally called either 量詞 *liangci* “measure words” or 單位詞 *danweici* “unit words” and they are subdivided into several different types. Wang Li (1958: 234) for instance, recognizes two major kinds of nominal classifiers\(^ {124}\):

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\(^{123}\) Vietnamese is an exception to this rule according to Bisang (1999: 145). We will return to this issue later on.

\(^{124}\) There is a distinction between nominal and verbal classifiers in modern Chinese dialects, but we are only concerned with nominal classifiers here.
度量單位詞 *duliang danweici* “measurement unit words”, which include such words as 尺 *chi* “a Chinese foot” and 斤 *jin* “a Chinese pound”, and *tianran danweici* “natural unit words” such as 隻 *zhi* (a classifier used for animals and birds), and 個 (a general classifier). Huang Zaijun (1964: 432- 436) on the other hand, defines four types of *liangci* for the OBIL and five types for BIL: 度量衡和容量的單位 *duliangheng he rongliang de danwei* “weights, measures and capacity units (this counts as two types in BI) such as 卣 *you* (a kind of wine container shaped like a bucket), 貨幣的單位 *huobi de danwei*, units of currency like 朋 *peng* (a coupled string of shells or jade beads), *jiti danwei* 集體 “collective units” such as 具 *ju* “a set”, and 個體 *geti danwei* “individual units” such as 人 *ren* “person / people”. In Wang Li’s system the first three of Huang’s types would be classified under *duliang danweici* “measurement unit words”, while *geti danwei* “individual units” and *tianran danweici* “natural unit words” are equivalent. Thus, we can see that the major subdivision in *liangci* “measure words” or *danwei* “unit words” for these two authors, and indeed most Chinese scholars, is the division between units for individuals and units for measures, or collectives\(^{125}\). This is stated quite clearly in Wen Qianxi (1992: 39):

\(^{125}\) After a survey of Chinese language material Wang Liangqing (1994: 24) has the following two observations about the Chinese literature on classifiers:

a. Without exception, all Chinese scholars consider classifiers as measure words, in spite of the different terms they have used. It is important to see that most scholars notice the necessity to further divide *liangci* into different subgroups of which the classifier is often a subgroup.

b. Judging from the terms they use for classifiers in Chinese, most modern scholars do not consider it necessary to distinguish classifiers from measure words. The term *liangci* is overwhelmingly used in scholarly works for classifiers, measure words as well as verb-measures in Chinese.

While what Wang says is generally true, and not all Chinese authors distinguish between “measure words” and “classifiers”, lumping them all under the term *liangci*, I do not believe that this is necessarily a problem as long as a distinction is made between “individual” and “group” or “mass” measures. Unlike Wang I do not believe that there is a categorical distinction between what he calls measures and what he calls classifiers. This issue will be taken up in more detail below.
Nominal measure words can be divided into two major types, the first type takes the fixing of a unit of measurement as most important, and so we call them ‘unit measure words’; the other type takes the description of shape as most important and is called ‘individual measure words’.

In addition to the distinction made between measures for collectives and masses versus measures for individuals, Qian brings up a point that has been raised by Allan (1977), Tai & Wang (1990), and Wang (1994), that collective and mass measures measure units, while individual measures describe shape. Wen posits (citing Zhou 1981) that syntactic evidence for this distinction resides in the fact that “unit measures” can have the de inserted between the noun and the liangci in Mandarin while “individual measures” cannot as examples (66) (a) and (b) show (see also eg., Zhou 1968, Wang 1994, Cheng and Sybesma 1999).

(66)(a) 三公斤的魚

*san gongjin de yu

“three kilograms of fish”

b) 三條的魚

*san tiao de yu

“three CL of fish”

126 Despite the fact that this syntactic distinction is drawn from Modern Chinese, Wen nonetheless applies the “unit measure word/ individual measure word” distinction to the Bronze Inscriptions, where no such syntactic distinction is evident.
While we have seen that Chinese scholars tend to divide “nominal measure words” into individual measures versus mass and collective measures, Ota (1987: 147-153) recognizes five subcategories: 計量量詞 jiliang liangci “mass measure words” which are divided into 重量衡單位 duliangheng danwei “weight and measure units”, (e.g. 尺 chi “a Chinese foot”), and 專用的 zhuanyongde “specialized” (e.g. 杯 bei “cup”), and 計量量詞 jishu liangci “count measure words” which are divided into 個體 geti “individual” (e.g. 個 ge “general classifier for individuals”) and jiti 集體 “collective”, the latter of which is further divided into 純粹的 chuncuide “pure” (e.g. 群 qun “herd, crowd”) and 專用的 zhuanyongde “specialized” (e.g. 桌子 zhuozi “table” as in 一桌子菜 yi zhuozi cai “a table of dishes”). The interesting thing about this subdivision is that it takes the fundamental division in nominal classifiers or measures as being the count / mass distinction, and puts the collective measures with the individual measures in the “count measure word” class. This makes a semantic distinction between entities that can be counted by individuals and those which either cannot be (e.g. water), or are not habitually counted so (e.g. sand). This suggests an important distinction between languages like English where mass nouns must be counted by measures, while count nouns can be counted by measures only if they do not denote singular individuals, and languages like Chinese where all nouns must be counted in measures or classifiers. Lyons (1979: 463), writing about classifiers in general, divides them into two kinds, sortal and mensural, and gives the following definitions: “A sortal classifier is one which individuates whatever it refers to in terms of the kind of entity that it is.” “A mensural classifier is one which individuates in terms of quantity”. Lyons further notes that “mensural classifiers are probably to be found in all languages” (464). Thus, the difference

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127 There are a few exceptions to this rule involving nouns that refer to concepts or are themselves units, such as 日 ri “day”, and 公尺 gongchi “meter”.

128 Greenberg (1972: 16) claims that this is not in fact universal, stating, “there are a considerable number of AMERIND languages as well as some elsewhere, for example, in New Guinea which do not have measure constructions”.

between a language like English and a language like Mandarin is that Mandarin possesses sortal classifiers, but English does not\(^{129}\). Notice, however, that Lyons' definition is in accord with the Chinese subdivision of liangci in that collective counters (e.g., herds, flocks etc.) are presumably subsumed under the heading mensural in that they "individuate in terms of quantity" (in this case the group). An alert reader might note, however, that individuals surely denote quantity as well groups do, and that "a gang of young men" and "a group of young men" surely differ in terms of kind rather than quantity. Given that English clearly has a mass/count distinction, is it justifiable to claim that collective measures and mass measures are both the same kind of thing? This question leads us right to the heart of the problem of defining individual classifiers: what is their function? Is it primarily qualificational as Lyons suggests, or is it quantificational?

6.2.1 Quantification versus Qualification

In Tai and Wang (1990: 38) the following distinction is drawn between classifiers and measure words,

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 named by the noun.

This is essentially the same distinction that Lyons made, that the function of a classifier

\(^{129}\) Except for such anomalies as "three head of cattle", where "head" can be considered a sortal classifier.
(sortal classifier) is classificatory, while that of a measure word (mensural classifier) is quantificational. One difference in the two definitions is that Tai & Wang (1990) don’t mention the individualizing function of classifiers. Taking their definition at face value, it looks as though classification is the only function of classifiers and that plural readings should be possible as well as singular ones, so that “ge ren” in (67) below could mean “people” as well as “person”.

(67) Wo kandao ge ren
I see CL person
“I see a person/*people”

This, however, is not the case, and though bare common nouns in classifier languages tend to be unmarked for number (Greenberg 1972, Chierchia 1998, Cheng and Sybesma 1999, etc.), once they take a classifier, they denote individual entities. Indeed, this individualizing function of classifiers has been taken by some researchers to be their primary function, prompting Greenberg (1972: 10) to remark, “we may say then, that in even the most elaborate system, all the classifiers are from the referential point of view merely so many ways of saying ‘one’ or, more accurately, ‘times one’.” Adams (1983: 242) disagrees however, saying that Greenberg’s generalization is inaccurate and that, “while there are cliché ways of counting a noun and its referents, classifiers can be manipulated to say different things about the objects in question”. She then cites an example from Khmu (a language mostly spoken in Laos) where the morpheme sʔɔŋ “can refer to both trees and logs” (242) depending on whether it takes hlem or tuut as a classifier. However, while this may be true in some languages, it is not universally true of classifier languages: in Mandarin for example, it makes no difference in meaning whether I say 一頭牛 yi tou niu “one
CL(head) cow”, 一隻牛 yi zhi niu “one CL(animal) cow”, 一條牛 yi tiao niu “one
CL(long thing) cow” or even 一個牛 yi ge niu “one CL(general object) cow”130, a point also
raised in Erbaugh (1983). Loke (1997), on the other hand, despite this evidence, tries to claim
that classifiers can contribute significantly to the meaning of the noun phrase in Chinese
beyond mere quantification131. To show this he uses examples such as (68) and (69) below
(Loke’s (20) and (21)).

(68) (a) yi ge mianbao ‘a whole loaf of bread’
(b) yi tiao mianbao ‘a long loaf of bread’
(c) yi kuai mianbao ‘a piece of bread’
(d) yi pian mianbao ‘a thin slice of bread’

(69) (a) yi ge zuiba ‘a mouth’ (literally, as a bodily organ)
(b) yi zhang zuiba ‘a mouth’ (metaphorically, refers to owner’s
ability to express him/herself verbally).

The first thing to notice about (68), however, is that bread is a mass noun in languages
like English and the so called classifiers are really measure words or mensural classifiers
corresponding to “loaf”, “piece” or “slice” in English. Example (69), on the other hand, is
simply invalid. Zhang is the specific classifier for “mouth”, while ge is the general classifier.
There are no situations where ge is preferable to the special classifier zhang except perhaps
in informal conversation (Erbaugh 1983)132. These examples, far from substantiating the

130 While the majority of grammars would claim that ge (the general classifier) cannot be used with niu,
Erbaugh (1983) shows that in reality, native speakers often use ge even when a specific classifier is
called for.
131 Tai and Wang (1990) also make a similar case for the Chinese classifier tiao “long thing”.
132 The following sentences were presented to four native speakers and they were asked to choose
hypothesis that the main function of classifiers is to qualify their head nouns, while measure quantify, show that measures seem to be able to qualify as well. Indeed, when Loke claims that there is “creative use of free N and V lexemes as classifiers”, and “multiple use of classifiers with the same noun by creative writers to achieve innovative, specific, stylistic and rhetorical effects”(13), the examples he gives are uniformly measure words such as yi-fang dengguang “a square of light”, yi-chi yueliang “a pool of moons”, yi-zhen lucao “one needle of green grass”. Nor is this a special property of Chinese: there is also a qualitative difference between measures such as “squad”, “group”, “clique”, “troop”, “gang”, “mob” and “line”, showing that measures and classifiers cannot be distinguished in terms of the ability to qualify.

Recognizing that the distinction between measure words and classifiers based solely on a criterion of quantification versus qualification, as in Tai and Wang (1990), is problematic in reality, Wang (1994: 26), notes that there is some overlap between measure words and classifiers saying, “the demarcation between classifiers and measure words is sometimes fuzzy and elusive even under careful scrutiny”. Wang then makes use of a theory of prototypes “which allows ‘gradation’ in categorization” (26-27), distinguishing four grades from measure words to classifiers: prototypical measure words, borderline classifiers, overlapping classifiers and prototypical classifiers. Prototypical measure words like gongchi “meter” and gongjin “kilogram”, have no function except measurement, while borderline classifiers like kuai “piece” and di “drop” are “fuzzy members of the two categories”(41).

which they preferred.

i) Yi ge ren you yi shuang yanjing, yi ge bizi, yi zhang zui.
“A person has one pair of eyes, one CL(individual) nose and one CL(mouth) mouth.”

ii) Yi ge ren you yi shuang yanjing, yi ge bizi, yi ge zui.
“A person has one pair of eyes, one CL(general) nose and one CL(general) mouth.”

The respondents unanimously preferred zhang to ge despite the fact that according to Loke’s theory, when talking about body parts, ge should be preferred.
Overlapping classifiers like \textit{ba} "handful" are considered to be classifiers in some situations but measure words in others, and prototypical classifiers like \textit{gen} "root" meet all six of Wang's syntactic/semantic criteria. These criteria are the following six tests: i) the \textit{de} insertion, ii) \textit{ge} substitution, iii) the positions of the adjectives \textit{Da} "big" and \textit{xiao} "small", iv) classifier deletion in listing items, v) conjoined head nouns and vi) whether \textit{duo} "many, more than" is allowed to precede the head noun or not. To determine the usefulness of these criteria, we will now submit each one to close scrutiny.

Examples of \textit{de} insertion were given in (66) above and indeed it was seen that while for mass or collective nouns \textit{de} can be inserted, count nouns (when counted individually) do not allow \textit{de} insertion. We might at this point ask ourselves what this tells us about classifiers. Wang (55) makes the additional point that \textit{de} serves to emphasize quantity and notes that where quantity is not emphasized, \textit{de} insertion "would render odd expressions" (55) as in (70).

\begin{enumerate}
\item[(70)] (a) \textit{Lai yi wan fan}
\begin{itemize}
\item [\textit{bring one bowl rice}]
\item ["bring one bowl of rice"]
\end{itemize}
\item[(b)] *\textit{Lai yi wan de fan}
\end{enumerate}

There is, however, something strange about Wang's explanation of the ungrammaticality of (70) (b). Given that the context of utterance of (70) is that of a person requesting a bowl of rice (either ordering it in a restaurant or asking for it at home), it seems odd that Wang would claim that quantity is not emphasized. Indeed, the speaker could just as easily have said \textit{lai san wan fan} "bring three bowls of rice" in which case he or she is clearly stating that three

\footnote{See Newmeyer (2000: chpt. 4) for a criticism of "prototype theory".}
bowls are requested, not two or four. Thus, the real distinction must be something else. The distinction, I believe, is between using *wan* purely as a unit of measure, versus using it as an individual. When we say *san wan de fan* “three bowls of rice” we are taking “bowl” as a pure measure referring to “rice in the quantity of three bowls”. The utterance *san wan fan* “three bowls rice”, however, is ambiguous between “three individual bowls of rice” and “three bowls worth of rice” (see the section on measuring mass nouns below for details). Thus a better translation of (70) (b) would be “bring one bowl worth of rice”, which is indeed strange in the context of a restaurant.

Returning to the issue of why individual classifiers cannot allow *de* insertion, it follows naturally from the semantic distinction made above. While it might make sense to say “one head of cattle” it does not to say “*one head’s worth of cattle*”. In other words *de* insertion forces a pure measure interpretation on the measure/classifier. While for mass and group measures this is generally not problematic (a herd’s worth of cattle, a pound’s worth of beef), it creates a semantic clash with individual classifiers. This, however, does not support Wang’s claim that classifiers do not quantify, merely that they do not measure (see the section on measuring mass nouns below).

Noting that the general classifier *ge* can replace most individual classifiers in Mandarin, Wang takes this as his second test for classifierhood. Thus, (71) (a) is grammatical while (b) is not.

(71) (a) *yi ge zhuozi*

one CL(individual) table

(b) *yi ge zhi*

one CL(individual) paper
Though Wang does not analyze this distinction further, it seems that it can easily be explained in terms of count versus mass quantification. Since ge, by virtue of being a universal (or nearly universal) classifier, cannot be said to add any information about the category of the head noun other than that it is an individual, ge can be seen to be an individualizer. Since mass nouns do not correspond to individuals, obviously ge cannot be used with them. Notice also that both zhuozi “table” and zhi “paper” can take the classifier 張 zhang which means that this test will yield a [– classifier] reading in the case of “paper”, but a [+classifier] reading in the case of “table”. Thus, it seems that what this test is really distinguishing is whether the head noun is count or mass.

Wang’s third distinction is that classifiers, but not measures, can be modified by the adjectives da “big” and xiao “small” (see also Cheng and Sybesma 1999) as shown in examples (75) (a), (b), (c), (d) and (e).

(72) (a) yi ben da shu
one CL big book
“one volume of big book”
(b) *yi da ben shu
one big CL book
“one big volume of book”
(c) yi xiao qun yang
one small herd sheep
“one small herd of sheep”
(d) yi qun xiao yang
one herd small sheep
“one herd of small sheep”

(e) yi da bei shui
one big glass water
one big glass of water

From (75) (a) and (b) we can see that the adjective cannot modify the classifier, while in (c) and (e) xiao and da are modifying the measure and not the head noun. However, as Wang himself points out “standard measures” (32) like gongchi "meter", or gongjin "kilogram" cannot be modified by adjectives like "big" or "small" either. This, he claims, is due to the fact that there is a semantic conflict between the standard measure, which is exact, and adjectives of size which specify size vaguely. He notes that adjectives like zheng "full, entire", on the other hand, are acceptable with standard measures (33). In addition, mass nouns like shui "water" cannot be modified by da or xiao for the reason that they require a unit or individual to attribute "bigness" or "smallness" to, and shui, as a mass noun, does not denote individuals. Notice that "shui" can be given other attributes though, such as qing "clear" so that yibeibiqingshui "one cup of clear water", is grammatical.

On the surface, the above data amounts to noting that classifiers denote individual units while measures denote mass, or plural units. Thus, in the case of plural units, both the plural unit and the individual unit can be modified, yidaqundaniu “a large herd of large cattle” while as noted above the unit of a mass noun may take a size adjective but not the head noun itself. However, while it is obvious why modifying the unit versus modifying the head noun produce different semantic effects in mass and group measures, one might wonder why in the case of an individual classifier the adjective must come after the classifier and not before. Looking at other languages like Thai we can see that this is not necessarily the case (examples from Hundius and Kölver 1983: 174).
Since adjectives follow the nouns they modify in Thai, (73) (c) is the equivalent of “the green three individuals of umbrella”, in other words, the adjective green is not modifying the head noun directly. Looking at English, we can see that the semantics of classifier – adjective interaction is complicated as the following sets of minimal pairs demonstrate.

(74) (a) three large head/pieces of cattle/furniture
“three head/pieces of cattle/furniture that are large”
(b) ??three head/pieces of large cattle/furniture
“three head/pieces of the kind ‘large cattle/furniture’”
(c) ??three Scottish head/pieces of cattle/furniture
“three head/pieces of cattle/furniture that are Scottish”

134 This would be impossible for a group unit such as “swarm” as in i) (Hundius and Kölver 1983: 171)

i) *nók fuun sii-khiaw
bird swarm green
“*a green swarm of birds”
(d) three head/pieces of Scottish cattle/furniture

"three head/pieces of the kind 'Scottish cattle/furniture'"

The pair (74)(a) and (b) show the opposite distribution from Mandarin classifier- adjective combinations with the size adjective typically occurring before the classifier. As (c) and (d) show, however, the order is reversed with adjectives like "Scottish" where the adjective is seen as a property of the noun rather than something attributed to it. The reason for the awkwardness of (b) is due to the fact that "largeness" is generally not considered an inherent property of "cattle" or "furniture". Example (c) is odd because being "Scottish" is usually limited to human beings while in (d) the property of being from or of Scotland can be true of objects and animals as well as people. This is a subtle point, but it can be clearly seen in the pair "three Scottish members of the police/ three members of the Scottish police". In the first case the Scottish contingent in the police force is but a subset of the total, while in the second case they are all Scottish.

Thus, there seems to be several factors at play here. One is the ability of the adjective to modify the classifier separately from the head noun as in the mass and group measure case. Another point is that the insertion of an individual classifier between the head noun and the adjective gives the adjective an attributive interpretation where this is syntactically possible.

Now it was noted above that, unlike English, it is generally impossible to insert anything between a numeral and a classifier in Mandarin. Generally, but not totally impossible, as

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135 This may in part be due to the different morpho-syntactic structures of classifier or measure phrases in the two languages. In Jacaltec, where the numerical classifier is realized as an affix on the numeral, it is naturally impossible to insert an adjective between the number and the classifier (Craig 1986: 244). Along these lines, Cheng & Sybesma (1999: 529) propose that "this may be due to some obligatory cliticization of Cl to Numeral". Packard (2000: 75) takes the more extreme view that classifiers are "a kind of affix", while "numerals fit the criterion for bound root. However, this analysis is based on the erroneous assumption that numerals "must occur with classifiers". Moreover, the fact that it is possible to insert lexical items between numerals and classifiers in certain contexts as seen in (10) and (11) below, demonstrates that they are not bound morphemes.
the following example shows,

(75) Wo zuotian kan le yi da ben you nan you wuliao de shu.
I yesterday read ASP one big volume EMP difficult EMP boring GEN book.

"Yesterday I read one big volume of difficult, and boring book."

In this example, the fact that the book is large is emphasized. In fact, while in the normal classifier + adjective + noun order the adjective is generally ambiguous between the attributive and inherent property readings, (in so far as the adjective in question has both readings), the pre-classifier adjective is unambiguously attributive. In addition, the adjective in (75) can be said to be modifying the classifier directly and the head noun only through association with the classifier: “it is a large volume of book”. Notice that the head noun is modified directly by the adjectives wuliao “boring” and nan “difficult”. Thus it is a “difficult and boring kind of book which is one large volume in size”.

It is interesting to note that like standard measures, adjectives like zheng "entire, whole", can occur with classifiers as in (76) (a) and (b).

(76) (a) Wo chi le yi zheng tiao yu
I eat-ASP one whole CL fish

"I ate a/the whole fish"

(b) Wo chi le yi tiao zheng yu
I eat-ASP one CL whole fish

"I ate a fish of the whole kind" (i.e. there were fishes with their
heads cut off, but I ate one of the ones that were whole)

(c) Ta zheng ge ren dou shi niba.

His/her entire CL person all be mud

"His/her entire person was (covered in) mud".

In (76) (a) zheng "whole" modifies the classifier tiao and yields a meaning that can be paraphrased as "an entire unit of fish". In (b) however, the adjective modifies the noun directly and yields a sense that could be paraphrased as "a unit of entire (whole) fish".

The evidence in (75) and (76) show then that it is not the case that measures can be modified by adjectives while classifiers cannot. The difference between the Mandarin and English distribution of adjectives with classifiers probably revolves around the fact that the position of the classifier with respect to the numeral in Mandarin is less free than it is in English. In addition, Mandarin has another way of disambiguating the attributive and innate property readings of adjectives, namely de insertion. Thus the equivalent of the Mandarin phrase santou da de daniu would be realized as "three large head of large cattle" in English. Finally, the fact that adjectives like zheng "whole, complete" can be used freely to modify classifiers shows that, semantically, the limiting factor is whether or not the measure/classifier can be conceived of as having the properties denoted by the adjective. Thus color adjectives are uniformly bad with groups, standard measures and classifiers, while size adjectives can be forced on classifiers in some contexts and adjectives like zheng are good in any case. Far from proving Wang’s point about classifiers qualifying while

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136 This sentence might be uttered in a context where there are groups of large cattle and small cattle and the speaker is indicating that he wants large individuals of the large kind of cattle.

137 With the exception of classifiers in English, but in those cases the adjective is not modifying the classifier per say, but giving the adjective a predicative reading. Since this is generally accomplished by other means in Mandarin, and the classifier cannot be considered to have color independent of the head noun, this sort of construction is ruled out.
measures measure, this third criterion underscores the fact that classifiers denote an individual quantity of the entity in question, and little if anything else.

Wang’s fourth criterion is that classifiers, but not measures, can be deleted in a list. Thus a hotel might list furniture as in (77).

(77) shuzuo 1, dianshi 1, yizi 2 …
“desk 1, TV 1, chairs 2 …”

As Wang himself points out, this deletion of classifiers only applies “for items which usually exist in discrete and countable objects” (33). Naturally, since mass nouns do not correspond to discrete and countable entities, their measures cannot be deleted from a list without compromising intelligibility. What this test really shows then, is the distinction between mass and count nouns on the one hand, and between count nouns that are usually counted by individual versus those counted in pairs or collections on the other.

The fifth criterion is whether two conjoined head nouns can be modified by a single classifier / measure. This distinction can be seen in (78) (a) (b) and (c) (see Wang: 34, 57).

(78) (a) *yi zhi yang he mao
one CL sheep and cat
(b) yi dui xuesheng he laoshi
“one pair of student and teacher”
(c) yi xiang shu he yifu
“one box of books and clothes”
This, however, is a criterion of questionable utility since (78) (a) is ruled out independently of classifier / measure distinctions. For example, "*I saw one cat and dog" is not grammatical because cat and dog cannot be enumerated together without a group measure. Any two entities to be counted as a unit must be counted in units larger than the individual. Naturally, this is ruled out in the case of individual classifiers, since they specify individuals. Once again then, Wang's criterion points to a distinction between collective and mass nouns on the one hand, and individual count nouns on the other.

The final criterion Wang lists is duo "more, many" insertion. Wang notes that it is not permitted with classifiers, but it is with measures as seen in (79) (a) and (b) (see Wang: 35).

(79) (a)*yi ba duo yizi
one CL more chair
"a little more than an individual chair"
(b) yi ba duo huasheng
one handful more peanuts
"a little more than one handful of peanuts"

Wang attributes this distinction to the fact that,

since classifiers are used to categorize individual objects into different classes, each object is supposed to be an entire unit which

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138 This is grammatical on the reading "one cat and one dog", but the meaning intended here is "one individual of cat and dog", which is, of course, semantically impossible.
cannot be quantified by expressions including a little more than 'one' but less than 'two'. (35).

While what he says about the impossibility of quantifying individual units in quantities of less than an individual is true, his point about classifying is totally superfluous here. The only relevant issue is a quantificational one: classifiers individualize. This point is supported by the fact that collective measures that do not clearly denote quantity cannot be modified by *duo* either as in (80) (a) and (b)

(80) (a) *yi cu n  duo yang
one herd more sheep
“a bit more than a herd of sheep”
(b) *yi bi duo qian
one sum more money
“a bit more than a sum of money”

Obviously then, the possibility of inserting *duo* has nothing to do with the putative “categorizational” qualities of classifiers versus the purely quantitative function of measures, and everything to do the semantics of quantification.

Looking again at Wang’s categories, we see that the category “pure classifier” was reserved for classifier / measures which fulfilled all six criterion, while “pure measures” were supposed to be purely quantificational words which fulfilled none of the above criterion. Since “the primary function of a classifier is to categorize objects into different classes”, and “that of measure is to measure the quantity” (26), we would expect that his six criterion for classifierhood would reflect this distinction between categorization and quantification, but, as
we have seen above, the distinctions made between measures and classifiers all involve issues of quantification. Indeed, criteria one, distinguishes measures from individuals, three, four, five and six, demonstrate the individualizing function of the classifier, while criterion two, in its demonstration of the near universal applicability of the classifier ge with count nouns, shows that the primary function of classifiers is not to classify: if it were, then how could ge be used across classificatory boundaries? It seems then, at least for modern Chinese, that the primary function of classifiers is to individualize, as per Greenberg (1972) and contra Tai & Wang (1990), Wang (1994), and Adams (1983). Indeed, given that the distinctions between measures and classifiers shown in Wang's six criteria almost all revolve around quantificational issues, we must agree with Lehman (1979) when he says,

... no theory of numerical classifiers can possibly succeed, or even be taken seriously, unless it is thoroughly grounded in the necessary aspects of the theory of quantification and the related parts of the theory of the underlying representation of nouns, i.e., of the members of sets or classes. (174)

6.2.2 The Semantics of Classifiers

Wiebusch (1995) deals with just this issue of qualification versus quantification as the primary function of classifiers and comes to much the same conclusion. Unfortunately, she motivates her argument with a comparison of the classificatory system of Chinese radicals (a set of 214 basic graphs that are taken to be the fundamental elements of all modern Chinese characters) and that of modern classifiers, and thus fails to make the key distinction between natural language and a writing system. The system of radicals now used in Chinese dictionaries was based on one individual's (Mei Yingzuo) perception of regularities in the Chinese writing system, which in turn was created under constraints particular to writing systems (such as the necessity of giving symbolic form to sound). However, she does correctly state that classifiers classify "objects only as to features which allow the determination of discernible units, such as "shape", "possession of a part occurring only once in the subject" and "type" limited by the concept of "basic object". The reason is not that people prefer to classify things according to these categories, but that there is a quantifying, i.e. individualizing function connected with classifier usage." (31)
As we have seen above, the phenomenon of numeral classifiers and classifier languages is very much related to issues of quantification, count and mass, singular and plural. Until now we have been using these terms rather intuitively, but if we are to really understand the nature of classifiers, and the difference between languages with classifier systems and those without, we must first explore the semantics of plurality and mass.

6.2.2.1. Plurals

The standard view of plurality found in the literature since the eighties (e.g. Link 1983, Landman 1989), involves a domain of quantification that has individual “atoms” as its basic members, which in turn “generate” plural individuals.

This domain comes equipped with a part-of relation, or alternatively a sum operation, and the difference between singular individuals and plural individuals is that the latter, but not the first, have other (in particular singular) individuals as parts, or alternatively: plural individuals are sums of singular individuals.

Landman (1991: 300)

Formally, the mathematical concept of a “lattice” is used to structure this domain, specifically a “complete atomic join semilattice” (Chierchia 1998: 345) or an “i-join semilattice, freely generated under sum by a set of minimal elements” (Landman 1991: 301). Chierchia (1998: 345) gives the following visual analogy using sets:

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140 These are not actually interchangeable terms, although since Chierchia’s treatment is informal, one can only surmise the details, and since he cites Link (1983) and Landman (1989) he clearly has
Where “a”, “b” and “c” stand for singular individuals and “constitute the reference

something similar in mind. In Landman’s (1991) terms the count domain is an “atomistic* join semilattice”. That is, a “complete* join semilattice” where “every non-zero element is the join of atom*s” (255). The terms “complete” and “complete*” differ in that “complete*ness” is only defined for non-empty subsets of A, such that the maximal element (actually, the supremum ( ∨ ) which is really the smallest element of a set such that it is greater than or equal to all other elements in the set) of the subset will be an element of A. The term “complete” on the other hand, allows for empty subsets to be included in the above formulation with the result that such a semilattice will have a zero element (and actually be a lattice). Thus, if the count domain was structured as a complete atomic join semilattice, it would imply that common nouns could denote entities which do not exist in the realm of discourse (or more correctly, a set of properties such that there are no entities that they would be true of), unless, of course, it was stipulated that the empty set was excluded. Landman’s definition can be seen as having this stipulation written into it.

As for the notation “i-join semilattice”, this is basically the same thing as an atomistic* join semilattice completely generated by an unordered set. Landman (1991:256) gives the following definition,

An i-join semilattice is a structure <A, ∨>, where:

A is a non-empty set

∨ assigns to every non-empty subset of A an element of A

The relation ≤, defined by: x ≤ y iff ∨ {x,y} = y is a partial order on A

∨ assigns to every non-empty subset X of A the join of X under ≤

Using concrete language examples these stipulations have the following implications, (1) a common noun like “dogs” refers to a set of entities that is not empty (i.e. there exist, in the universe of discourse, things called “dogs”); (2) every instance of a group of dogs will still be an instance of “dogs”; (3) the group of Fido, Barky, Spot and Rufus is smaller than or equal to the group of Fido, Barky, Spot and Rufus (reflexivity); if Fido and Barky form a smaller group than Fido, Barky and Spot, and Fido, Barky and Spot forms a smaller group than Fido, Barky, Spot and Rufus, then Fido and Barky forms a smaller group than Fido, Barky, Spot and Rufus (transitivity); if “these dogs” form a group less than or equal to “those dogs”, then “those dogs” cannot form a group less than or equal to “these dogs” unless they are of the same size (Antisymmetry); (4) combining sets of “dogs” will yield larger sets of “dogs” with the properties laid out in (3).

One additional property of the count domain in Landman’s system is that it is “freely generated”. This basically amounts to saying that “every element is the sum of one and only one set of atom*s” (262), thus the set of Fido and Barky is not the same set as the set of Spot and Rufus.
of singular definite DPs” (Chierchia 1998: 345), and the sets comprised of these “atoms” are plural definite determiner phrases. Thus if we said “those people” referring to Adam, Bob and Cathy, we are referring to the plural individual comprised of those three people. Indefinite DPs, on the other hand, like “people” as in “I saw people over there”, are true of any individual that is the sum of atoms (singular individuals) with the property of being a “person”. Thus, if there were only three people in the world, “Adam”, “Bob”, and “Cathy”, then this would correspond to any of the sets {Adam, Bob}, {Bob, Cathy}, {Cathy, Adam} and {Adam, Bob, Cathy}, all of which are true of the property “people”.

Given this notion of plurality and the count domain, we can derive the qualities of numerical phrases involving count nouns in languages like English. In the phrase “three cats” the plural morpheme marks the noun “cats” as being plural and thus a sum of individual cats. The numeral then gives the exact number of individuals that the sum is composed of. In the case of “one cat”, “cat” is singular and as such denotes an atom of the count domain. The numeral again gives the exact number. One interesting thing about the above system is that since “cat(s)” is a count noun and the numeral will give an exact number of the entities involved, the overt singular / plural distinction is redundant. This has led some theorists like Krifka (1989) to claim that plural morphology in numerical expressions is a matter of agreement and has nothing to do with the semantics. However, in cases without numerals, the singular / plural distinction can have a semantic effect, as in “the cat” versus “the cats”. The key to numerical expressions with count nouns is that they have a set of atoms, which form what Krifka (1989: 83) calls “natural units”.

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141 Krifka (1989: 85) gives the examples of “0 cows / *cow and 1.0 cows / *cow” to demonstrate this point.
6.2.2.2 Mass Nouns

While the semantics of plurality outlined above can be said to be the standard one in recent semantics literature, a non-standard view of mass nouns proposed in Chierchia (1998a, 1998b) will be examined in addition to a more standard account. We will begin with the standard account given in Landman (1991) (see also Link 1983, 1998).

6.2.2.2.1 Landman’s Account

As we have seen, the count domain consists of atoms (singular individuals) which generate pluralities with their sums, or, alternatively, pluralities which form singular individuals through “a part of” relation. Crucially, though, count nouns involve the concept of “atoms”, individuals which cannot be divided into smaller individuals\(^{142}\).

With mass nouns on the other hand, Landman (1991: 313) argues that there are no minimal parts. Naturally, this is not to say that there is no such thing as a water molecule, for instance, but that water molecules play no role in the counting of water in everyday contexts. This is why we cannot say things like “there is ten million water(s) in my cup” (Landman 1991: 313). Water must be measured, and not counted. What this measuring amounts to, is stipulating what the units of water are in a given situation, as opposed to count nouns whose “units” are inherent (see Krifka 1989: 84).

\(^{142}\) While it is possible to talk of “a piece of chicken” or “half a cow”, I would argue that in the first case “chicken” is being treated as a mass noun, with no reference to individuals, while in the second case the predicate “half of” is applied to an individual cow, so that the fundamental unit is still a singular “cow”. Notice that this “part of” relation still makes reference to the individual as the natural unit of “cow” so that “half a cow” is not really “a cow”. That is to say that not all of the properties that are true of “cow” will be true of “half a cow” (like having four legs, a head, two eyes, etc.).
In Landman's (1991) terms, the mass domain is still an "i-join semilattice", but it is non-atomic and has the additional properties of being a "part-of" structure. This implies that you can divide water or other mass nouns indefinitely and still have an entity for which the properties of "water" are true. Naturally, if we took a teaspoon of sand and divided it in two several hundred times, we would probably get to a point where we have only one grain of sand left. The point is that the usual concept of "sand" is as an undifferentiated substance composed of parts too small to practically count. Notice that with larger things like rocks, the division into smaller rocks still yields an entity for which the properties of "rock" are true.

6.2.2.2.2 Chierchia's Account

In the account above, we have assumed there are two homomorphic domains of quantification, one count and the other mass, the difference being that the mass domain is not atomic. Chierchia (1998a, 1998b), however, has another view. In his analysis, there is but one domain, the difference between count and mass nouns being that mass nouns "come out of the lexicon already pluralized" (1998a: 347). That is to say, unlike plurals which are derived through a sum operation on atoms, mass nouns

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143 This means that it is a "witnessed, distributive join semilattice". "Witnessed" means that "if A is a body of water and B is a proper part [a part that is not equal to the whole] of A, then there has to be some other part of A that does not overlap B" (314). "Distributive" means that "if you take a body of water and you take two parts A and B that together make up the whole body of water, then if you look at any part C of that water, it has to be either part of A, or part of B or the sum of some part of A and some part of B.

144 Notice that the noun "rock" can take a measure or be counted directly. I would argue that the former is due to the divisibility of rocks into smaller rocks as pointed out above, while the possible interpretation as a count noun is due to that fact that we can perceive rocks as separate individuals (in some cases).

145 This basically means that structure is preserved in functions from one domain to the other. For a formal definition of homomorphism see Landman (1991: 74).
begin as pluralities and derive smaller units through a “part of” relation. In this way, a noun like “furniture” is true of both singular and plural pieces of furniture. Thus, “for a mass noun the difference between plural and singular is quite literally neutralized” (1998b: 69). From this Chierchia is able to derive the properties attributed to common nouns. For instance, the fact that mass nouns cannot be enumerated directly is explained by the fact that mass nouns denote subsets of the totality of entities that are true of a given property, and thus do not necessarily denote individuals. This means that even though the domain has atoms (e.g. discrete pieces of furniture), the extension of the mass noun does not correspond to them, so that if we said “*one furniture” it would be unclear as to the size of the subset of “furniture” being referred to.

While this seems to be an ingenious way of simplifying the two domains of quantification to one, and this account makes good sense for nouns like “furniture”, can it really account for nouns like “water”? According to the analysis just outlined, a noun like “water” must be said to have a minimal unit, which cannot be divided further without losing the property of “water”. This seems intuitively false (even though it is scientifically true). Chierchia (1998b: 68), however, tries to claim that focusing on mass nouns like “water or rice, whose minimal parts are involved in vagueness … has contributed to obscuring the relation between mass nouns and plurals”. He believes that the true nature of mass nouns can be better seen through exemplars like “furniture” which do not have “vague” minimal parts. Indeed, how can nouns like “furniture” be dealt with in a system with an atom-less mass domain? For example, if you divide up a piece of furniture you are left with kindling, not

146 This is actually quite similar to Lehman’s (1979: 160) idea of mass nouns as power sets.
“furniture”. This is a property of count nouns, yet “furniture” cannot be directly
enumerated or pluralized. If Chierchia is right, then “there is no principled reason to
maintain that mass nouns (even those whose granularity is unclear) do not have an
atomic structure” (1998b: 68) and nouns like “furniture” should pattern exactly like
nouns like “water”.

One interesting phenomenon that Chierchia (1998b: 56) notes with respect to
mass nouns is that count nouns can be turned into mass nouns.

(81) (a) There is three ounces of chicken(*s) on the table
(b) There are three portions of chicken(*s) on the table
(c) There are three cups of chicken(*s) on the table

The fact that “chicken” cannot be pluralized in these examples shows that it is being
treated as a mass noun here since under Chierchia’s system a mass noun is inherently
plural, and thus cannot be pluralized, while in Landman’s system, plural is undefined
for the mass domain. In (81)(a) – (b), the noun “chicken” really corresponds to
something like “chicken meat”, and is not necessarily true of all the properties true of
individual chickens. Given that nouns like “furniture” have minimal units, it would be
interesting to see how their interpretation is effected by using measures that do not
make reference to the individual.

(82) (a) *There is three ounces of furniture in the living room
(b) *There are three portions of furniture on the floor
(c) *There are three cups of furniture on the table
While it might be argued that the reason (82) (a) and (c) are unacceptable is that "pounds" and "cups" are "inadequate for stylistic reasons" (Krifka 1989: 82), just as talking about "ten liters of stone" is odd, I would argue that the unacceptability of (b) points to another source of the problem: namely, that "furniture" has a minimal unit, and any measure that attempts to measure in units smaller than this minimal unit forces "furniture" into a kind of atom-less interpretation. Just as with count nouns, the "furniture" in "an ounce of furniture" no longer has the properties of "furniture" (e.g. cutting a table up into one ounce pieces does not yield something that can be considered furniture any longer). Note that for nouns that truly lack any individuals (at least in the way we normally conceive them), there is no problem with divisions of this kind.

(83) (a) There is three ounces of meat/grass/bread/gold/paper on the table
(b) There are three portions of meat/grass/bread/gold/paper on the table
(c) There are three cups of meat/grass/bread/gold/paper on the table

These examples demonstrate that there is a principled way to distinguish between the nouns in (83) and nouns like "furniture". While Chierchia's account claims that the nouns in (83) really do have atoms, we can see that these nouns do not pattern the same way that "furniture" does, and thus Chierchia's theory misses a linguistically significant distinction.\textsuperscript{147}

\textsuperscript{147} It might be argued that "ounce" and "cup" do not divide these nouns at a sub-atomic level (in the
The above evidence indicates that a non-atomic mass domain is required, but that “furniture” does not belong in it, instead, Chierchia’s notion of “the extension of a mass noun as a sub-lattice of the [count] domain” (1998b: 66,67) must be used for nouns like “furniture”, “police” and “cattle”. This means that these nouns come out of the lexicon already pluralized and denote subsets of “furniture”, “police” or “cattle” which may be of any size, including sets containing only one individual. Thus statements like those in (84) below would be true even if only one individual was involved.

(84) (a) I was arrested by the police last night.
(b) John was run down by (one head of) cattle.
(c) You’ve got to get furniture, even if only a chair!

Thus, even if there was only one arresting policeman, or one head of cattle doing the trampling (84)(a) and (b) are acceptable, while (c) shows that “furniture” can refer to a single piece. Thus the difference between nouns like “furniture” and nouns like “water” rests on the fact that the former belongs to the count domain, while the latter to the mass domain. On the other hand, the similarities that lead Chierchia to call both “water” and “furniture” mass nouns, can be derived from the fact that their extensions are both arrived at through a “part of relation”, so that an instance of

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148 It could be argued that (84) (b) is odd with the single head of cattle interpretation. This I submit is because “cattle” is not used very much anymore in singular contexts even with a classifier. Thus, most native speakers would use (ii) rather than (i) even though both are grammatical.

(i) John was run down by a head of cattle.
(ii) John was run down by a cow.
“furniture” is a part of the totality of all “furniture” in the universe of discourse, just as “water” is a part of the totality of all “water” in the universe of discourse. Hereafter, “mass nouns” will refer to nouns of the mass domain like “water”, and we will leave off discussion of nouns like “furniture” till later.

6.2.2.3 Measuring Mass Nouns

As we have seen, the mass domain is not atomic, so the denotation of a mass noun does not correspond to a set of atoms. Thus, mass nouns must have something that can act as a unit to be counted in a numerical phrase. This can take two basic forms, a kind of measure that maps the mass noun to a set of atoms, or “functions from objects into numbers” (Chierchia 1998a: 347). The former we will call a “mensural classifier”, borrowing Lyon’s (1979) term, while the latter we will term “measure word” (see Chierchia 1998a). Thus, examples of mensural classifiers would be “piece” as in “a piece of meat”, and “cup”, as in “a cup of tea”, while an example of a measure word would be “ton” as in “a ton of”. While Higginbotham (1994: 478) and Krifka (1989: 83) both treat mensural classifiers as measure words, with Chierchia (1998a), I believe there is a distinction. This distinction revolves around the fact that a mensural classifier like “cups” in “three cups of water” can turn “water” into a count noun, giving it a set of atoms (cups of water). On the other hand, “cup” can also be interpreted as a measure. Higginbotham (1994: 478) notes that there are three interpretations for a phrase like “two cups of gold”. They are as follows,

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149 In Doetjes (1997) a similar distinction is made between singular nouns, plural nouns, count mass nouns (like “furniture”) and mass mass nouns (like “water”).

150 It is possible to divide mensural classifiers further, between those whose units are containers of some kind and those who simply denote a “part of” relation like “piece”. I think, however, that this is not a distinction that has real semantic effects in natural language: both function as specifiers of discrete individuals that can be enumerated.
Higginbotham discounts the first two as not being of interest, and notes that the third interpretation should be considered a measure no different than "gold in the amount of five pounds". Evidence for this is the indefiniteness effect that occurs with measures as in,

(85) *Every / The cup of water is on the table.

where "cup of water" is interpreted as a measure word. There are, however, good reasons for not dismissing the second interpretation, "two cups with gold in them". Let us switch the noun to "wine" and consider a situation where someone is receiving wine as a gift. In such a situation it would not be strange to hear that person remark, "I received three good bottles of wine, the bottle on the right is especially nice". In this situation, the speaker is referring to units of wine in a definite manner, yet it cannot be said that wine is not being quantified. This interpretation of "bottle of wine" corresponds to a mensural classifier phrase, while the interpretation "wine in the amount of three bottles" (which is actually difficult to get with "bottles of wine"), is a measure phrase.

To recapitulate, the difference is that a mensural classifier maps or "packages" (see Landman's "packaging function" 1991: 319) a mass noun into units or atoms.
which can be counted (in effect creating a count noun out of a mass noun), while a measure word merely gives a notion of measure that makes no reference to discrete individuals (this is what Higginbotham (1994: 478) calls “a measure, in the algebraic sense”). Thus, in general, it makes no sense to talk of “pounds of meat”, or “liters of water” referentially, because “pounds” and “liters” do not correspond to discrete individuals, the way that “cups” can and “pieces” do.

6.2.2.4 Group Words

In the discussion of Wang’s (1994) classifier criterion, a distinction was made between group measures (hereafter to be called group words), and mass measures. Given the distinction between mass and count domains we have introduced above, it follows that since group words denote collections of individuals in the count domain, they should differ from mass measures: both mensural classifiers, and measure words proper. Conceptually, a group word is used to denote a unit of a noun that is composed of atomic individuals. In the case of a mensural classifier, a unit is created to count the mass noun in question, with the difference that this unit is not composed of atoms. A measure word, on the other hand, does not create individuals in the way that mensural classifiers and group words do. Thus, it is possible to use group words referentially, as well as to enumerate both the head noun and the unit in a group word phrase.

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151 This contrast can be seen in the following sentences.

i) I would prefer the piece of meat on the left.
ii) *I would prefer the pound of meat on the left.
The examples (86) (a) – (c) show that both collectives and mensural classifiers can be referential, while measure words cannot, while (d) – (f) show that only in the case of collectives can the head noun be quantified directly.

6.2.2.5 Singulative Classifiers

Returning to nouns like “furniture”, it was noted above that they belong to the count domain, yet cannot be enumerated directly. Indeed, it was pointed out that they are derived through a “part of” relation, whereby they denote subsets (or more precisely sub-lattices) of the count domain. This differs from plural nouns in that their denotation is not built up through the sums of atoms. In other words, they are constructed “top down”, rather than “bottom up” like regular plurals. One property of the denotation of nouns like “furniture” being constructed through “top down”, “part of” relations, is that a unit of measure is needed to determine the size of the subset. Thus, when we want to quantify “furniture” we must specify the size of the subset of all things that are true of the properties of “furniture”. The phrase “three furniture” is

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152 It could be claimed that sentences like, “Did you see that pound of meat I left on the counter?” do just that, but it could also be argued that this really refers to “a piece of meat, which weighs a pound” rather than “meat in the amount of one pound”, and so it is not really the measure word which is
meaningless because the subset of “furniture” could be of any size. So, just as with mass nouns, nouns like “furniture” can take mensural classifiers like “truckload”, or “roomful” to denote a non-minimal subset of “furniture”. One crucial difference, however, is that because nouns like furniture are count nouns, they can also use collectives, something impossible for mass nouns.

(87)  
(a) three sets/groups/collections of furniture  
(b) *three sets/groups/collections of water/paper/sand

Thus, because nouns like “furniture” do have minimal elements, they can form groups of those minimal elements\(^{153}\), while mass nouns cannot because there is no minimal unit for them to form groups with.

One way of counting nouns like “furniture” that we have not discussed, is by reference to individual measure. Since on the one hand, “furniture” is a count noun, while on the other, its extension does not make reference to a set of atoms, we would expect that “furniture” should be able denote atomic individuals (unlike mass nouns), yet not be able to do so directly (unlike normal count nouns). As we can see with “furniture”, this is indeed the case: “furniture” can be individuated in terms of minimal units, but it requires a unit like “piece”\(^{154}\) to specify this overtly. Since the

\(^{153}\) Since group words occur with count nouns, it seems reasonable to assume they refer to plural individuals. Given this, there is the problem of how nouns like “furniture”, whose extension does not correspond to a set of atoms can use a group word. In other words, “furniture” must use a “top down” approach while group words employ a “bottom up” approach. One way to solve this problem is to assume that when a group word is used, the atomicity of the “furniture”-type noun is mapped to minimal individuals and then undergoes pluralization to form a group of those minimal individuals (see also footnote 118). On the other hand, it also possible that nouns like “furniture” form groups through a “top down” approach that specifies a non-singular subset of the totality.

\(^{154}\) Above we have claimed that “piece” is a mensural classifier. While this is true for most of its uses, with “furniture”, “piece” functions as a sortal classifier, denoting a minimal unit of furniture. Note that this is not the case with nouns like “bread”, “sausage”, “gold”, etc.
semantics of this is similar to that of the mensural classifier that maps nouns without atomic extensions to individuals, we will call this word that maps nouns like “furniture” to minimal units, a singulative classifier. The difference between singulative and mensural classifiers is simply that while mensural classifiers map atom-less denotations to atoms, singulative classifiers map atom-less denotations to atoms that are the minimal parts of the domain in question (which is undefined for the mass domain since it has no minimal parts). Thus, only count nouns can have singulative classifiers, and only those count nouns which use the “part of” relation rather than the “sum of” relation in their denotations.

The above account of “furniture” might seem odd to those who are used to languages like English were most nouns are default singular, and pluralities are derived through a “sum of” operation, but there are languages that commonly make use of the opposite strategy. Link (1998: 36) notes,

In many languages there is also a inverse syntactic process:
Starting from a transnumeral noun expressing some indefinite, non-discrete unity, an appropriate affix leads to singulative forms which stand for individuating samples of that unity (cf. Arabic dabban: unspecified fly, vs. dabbane: a fly).

In terms of the account we have been developing above, the transnumeral\textsuperscript{155} would be a count noun like “furniture” that denotes an unspecified subset of the totality of

\textsuperscript{155}Note that while I am using the word “transnumeral” in a manner consistent with the above quotation from Link (1998), he also considers “transnumerals” to include mass nouns. While this is logical since both “furniture-type” nouns and “water-type” nouns are beyond direct enumeration and use the “top-down”, “part-of” strategy, I am using the term in a more restricted sense to mean only count nouns which employ the “top-down” strategy.
“furniture”, and the singulative affix specifies that the subset referred to is a set containing only one individual. This, of course, would alleviate the need for singulative classifiers in such languages, since the singulative affix performs the same function. This is, in fact, essentially the same observation that Greenberg (1972: 26) made,

The classifier is an individualizer which performs the same function as a singulative derivational affix in languages with the collective / singulative opposition.

Greenberg calls “transnumerals”, “collectives” and does not develop a semantic account, but nonetheless, he comes up with basically the same intuition. This leads us back to our original topic of defining classifiers and classifier languages.

6.2.3 Classifier Languages

From the account of transnumerals\(^\text{156}\) (nouns like “furniture”) given above, we have a clear model for classifier constructions in languages like Chinese. Basically then, we are claiming that Chinese count nouns are transnumeral (“furniture-like”), and thus need to be specified in terms of units in order to be counted. Since modern Chinese generally does not make use of affixes, its method of forming units is by means of classifiers. If the unit to be specified is larger than the minimal unit of the

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\(^\text{156}\) Given the account of nouns like “furniture” and “cattle” above, it should be clear that transnumeral does not mean that the noun is an unquantifiable “concept” (see Hundius and Kölver 1983: 166). A transnumeral is not directly countable because the size of the subset it denotes is unspecified. Thus it is “transnumeral” only in the sense that it is neutral with respect to number (i.e. singular and plural).
noun in question, then a mensural classifier is used, whereas if the unit to be counted corresponds to the minimal unit, a singulative classifier is used. Thus, a singulative classifier does not necessarily show any more propensity to denote properties of the head noun than a mensural classifier. This denies the fundamental distinction that Tai & Wang (1990) attempt to make between classifiers and measures. Instead, we have created and motivated a four term system composed of measure words, group words, mensural and singulative classifiers:

(88) (a) san bang ji rou
three pounds chicken meat
“three pounds of chicken meat”
(b) san qun ji
three groups chicken
“three groups of chicken”
(c) san longzi ji
three cages chicken
“three cages of chicken”

An alert reader might wonder what the difference between a mensural classifier and a group word is for transnumerals. While both seem to denote entities composed of more than one individual, group words are built up from minimal individuals while mensural classifiers are built top down. This means that only mensural classifiers can be used with mass nouns. In the count domain however, it is uncertain whether it makes any real semantic difference whether a plurality is constructed from the bottom up or the top down. Thus, the test given above, where group word phrases can have their head nouns enumerated directly while mensural classifier phrases cannot distinguish between group words and mensural classifiers in the count domain.

i) I see three groups of twenty oranges
ii) I see three boxes of twenty oranges
iii) *Wo kanjian san qun ershi ge ren
     I see three groups twenty CL people
iv) *Wo kanjian san xiang ershi ge liuding
    I see three boxes twenty CL oranges

As we can see from the examples, both the mensural classifier phrase and the group word phrase are
(d) san zhi ji

three CL(animal) chicken

“three chickens”

In (88) (a) jirou “chicken meat” is a mass noun and bang “pound” is a measure word which rather than mapping the mass noun to a set of individuals, simply measures it in terms of weight. In example (88) (b) ji “chicken” is a transnumeral count noun which is mapped to a set of minimal individuals (collectives map singular individuals to groups, thus, they are undefined for subsets larger than singular individuals) by the collective qun “group” which then maps them to a plural individual. In (c) the transnumeral ji “chicken” is mapped to a subset specified by the mensural classifier longzi “cage”. In (d) ji is mapped to a subset composed of minimal units (individual chickens), by the sortal classifier zhi.

Thus, any difference between sortal and mensural classifiers, as we attempted to show with Wang’s (1994) criterion, comes down to a difference between counting by minimal subsets (singular individuals) versus counting by larger subsets. And while it has been amply shown in the literature that classifiers can and often do have a classificatory function (Adams, 1983, Wang & Tai 1990, Croft 1994, Downing 1996, Bisang 1999, etc.), this is not due to some special feature of singulative classifiers. Any time a classifier, measure, or group word can be used with one noun or group of nouns, but not another, it can be said to have a classificatory sense. Thus, all the group words, as well as singulative and mensural classifiers in (89) can all be said to

acceptable in English while neither are acceptable in Mandarin. Thus, while I believe it is conceptually possible to distinguish mensural classifiers and group words, in practice it is difficult. One possible test however, might be to see if it can be used with a mass noun. Thus “a box of sand” is acceptable and thus a mensural classifier, while “a group of sand” is not, and thus, a group word.
“classify” their head nouns.

(89) (a) san pan douzi/xiangjiao/niupai
three plates beans/bananas/steak
“three plates of beans/bananas/steak”
(b) *san pan diannao/ren/zhuozi
three plates computers/people/tables
“*three plates of computers/people/tables”
(c) san tiao yu/kuzi/chuan
three long things fish/pants/boats
“three (lengths of) fish/pants/boat”
(d) *san tiao qiu/shu/pinguo
three long things ball/book/apple
“three (lengths of) ball/book/apple”
(e) san qun ren/yang/niu
three crowds/herds people/sheep/cattle
“three crowds/herds of people/sheep/cattle
(f) *san qun diannao/xiezi/yizi
three crowds/herds computer/shoes/chair
“three crowds/herds of computers/shoes/chairs”

Thus in (89) (a) and (b) the mensural classifier pan “plate” has a certain semantic specification that must agree with the head noun. Thus, pan can only be used with things for which “a plate of” can be a unit (usually food). In (c) and (d) we see that
"long individual" can only be used with things that come in long units. In (e) and (f) "crowd, herd" can only be used with nouns that can be conceived of as occurring in "crowds" or "herds" and thus, has an animacy criterion. It could be further pointed out that classifiers like "long thing" can be used as mensural classifiers for nouns such as "bread". That this kind of classification is not particular to languages like Mandarin can be seen in the classificatory feature of English collectives.

(90) (a) a gaggle/flock/group of geese
(b) a *gaggle/flock/group of seagulls
(c) a *gaggle/*flock/group of deer
(d) yi tou/zhi/ge yang
   one head/animal/individual sheep
(e) yi *tou/zhi/ge niao
   one head/animal/individual bird
(f) yi *tou/*zhi/ge ren
   one head/animal/individual person

Thus (90) (a) – (c) shows that group words have varying degrees of overlap and classificatory scope: "gaggle" can only be used for geese, "flock" can only be used with birds (and domestic animals like sheep), while "group" is a universal group word which has no semantic features other than mapping individuals to a group. In (d) –(f)

While this use of ge might seem odd, or even ungrammatical to some Mandarin speakers, according to Erbaugh (1983: 406) native speakers of Mandarin will often use the general classifier ge in situations where a more specialized classifier is called for by Chinese grammarians. Indeed, in an experiment that involved nineteen native speakers of Mandarin who watched a short film and reported on it, “eight of the women used only the general ge classifier, even where a special classifier should be obligatory, for
a similar phenomenon can be detected with singulative classifiers in Mandarin: *tou* “head” is only used with large animals, *zhi* can only be used with animals and certain body parts, while *ge* acts as a universal classifier. Thus, it can be seen that the so-called classificatory function of singulative classifiers is simply a function of the semantics of the unit used for enumeration. Any differences between the ways that group, singulative and mensural classifiers classify their head nouns can be reduced to the nature of unit they specify. Thus, the claim that singulative classifiers classify based on inherent properties really means that they classify based on properties inherent to individuals. In other words, since “inherent” is usually thought of in terms of the minimal individual, properties of units larger than the individual are thought of as temporary. Thus “circle” in “a circle of trees” is not considered inherent because trees are not necessarily found in circles, whereas shape classifiers like *tiao* classify in terms of the entity’s inherent shape (Tai & Wang 1990, Croft 1994: 153). However, if we consider “a circle of trees” to be an individual (albeit a plural individual), then “circle” is a property inherent of that individual, just not of the singular individual.

6.2.3.1 The Properties of Classifier Languages

Now that we have some notion of what a classifier is, we can tackle the issue of what characterizes a classifier language. By classifier language we mean a numerical classifier language, and by that we mean a language that makes extensive use of singulative classifiers. Given how we have defined singulative classifier above, it follows that a noun that takes a singulative classifier will be transnumeral when it is

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159 As we have already noted, English (and many other languages besides) has a few isolated singulative classifiers but does not make extensive use of this quantificational strategy.
bare. Thus a classifier language will make extensive use of transnumerals. Given the semantic function of singulative classifiers, we would also predict that a classifier language will not have morphologically marked singular common nouns, or, if it does, they will be in complementary distribution with nouns that take singulative classifiers. Indeed, a stronger claim has been made by some scholars (Sanches & Slobin 1973, T’sou 1973, Greenberg 1972), namely that classifiers and morphologically marked singular/plural are in complementary distribution in natural language.

If a language includes numerical classifiers as its dominant mode of forming quantification expressions, then it will also have facultative expression of the plural. In other words, it will not have obligatory marking of the plural on nouns. (Sanches & Slobin 1973: 4)

This, in fact, falls out naturally from our semantic account above. If a language makes extensive use of singulative classifiers, then it must also make extensive use of transnumerals. Since a transnumeral uses the “part of” quantificational approach that make no reference to minimal individuals, and plurals are built up through the “sum” operation on minimal individuals, it makes sense that transnumerals cannot be pluralized without being singularized first. Furthermore, since it is the singulative classifier that plays the role of the singulative in a classifier language, with the noun remaining transnumeral, the noun itself cannot undergo pluralization. Instead, a group word can be used in place of the singulative classifier to denote a group of individuals. Theoretically though, there is nothing in our account that prevents the semantic processes encoded in a group word from being marked on the noun directly just as
there is nothing preventing nouns from having singulative affixes instead of using singulative classifiers: nothing except principles of economy. In other words, it is not common in natural language for two strategies for encoding the same linguistic information to be widely used simultaneously in the same language. That is not to say that a language that uses one linguistic strategy won’t make occasional recourse to another (e.g. the occasional use of classifiers in English), but that languages will tend to have a dominant strategy. Thus, it may be that some classifier languages occasionally do make use of a plural marker. Indeed, Downing (1996) claims that Japanese has plural morphemes while Li (1999) claims the same for Mandarin. Downing (1996) however, qualifies this marker of “plurality” saying,

... these markers are used not simply to denote plural referents, but rather to single out a subset of plural referents, i.e., those which are significant by virtue of their status as individuals rather than simply as members of whatever categories they might happen to instantiate. (211)

In other words, plural markers like -tachi are “related to the notion of referentiality”

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160 Li (1999) also provides an explanation of the difference between classifier and non-classifier language plural syntax in terms of the classifier projection blocking movement from the number node to the noun. While this is an interesting idea it does not account for the fact that unmarked nouns in Mandarin are transnumeral while in English they are singular. Nor does it explain why plurality must be marked in English while in Mandarin it only occurs optionally with definites. In fact, since the only thing preventing plural marking is the classifier projection, we might expect it to be obligatory when the noun in question refers to definite pluralities and there is no classifier. Example i) however, shows that this is not the case:

i) Xia ke le, haizi dou chu lai
   Class over ASP, children all come out
   ‘Class is over, the children are all coming out’

Neither does Li’s account explain why some languages need classifiers or what classifiers do in those languages other than block plural marking.
in Japanese. What this means is that plurals are generally only used when the speaker has a particular group of individuals in mind. Since the individuals constituting the group are known, the speaker can then refer to them as a plurality constituted under the "sum" operation. It should be noted, however, that plurals do not occur simultaneously with classifiers in the same phrase, as our analysis would predict, because this would lead to semantic conflict.

In the Mandarin case, the morpheme that Li (1999) considers to be a plural marker is claimed by others (Chao 1968, Iljic 1994, Cheng and Sybesma 1999) to be a collective marker. However, since either case could be accommodated under the present analysis, we will not pursue this matter further\(^{161}\). It is enough to note that obligatory plural marking will not be present in a classifier language and that plurals will not appear simultaneously with classifiers.

It is often mentioned feature of numerical classifier systems is that classifiers are obligatory in numerical expressions with the majority of common nouns\(^{162}\) (Greenberg 1972, Downing 1996, Chierchia 1998a, etc.). Once again this falls out naturally from our account. Since bare nouns are transnumerals whose denotations are constructed using the "part of" operation, they do not correspond to sets of atoms which can be counted. Thus, like mass nouns, they need units to individuate them before they can be counted.

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\(^{161}\) If morphemes like *men* [\[\text{men}\]] are taken to be true plural markers then they could accommodated in the same fashion as the Japanese plural marker *-tachi* (which Martin 1975 claims is a "collective" marker rather than a marker of plurality) with which it shares the definiteness condition. In other words, definiteness forces the transnumeral to refer to individuals which in turn allows pluralization. On the collective marker interpretation, the analysis is simply that *-men* specifies that the noun refers to a definite subset of the noun that is larger than one without making reference to sets of atoms (i.e. the "top down" approach).

\(^{162}\) There are, of course, exceptions. In Mandarin, for instance, nouns that are already considered to be units do not need a classifier to be enumerated (e.g. 0 ri "day"), while Greenberg (1972: 6) notes that it is "particularly common for classifiers not to occur with higher units of the numerical system and their multiples".
Another property of classifier languages that is sometimes claimed in the literature is that bare nouns in these languages refer to “concepts” (Hundius and Kölver 1983) or “kinds” (Chierchia 1998a).

(91) (a) konglong juezhong le
dinosaurs extinct PERF
“dinosaurs are extinct”

b) xiaohaizi xihuan wan
children like play
“children like to play”

Example (91) (a) and (b) illustrate a generic, or kind reading. Notice that the English gloss requires a plural. Bare singular count nouns are generally impossible in English as the examples in (92) show.

(92) (a) *Cat is a solitary animal

(b) *Dinosaur is extinct.

This difference can be explained in a natural way once we consider what kinds represent.

Note however, that “Man is a social animal” is grammatical. I believe that “Man” is not really a common noun here in the predicational sense (<e,t>), but rather the name of a kind like *homo sapiens*. Thus it is like a proper name and denotes an entity. I believe that the true base form of common nouns in English is not singular but rather forms such as “Man” which denote kinds, the singular and plural being derived from the property that corresponds to this kind. For as Krifka (1995: 399) notes, “kinds seem to be ontologically prior to specimens”. It may simply be the case that English generally does not make use of these forms to denote kinds, although they do appear in such sentences “I’m hunting bear/squirrel/cougar” and perhaps when count nouns are treated as mass, “I got three hundred pounds of bear in my pickup”.

163
On the subject of kinds Chierchia (1998a: 348) says, “to any natural property, like the property of being a dog, there corresponds a kind, viz. the dog-kind” and “what counts as a kind is not set by grammar, but the shared knowledge of a community of speakers”. Thus, “lexical nouns identify kinds”, while “complex nouns may or may not”, so that “horses” identifies a kind, but “my broken Epson printer” does not. From this we can intuit a sense of kind as a concept, a sort of Platonic form, created through the common knowledge of a speech community: “the extension of the property corresponding to dog-kind is the ideal generated by the totality of dogs” (Chierchia 1998a: 351). Note though that since the property corresponding to a kind must be true of all instances of that kind, singular individuals cannot refer to kinds. In other words since singular “dog” refers to only one instance of dog-kind, it cannot denote dog-kind. Returning to our set analogy, dog-kind is a concept which has a corresponding property which is true of the set of all dogs, thus to denote this property and its corresponding kind, a lexeme must be used that can denote the entire set of “dogs”. In English the plural has this quality since there is no upper limit to the sum operation. Note that mass nouns can also be bare in English because they can denote the totality of the noun in question as well as portions of it. Returning to Mandarin, Chierchia (1998a) makes the claim that it is because all nouns in Chinese are mass that bare nouns occur freely and can denote kinds. As we have already argued however, there is a count-mass distinction in Mandarin, but since classifier languages use a “part of” approach even for count nouns, a bare noun can denote a “part of” that is equal to the whole and thus behaves like a mass noun in this respect. Thus, we would expect that in a language with classifiers, bare nouns would be commonplace and they would be able to denote kinds (see also Krifka 1995: 399).

Summarizing our points so far then, our semantic analysis predicts that a
numerical classifier language is characterized by 1) the presence and extensive use of singulative classifiers\textsuperscript{164}, 2) the presence of bare nouns which will be both transnumeral and able to refer to kinds, 3) the absence of obligatory plural marking, 4) the generally obligatory use of classifiers with numerical expressions. As we have been motivating this account with examples from Mandarin, it should be readily apparent that it and other "canonical" classifier languages fit this profile, but what of the problematic cases? As pointed out earlier, some classifier languages like Vietnamese, and Indonesian do not obligatorily use classifiers in numerical expressions.

6.2.3.2 The Vietnamese Case

In the Vietnamese case, according to Bisang (1999: 146), classifiers are only obligatory in the context of counting humans. Otherwise "the classifier occurs if the noun has to be syntactically referentialized" or in other words, individuated. It seems then that there is a kind of referential hierarchy in effect with regard to the need to overtly mark number. As Link (1998:36) notes,

Investigations across languages show that there is a rather stable hierarchy of nouns that undergo pluralization with decreasing readiness. The classes are characterized by features that are ordered according to some fixed primacy relation on the semantic process of individuation in language. According to Smith-Stark (1974), reported in Bierman (1981), the heirarchy is SPEAKER >

\textsuperscript{164}This is really just a stipulation since classifiers languages must by definition have classifiers, the more widespread their use, the stronger the case for that language being a classifier language.
Thus, it seems that though languages like Mandarin have obligatory overt marking of the singulative through classifiers, languages like Vietnamese do not require this to be marked overtly in non-humans. The fact that non-human nouns can take classifiers, and even must in some situations however, suggests that even when not overt, there is either a covert classifier that performs the task of individuation, or, in the spirit of Chierchia (1998a), the required specification of the transnumeral as a singleton set occurs through type-shifting. This of course raises the question of why it is not possible to do away with obligatory classifiers in Mandarin. Since there is no obligatory plural marking in Mandarin, a numerical phrase without a classifier is somewhat unclear as to the size of the units of the noun in question. However, since count nouns have a default unit in the minimal individual, this could perhaps be implicit. Ultimately one must appeal to language specific parameters, some languages require number to be overtly marked and others do not. Thus, we can see that our fifth characteristic of classifier languages needs to be modified, either with the stipulation that the classifier need not be overt, or that it need not be obligatory. Perhaps in the end this criterion must be downgraded to the stipulation that the use of classifiers must be the dominant mode of marking number if the language is to be considered a classifier language.

6.2.3.3 The Indonesian Case

Indonesian is even more of an exception to our classificatory scheme than
Vietnamese was. Although Indonesian has numerical classifiers, they are not obligatory for any class of noun. However, since most common nouns can take a classifier, even if it is no longer common to use them, classifiers have widespread distribution (unlike English were only a very small number of nouns can take them). Moreover, there is widespread use of plurals in the language although classified nouns cannot be pluralized. On the other hand, bare nouns are possible and are transnumeral as well as being able to denote kinds Macdonald (1976: 33-34):

The reduplication of any countable noun produces a form which is specifically plural. The unreduplicated form is not specific; it may be either singular or plural. There is some question as to whether the reduplicated form denotes plurality or whether it denotes both plurality and variety. Eg. *buku-buku* can mean either “books, or different kinds of books.

An interesting point is that it is unclear whether reduplication denotes plurality or variety. Since the transnumeral can also freely denote kinds, naturally the pluralization of kinds yields a reading of variety. This suggests that Indonesian uses a “top down” approach in the denotation of its nouns. In other words, the plural denotes a subset of the noun that is larger than the singleton set. If this is so, then how is it that classifiers are seldom used with numerical expressions? Macdonald (1976: 82) makes the interesting point that,

The counter nouns form a diminishing, and perhaps disappearing, class of words in Indonesian. Formerly, numbers could be used
only with members of a specific set of counter nouns, which
interposed between the number and the noun referring to the object
being counted.

Thus, with Indonesian, we may be witnessing a language in the process of losing its classifier system. Indeed, as Sneddon (1996: 135) notes, “only three classifiers are in frequent use”: orang used with humans, ekor used with living creatures and buah used with inanimate things, giving Indonesian a stripped down classifier system based primarily on animacy. Again as with Vietnamese, it seems that Indonesian with its bare transnumeral nouns still uses a top-down approach, but does not require the transnumeral to singulative operation to be overtly marked, again either using a covert classifier, or allowing pragmatics to trigger the covert singularization operation. This possibility of languages that are able to covertly mark number brings up another set of languages outside the classifier/plural marking language dichotomy: namely languages like Tibetan which neither have classifiers nor obligatorily mark plurality or singularity.\(^{165}\)

6.2.3.4 The Tibetan Case

Speaking about languages of the Tibeto-Himalayan region in general Sharma (1994: 88) notices that,

in these languages the absence of pluralizing particles is also a an
indicator of the indeterminate number of the substantive in
question, e.g., in the term ran/-rhan/ ‘horse’, does not mean

\(^{165}\) Sanches and Slobin (1973: 7) list Tibetan as being a numerical classifier language, but this is clearly contradicted by Denwood (1999).
exclusively either 'a horse' or 'horses', it may admit either meaning according to the context under consideration.

Thus, it is clear that nouns in these languages can be transnumeral. In addition, these languages in general, and Tibetan in particular, have plurality marking affixes which tend to be used with more with animates than inanimates, but in any case are not obligatory (Sharma 1994: 94, Denwood 1999: 100). In addition to plural markers, Tibetan also has a singular marker, which along with the plural markers, tend only to be used with referential nouns. These facts suggests that in Tibetan the count domain is ordered with a “top down”, “part of” operation as evidenced by the transnumerals. The singular affix moreover indicates that there is a singulative operation, while the plural markers, like those in Japanese and Mandarin, seem to only to be used where context is able to individuate (i.e. referential situations) and where it is necessary to specify. Thus, in non-referential situations Tibetan is able to combine numeral and noun with no overt number marking, as in (98) (a), while in referential situations the plural marker only appears when there is a deictic pronoun and then it marks the pronoun not the head noun. Example (c) shows that where there is no deictic pronoun or numeral, the plural marker can be affixed to the noun itself to yield a specific plural reading. Example (d) shows the use of the singulative affix to give a singular, specific reading.

(93) (a) deb. nyi.shu
    book twenty
    “twenty books”
(b) deb. nyi.shu. ‘di.gyad.
Presumably then, the process of mapping the transnumeral to singular individuals in order to be counted is not overtly marked in Tibetan since the pluralization affix only appears attached to diectic pronouns in numerical phrases. Thus, when there is no diectic, but a specific plural is required, the numeral itself is considered enough to trigger the transnumeral to individual mapping. As was noted above, this shows the typical cross-linguistic pattern of overt number marking being in direct relation to referentiality and animacy. Nor is the avoidance of marking the noun for number in numerical phrases unheard of in other languages.  

6.2.3.5 Theoretical Consequences

These findings, though recognized by scholars such as Greenberg (1972), run contrary to what some recent studies have proposed. For instance, Chierchia (1998a: 354) makes the prediction that languages which allow widespread bare nouns will

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166 Link (1998: 35) gives the example of Hungarian which has a plural suffix, but never uses it in numerical phrases, using it instead to “form numerically unspecified aggregates”. Note that this is actually more economical than English which marks plurality redundantly in numeral phrases.
allow them to freely denote kinds, will have a generalized numerical classifier system, no plural marking, and the extension of all nouns will be mass. While Tibetan and Indonesian seem to allow bare nouns which denote kinds freely, both languages have plural marking. In addition, as we have shown, even in languages like Chinese there is a mass count distinction (see also Cheng and Sybesma 1999), so it cannot be said that the extension of all nouns is mass. We could rephrase this, however, to say that the extension of all nouns will be either transnumeral or mass and employs the "part of" semantic process to order the quantitative domain. Even this is a bit too simple however, since as we have seen in the case of plurals in Indonesian and Tibetan, the "sum of" operation can also be used in a domain that is primarily ordered through "part of" relations. Finally, it can be seen that the claim that languages that use transnumerals will have a generalized numerical classifier system is patently false. As Greenberg (1972) and Link (1998) point out, classifiers are simply one option a language might take in overtly marking number.

These findings also run counter to claims by Cheng and Sybesma (1999: 517) who follow Doetjes (1996) in saying "in order for count nouns to be able to be counted, the semantic partitioning of what they denote must be (made) syntactically visible." While this is true of some languages, it does not seem to be universal, as we have seen from the Vietnamese, Indonesian and Tibetan cases. In addition, as pointed out above, there seems to be a referential hierarchy with respect to whether this semantic partitioning must be overtly marked or not. These results are summarized in the following table.
Table I: Cross-linguistic Typology of Number Marking

<table>
<thead>
<tr>
<th>Language</th>
<th>Widespread Use of Singulative Classifiers</th>
<th>Obligatory Use of Singulative Classifiers in Numerical Constructions</th>
<th>Widespread Use of Plural Marking</th>
<th>Widespread Use of Transnumerals</th>
<th>Dominant Mode of Organizing the Count Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>No</td>
<td>---</td>
<td>Yes</td>
<td>No</td>
<td>“bottom-up”</td>
</tr>
<tr>
<td>Mandarin</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>“top-down”</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>Yes</td>
<td>No</td>
<td>?168</td>
<td>Yes</td>
<td>“top-down”</td>
</tr>
<tr>
<td>Indonesian</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>“top-down”</td>
</tr>
<tr>
<td>Tibetan</td>
<td>No</td>
<td>---</td>
<td>Yes</td>
<td>Yes</td>
<td>“top-down”</td>
</tr>
</tbody>
</table>

6.3 Conclusion

To summarize, I am proposing that there are several factors that come into play in the manner in which number is marked in a given language. First there this the issue of overt versus covert marking: does the language in question need to mark number overtly? Does it uniformly overtly mark number (as in English), or only in certain situations governed by other factors such as referentiality (Vietnamese (see section 6.2.3.2), Tibetan (see section 6.2.3.4)), or economy (Hungarian (see footnote 167)). Whether or not a language overtly marks number, there is also the issue of how the count domain is constructed. Is the basic strategy “bottom up”, where count nouns are default singular, and plurals are constructed through a “sum of” operation (as in English and most European languages), or is the basic strategy “top down”, where count nouns are default transnumeral, and singular individuals are referred to through a “part of operation” (as in Mandarin (see 6.2.3))? If a “top down” strategy is used in the ordering of the count domain, what morphological means does it use to mark singulative when this is marked at all? Will it use singulative classifiers (like

167 By “widespread” it is meant that the phenomenon in question does not just have a few anomalous examples, but is a productive linguistic strategy in the language.
168 Goral (1978: 15) claims that there are plural markers in Vietnamese, but the examples he gives seem
Mandarin), or singulative affixes (like Link’s Arabic example quoted in 6.2.2.5)?

To summarize what makes a singulative classifier language, it first of all needs to overtly mark number in at least some situations (or there would be no need of classifiers), secondly it must use the “top-down” strategy in structuring the count domain, and thirdly, it must use classifiers to mark the singulative (rather than affixes).

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to be quantifiers that imply plurality such as nhũng “various”. 
Chapter Seven The Quantificational Typology of EIC

Now that we have the theoretical framework to analyze numerical expressions in classifier languages and cross-linguistically, we will return to one of the main topics of this thesis: what is the quantificational typology of Early Inscriptional Chinese (EIC)? We will now examine OBIL and BIL in turn.

7.1 The Case of OBIL

A key issue in determining the quantificational typology of OBIL is deciding whether it is a “top down”, “part of” language like Mandarin and Tibetan or a “bottom up”, “sum of” language like English. In other words, are its nouns default singular or default transnumeral? As the following examples show, OBIL allows bare nouns which may receive singular, plural\(^{169}\), or transnumeral interpretation, depending on context.

\[(94)(a)\text{ 甲午卜，貞: 翌乙未倠于[ ]羌十人，劉} \text{-} \\
\quad \text{cut specially reared sheep one and one bovine} \]

\[(324)\]

\textit{Jiawu} day cracked tested next \textit{Yiwei} day offer \ldots \textit{qiang} ten people

\textit{liu}-cut specially reared sheep one and one bovine

“\textit{Jiawu} day cracked, tested: on the next \textit{Yiwei} day (we should)

offer (to Ancestor Yi) \textit{qiang}, ten people, \textit{liu}-cut one specially

\(^{169}\) It is of course possible that OBIL and BIL had number morphology not reflected in the orthography. Indeed, Sagart (1993) has proposed that an *-r- infix in old Chinese may have acted as plural or collective marker. However, if there was obligatory plural marking in Old Chinese one might expect there to be more reflexes of this phenomenon in later stages of the language.
reared sheep and one bovine.”

(b) 甲午日，貞：翌乙未侑于祖乙羌十又五，劉宰又一牛。五月

(324)

Jiawu day cracked tested next Yiwei day offer to Ancestor Yi qiang
ten and five liu-cut specially reared sheep and one bovine fifth
month

“Jiawu day cracked, tested: on the next Yiwei day (we should)
offer to Ancestor Yi qiang, ten and five, liu-cut a specially reared
sheep and one bovine. Fifth month”

(95) 丁亥日，貞：用鐫窳羌十… (257)

Dinghai cracked tested use Huo brought qiang ten …

“Cracked on Dinghai day, tested: use the qiang that Huo brought,
ten of them …”

(96) (a) 貞：燎牛 (bing 64)
tested offer in holocaust bovines

“Tested: (we should) offer in holocaust bovines”

(b) 燎二牛

offer in holocaust two bovines

“(We should) offer in holocaust two bovines”

(c) 燎三牛

offer in holocaust three bovines

“(We should) offer in holocaust three bovines”

(d) 燎一牛
offer in holocaust one bovine

"(We should) offer in holocaust one bovine"

In example (94) (b), although the bare noun is ambiguous between singular, plural and transnumeral readings, the fact that 牛 lao is preceded and followed by nouns whose quantity has been specified, suggests that it too should denote a specific number of "specially reared sheep", and thus, perhaps receives a singular interpretation. In (95), "the qiang that Huo brought", is a referential expression and thus must denote a specific subset of the kind qiang. Since it occurs as part of a partitive structure, this subset contains more than one individual and is thus plural. In example (96) we have a direct example of a noun unmarked for number. In (96) (a) the kind of victim is mentioned, but without any number. As argued earlier, in this kind of situation, "bovines", the kind of victim, is being proposed separately from its quantity. This suggests one of two things, either "bovines" refers to the name of a kind, or it refers to a sub-lattice of the totality of entities named by that kind. Given that (96) (a) is an

\[170\] I say "perhaps" because there remains the problem of explaining why in (94) (b) 牛: "bovine" is preceded by - "one", while 牛 "specially reared sheep" has no numeral to mark it. Takashima (personal communication) points out that this could be taken as evidence that 牛 refers to kind with no reference to number. However, given that a quantity of 牛 (— "one") was mentioned in (94) (a), the context seems to suggest that "one specially reared sheep" was being referred to in (b) as well.

\[171\] Both Chierchia (1998a) and Krifka (1995) propose something like the former for modern Chinese. Chierchia claims that bare nouns, in a language that allows them to freely occur, must denote kinds (or generalized quantifiers). Krifka, on the other hand, proposes that head nouns in a classifier construction are the names of kinds which are then mapped to objects by the classifier. This would make “qiang” in (96) (a) something like “bear” in the English sentence “I’m hunting bear today”. Cheng & Sybesma (1999), however, claim that the distribution of indefinites in Mandarin and Cantonese show that bare nouns project a CL head even when the classifier position is empty. This supports the view that bare nouns in Chinese are not really bare and do not emerge from the lexicon as arguments, but rather as predicates which are mapped to arguments by a determiner (or in the Chinese case a classifier). I would question the validity of the argument that bare indefinite nouns are barred from preverbal positions in Mandarin as the following example shows.

\[1\]

 thief 來 了
 thief 來 了
 "a thief/thieves have come"

Instead of showing that bare indefinites are barred from preverbal positions by proper government, this example with a referential indefinite suggests that the true restriction is whether or not the noun in question can be interpreted as a topic.
episodic context it is probably easier to assume that “bovine” is a transnumeral rather than a generic although this point is not crucial to our analysis. This would mean that (96) (a) could be paraphrased “we should offer in holocaust an unspecified subset of the totality of entities denoted by the kind ‘bovines’”. This might work in a similar fashion to Chierchia’s (1998a: 364) derived predicate kind, whereby kinds are turned into predicates by a type-shifting rule that repairs type mismatches. From this data we can see that OBIL bare nouns are default transnumeral and as such employs a “top-down” strategy in structuring the count domain. In this respect OBIL is like Mandarin (see section 6.2.3) and Tibetan (see section (6.2.3.4). In addition, like Tibetan (see example (93)) and unlike Mandarin, OBIL has no need to overtly mark number as can be seen from order I examples like (97) where the noun combines directly with the numeral.

\[
\text{(97) } \text{.offer to Father Yi five specially reared sheep} \\
\text{“(We should) offer to Father Yi five specially reared sheep”}
\]

Here, though "lao “specially reared sheep” is default transnumeral, as the above examples show, it is being enumerated directly and must be taken as referring to a singular instance of lao which is then assigned a cardinality of five. This can be explained by appealing to type-shifting: since the context of enumeration requires reference to individuals, the default transnumeral must be covertly mapped to singular

\[172\] Chierchia (1998: 364) formalizes this idea as follows, If \( P \) applies to objects and \( k \) denotes a kind, then

\[
\text{If } P \text{ applies to objects and } k \text{ denotes a kind, then} \\
P(k) = \exists x [k(x) \land P(x)]
\]

Where \( \cdot \) is a type-shifting operation that maps kinds to predicates (ie. instances of the kind).
instances of the kind so that it can be enumerated. Thus, number is not overtly marked in OBIL (as it is by affixes in English and classifiers in Mandarin), but determined by context.

If nouns are basically transnumeral in OBIL but do not need to be marked for number then how are we to account for examples of order III as in (98), (99) and (100)?

(98) 十七呂朋 吉  (Jia 777)
mod.cop. cowries twenty coupled strings auspicious
“It should be cowries, twenty coupled strings. Auspicious”

(99) (a) 謝囧二京王受狀  (Tun 766)
present aromatic wine two you king receive aid
“(We should) present aromatic wine, two you (for if we do) the King will receive divine aid”
(b) 三箇王受狀
three you king receive aid
“(We should present) three you, (for if we do) the King will receive divine aid”

(100) 奉 : 三箇羌五人  (22566)
tested: three specially reared sheep qiang five people
“Tested: (we should offer) three specially reared sheep, (and) qiang, five people”.

In example (98),朋 peng “coupled string” is an example of a group word. That is to
say, 貝 beì “cowry” is a count noun, but one that is being counted in units larger than the individual. In this case, beì has the transnumeral interpretation and is denoting the kind of entity involved in the quantification. The group word peng functions as a unit of the kind in question (although a non-atomic unit). Since beì is not being counted in terms of the basic unit (the atom), the group word must be used to specify the unit size. In example (99), 司 chang “aromatic wine” is a mass noun and as such has no default units. Thus, unless the unit can be understood from context somehow, a unit must be specified. In this case it is 叭 you (a kind of bucket with a lid). Thus in (99), chang denotes the kind of thing to be “presented”, while you performs the function of measure or mensural classifier. In example (100), on the other hand, 眀 qiang is a count noun, and one that is being counted in terms of its basic units. As such, it can be counted directly with covert number marking. However, as we have argued in chapter three, when order III appears in non-measure constructions the noun and numeral are being separately contrasted with other alternatives. Since the number is being focused separately, qiang contains no reference to number and gets the default transnumeral interpretation. The noun 人 ren “person”, on the other hand, contains no new information about kind and is functioning purely as a unit for qiang. Since

173 As mentioned above, a mass noun can acquire a kind of default unit through customary use or extra-linguistic context as in the case of “three beers” or “four coffees”. This probably explains the examples where 收 chang is enumerated directly, as in 301, 30914, etc.

174 It is hard to know whether you is meant purely as a measure as it probably is in 30973 (where it is used in conjunction with the measure 升 sheng), or whether the diviner means two or three different buckets containing “aromatic wine”. In other words, did they line up three you-buckets for the ceremony or did they measure out three buckets-worth into a larger vessel? The former conforms to the mensural classifier interpretation, while the latter to the measure interpretation.

175 Although it must be admitted this cannot be shown in this particular example since there is no context.

176 This use of ren is semantically similar to the use of birds in the following English example.

A: I bought some turkeys yesterday for the Thanksgiving fundraiser.
B: How many did you get?
A: Ten birds / Ten / Ten of them/ Ten big ones.

In this dialogue “birds” does not introduce any new information into the dialogue and could be...
this unit serves to map the transnumeral “qiang” to individual reference, 人 “person” is semantically functioning as a singulative classifier.

If order III is a kind of measure or classifier structure, then what of order II as in (101) and (102)?

(101) 贞: 于翌庚戊用牛五。十月 15443

tested on following *Gengxu* use bovines five tenth month

“Tested: on the following *Gengxu* day (we should) use bovines, five. Tenth month”

(102) 乙未卜翌丙申王田獲。允獲鹿九 10369

*Yiwei* cracked following *Bingshen* king hunt catch. Indeed catch deer, nine.

“Cracked on *Yiwei* day, the following *Bingshen* day (if) the King hunts (he will) catch (something). Indeed, (the King) caught deer, nine”.

In example (101) we have an example of order II in a sacrificial context. As argued in Chapter 3, this marked order implies that “bovines” was being focused separately from its quantity, “five”. In Chapter 4, I argued that syntactically the structure is that of DP apposition, with the numeral part of an adjoined DP headed by an ellided counter noun. Thus, order II (N Num), like order III (N Num N), employs a kind of singulative classifier structure with one important difference. In order II examples replaced with “of them” or ellided with no change in meaning. Significantly, it does not mean “birds as opposed to mammals or fish” since there are no turkeys that are not birds. Thus “birds” functions as a semantically reduced counter for “turkey” (though not as reduced as “ones” or “them”). This situation
like (101), the classifier is ellided. From the point of view of prosody, the ellision of an unstressed element seems entirely reasonable, but from the point of view of overtly marking the semantics of quantification, elliding the classifier results in a less transparent\textsuperscript{177} structure. However, if we recall that OBIL in the unmarked case does not overtly mark number at all, the ellision of the classifier in order II is not problematic.

In the case of (102), we have a typical hunting charge and verification. It was proposed that the King would catch something if he hunted on Bingshen day, the verification verified that he did indeed catch something, that what he caught was deer, and that he caught nine of them, an information structure transparently displayed in

允獲鹿九 “indeed caught deer, nine. Applying our semantics of quantification,鹿 “deer” is a transnumeral, referring to an unspecified number of instances of the kind, while九 “nine” enumerates a covert noun (or possibly a null epithet) which denotes instances of “deer”. Thus the verification in (102) could be paraphrased, “indeed (the King) caught deer, nine of them”.

At this point one might ask if there is a difference between order I (Num N) and order II (N Num) in terms of number marking, since neither has an overt classifier. Though it may not seem obvious, there is, in fact, a difference: in order II the noun is transnumeral and refers only to kind, receiving its reference to number through coreference to the second DP. In order I, on the other hand, the numeral modifies the noun directly, which in turn is forced to refer to individuals. In essence then, order II employs a covert noun to function as a singulative classifier for the overt noun, while in order I the noun itself is forced to undergo a covert type-shift from transnumeral to

\textsuperscript{177} Note that the ellision of classifiers is not possible in Mandarin, where presumably there is a constraint on covertly marking number.
This evidence taken together suggests that OBIL was a "top down" transnumeral language that did not require number to be overtly marked. Thus, in the unmarked case count nouns were enumerated directly. However, in cases of multiple focus where the noun and numeral where focused separately, order III (N₁ Num N₂), or its reduced form order II (N Num), were used, in direct analogy to the mass or group measure structure. This means that N₂ in order III and the covert noun (or null epithet) in order II are singulative classifiers (overt and covert respectively) specifying atomic individuals of the kind denoted by the head noun.

7.2 The Case of BIL

As with OBIL, bare nouns can receive singular, plural or transnumeral interpretation depending on the context as (103) - (105) show.

(103) 用王乘車馬   (麥尊)
use king ride chariot horse

"Use the chariot and horses that the king rides\textsuperscript{178}

(104) 車不克以衣焚   (多友鼎)

chariots not able use exhaustively burn

"The chariots could not be used\textsuperscript{179} and were all burned"

\textsuperscript{178} Presumably this remarkable short passage records the gift of the king’s own chariot and horses, a rare honor indeed. I follow Ma (1988: 47) in translating it so, and indeed, embedded as this phrase is in a list of gifts received, it is hard to read it otherwise.

\textsuperscript{179} Shaughnessy (1984: 58) translates 以 as “taken”, making the whole line “The captured chariots could not be taken and were burned”. However, this is not an attested meaning of 以 yi in the bronze inscriptions. I follow Ma (1988: 284), JWCYZD and Schuessler (1987) in understanding it as “to use". 
In example (103) we have the record of the gift of the King’s own chariot and team and so “chariot” is presumably singular. In (104) the “chariots” referred to here were captured in battle and thus receive a definite interpretation. This in turn means that there was a specific, non-singular group of chariots that were burned which must be interpreted as plural. Example (60), here repeated as (105), records the giving of 貝 Y bei separately from any mention of quantity. Given that there is no overt number marking, bei must be interpreted as transnumeral here. These facts suggest that BIL, like OBIL uses a “top-down” strategy in ordering its quantificational domain and that the default for count nouns is also transnumeral, something that has remained unchanged down to modern times. However as we have seen, count nouns can be directly enumerated in order I constructions as in (106).

(106) 格伯取良馬乘于ечен厥貯三十cookies (aned) 
Ge lord obtained fine horse ride from Peng Sheng its ownership180 three fields

“Lord Ge obtained a fine team of horses from Peng Sheng, their

180 Schuessler (1987: 851) glosses 貯 as “to store; to own (?); store, supplies; ownership, possessions;
ownership (cost him) three fields”

This indicates that number does not need to be marked and that context can suffice to transform the transnumeral to singulative for quantification in BIL as in OBIL. However, as noted in chapter five this strategy is only rarely used with indefinite, non-measure nouns.

Order III, as in OBIL, is a kind of measure or classifier structure in BIL.

(107) (a) ... 禾十秈 (苞鼐)
“... grain, ten zi”

(b) 易女鬯一卣 (大盂鼎)
“(I) present you (with) aromatic wine, one you-bucket”

(c) 王易公貝五十朋 (效尊)
“The King presented the clan head with cowry shells, fifty coupled strings”

(d) 執訟廿又三人 (多友鼎)
“... captured captives, twenty and three people”

In example (107) (a) 禾 he “grain” is a mass noun while 租 zi is a measure. In (b) 醴 chang “aromatic wine” is a mass noun and 下 you is a mensural classifier. This of course assumes that the King is actually presenting Yu with a you-bucket filled with wine as opposed to a you-bucket’s worth of wine in some other container. If the latter was the case then you is a storehouse”.

\[\text{References}\]

181 This of course assumes that the King is actually presenting Yu with a you-bucket filled with wine as opposed to a you-bucket’s worth of wine in some other container. If the latter was the case then you is a...
(c) 贝 bet “cowry shells” is a count noun, but as in the OBIL example above, one
that is being counted in units other than the atomic. Thus 朋 peng “coupled strings”
acts as a group word. In (d) 訣 xun “captives” is a transnumeral and 人 ren
“people” functions as a singulative classifier. Thus, with count nouns that use order III,
grammatical number is overtly marked with a classifier and the unit is unambiguous.
This lack of ambiguity is obviously desirable in formal lists and may go some way to
explaining the marked increase in the use of order III in BIL.

As noted before, less commonly used in BIL is order II. This may in part be due
to the greater ambiguity associated with this order as compared to order III. In other
respects order II examples in BIL as in OBIL use the same basic structure as order III.

(108) 牛十 (卯簋簋)
“bovines ten”

Thus in (108) 牛 niu “bovines” is a transnumeral denoting the kind of thing
presented. The word 十 shi “ten” then enumerates over the covert noun (or null
epithet). It should be noted that order II is much less commonly used with mass nouns,
since this creates ambiguity when the measure or mensural classifier is not overt.

Thus, BIL seems to employ the same quantificational strategy as OBIL: “top-
down” ordering of quantificational domain, default transnumerals, grammatical
number not necessarily marked, employs focus related post nominal numeral orders.
One difference between OBIL and BIL, however, is that the latter uses a classifier
structure for indefinite count nouns in the majority of cases. Thus, while number did
not need to be marked in BIL (unlike Mandarin), it frequently was. This tendency was probably only partly related to focus since order II also decreases with respect to order III. Most likely the increased use of singulative classifiers with indefinite nouns is due to a desire to disambiguate in the formal context of the bronze inscriptions.

When order I is used with referential DPs there is no need to disambiguate since the entities in question, and thus the unit involved, is already known to the listener. In the case of indefinite DPs however, there is some ambiguity as to whether the unit enumerated denotes individuals, groups or even kinds.

Thus, in summary, in both OBIL and BIL context was enough to trigger the semantic mapping of transnumeral to singular, and transnumeral to plural as needed. Clearly then, since OBIL and BIL apparently did not need to overtly mark number, there was no need for singulative or plural affixes or classifiers. However, as noted above, the second noun in order III constructions appears to function as a kind of unit. As noted in chapter three, multiple focus forces a partitioning of the semantic information normally carried in one NP into two parts, the reference to a kind (or individuals of a kind), and the number. One could say that focusing the kind and the number separately does not allow the head noun to have anything other than the transnumeral interpretation, and thus, it cannot be quantified directly. This also accounts for the similarity to measure constructions, since mass nouns cannot be quantified directly either, and, as noted above, behave almost exactly the same as transnumerals with respect to quantification. The only difference is that transnumerals can use singulative classifiers as well as mensural classifiers and measures. Given that N2 serves as a unit for N1 in both measure and count examples of order III, it should be considered a singulative classifier when N2 refers to individuals. As noted earlier, in count constructions N2 is co-referential to N1, behaves like an indefinite
pronoun, and is manifested either as a more general version of N1 or a total copy.

(109) (a) ... 方圍于俘人十又五人 ... (137)
border people surrounded at You capture people ten and five people
“...the border people surrounded at You, capturing people, ten and five people...”

(b) 貞: 三隻羊五人 (22566)
tested three specially reared sheep qiang five people
“Tested: (we should offer) three specially reared sheep, and qiang, five people.”

(c) 孫牛三百五十五牛 (小孟鼎)
“...captured cattle three hundred fifty five cattle...”

(d) 易女邦司四伯 (大孟鼎)
“(I) present you (with) state supervisors, four lords ...”

This counting by a unit identical to the head noun is reminiscent of the echo classifiers found in some classifier languages\(^{182}\).

(110) (a) Thaleesàap sàam thaleesàap (Thai)\(^{183}\)

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\(^{182}\) Li (2000) gives examples of echo classifiers in such languages as Achang, Zaiwu, Dulong, Lahu, Tai, Hani, Naxi, Nu, Jinuo and Lisu.

\(^{183}\) Hundius and Kölver (1983) example (25).
"three lakes"

(b) ย่่เท่่ เท่่ (Lahu)\textsuperscript{184}

house one CL

"one house"

(c) ต่ำา ต่ำา ต่ำา (Achang)\textsuperscript{185}

bridge one bridge

"one bridge"

7.3 Classifiers and Grammaticalization

Some authors have argued that in OBIL and BIL since N2 is a noun, it cannot be considered a classifier\textsuperscript{186}. The implication is that classifiers are not nouns, but some other category of lexical item. Behind this is the functionalist notion of grammaticalization as a process independent of synchronic linguistic structure whereby full lexical items evolve into grammatical items. In this view then, although nouns may be the ancestors of classifiers they cannot be considered classifiers anymore than monkeys can be considered human. However, as Newmeyer (2000) eloquently argues, grammaticalization is an epiphenomenal cover term for the independent processes of reanalysis, semantic change and phonological reduction. Comparing N\textsubscript{2} in OBIL and BIL order III constructions with modern Chinese classifiers we can see phonological reduction does not seem to play a role\textsuperscript{187}. The next question is whether or not semantic change is involved. While the individual lexical

\textsuperscript{184} From Goral (1978), example (122).
\textsuperscript{185} From Li (2000), example (5)
\textsuperscript{187} Although if it is established that Mandarin classifiers are clitics on the numeral this may have to be reconsidered.
items classed as classifiers have undergone semantic change over the 3000 some years between OBIL and Mandarin, it is not obvious that classifiers as a whole are performing a different function in Mandarin than N2 performs in OBIL and BIL. In Mandarin, a classifier takes a transnumeral noun and directly maps it to individual reference for quantification. In OBIL and BIL, the transnumeral takes an adjunct which indirectly maps it to individual reference for quantification. This is somewhat analogous to measure or classifier phrases in English like "three cups of water" or "ten head of cattle", where the mass or transnumeral noun is not directly modified by the mensural or sortal classifier. Note that although "cups" and "head" are clearly nouns in English, they are not excluded from being considered classifiers.

Syntactically, however, it does seem that the classifier/measure structure has undergone reanalysis in the nearly 3500 years since the earliest of the oracle bones. As noted above, the classifier in Mandarin is somewhat bound to the numeral, perhaps even a clitic. In addition, a classifier phrase such as 一個 "one CL person", is generally considered to be a single DP\textsuperscript{188}, while order II and III constructions are two adjoined DPs. However, to discount OBIL and BIL classifiers on the grounds that they are nouns, is not only to ignore their function, but miss an important cross-linguistic generalization about measure and classifier constructions and would force one to conclude that equivalent structures in languages like English are somehow categorically different than those in Mandarin. A quick look at number marking cross-linguistically is sufficient to show that the same grammatical function can be performed by different kinds of morphemes in different languages. Thus, in some languages, the singulative operation is unmarked (non-referential nouns in Tibetan (cf.

\textsuperscript{188} See, for instance, Huang (1982), Tang (1996), Li (1999). Cheng & Sybesma (1999) on the other hand claim that it is a numeral phrase rather than a determiner phrase, but in any case it is not an adjunction structure.

Another issue is the fallacious view that echo-classifiers in Early Inscriptional Chinese and other languages are somehow more primitive than the fully evolved classifiers in modern Chinese\(^{189}\). This seems to be based on a misapplication of Darwinian evolution to historical linguistics. Basically there are two linguistic principles at play here, one is the need for distinction, the other is the need for economy. To suggest that echo-classifiers, at the distinction end of the distinction / economy spectrum, are somehow less developed than generalized classifiers like 個 ge, at the economy end of the spectrum\(^{190}\), is to privilege economy over distinction. Since both principles are essential to language this is obviously not valid. Moreover, since languages with well-developed classifier systems like Thai have both echo classifiers and general classifiers, echo classifiers cannot be considered “primitive”. Indeed, OBIL and BIL also employ classifiers of differing orders of generality. For instance, 人 ren “person” was used as a classifier in order III constructions involving 穄 qiang (name of a tribe), 伐 fa “decapituri”, 𠐃 fu “captive”, 訳 xun “captive”, 臣 chen “retainer”, 高 li “commoners”(?), 兵 bing “soldiers”\(^{191}\), as well as

\(^{189}\) Li (1956: 235) calls such constructions in EIC 原始量詞 “primitive classifiers”, Li (2000: 31), after noting that classifier systems are not well developed in some Sino-Tibetan languages makes the Sino-centric proposal that the evolution of numerical expressions in Sino-Tibetan is N Num → N Num N → N Num CL → Num CI N. This of course means that Mandarin is fully evolved, while Tibetan is still at stage I and languages like Lahu are somewhere between stage II and III.

\(^{190}\) Generalized classifiers are economic from the point of view that they perform no other task than to individualize, and can be used with any noun. Thus a language learner is not required to remember what classifier goes with what noun. From this latter point of view however, the echo-classifier is also economic in that the language learner need only reduplicate or partially reduplicate the head noun.

\(^{191}\) The 新鄭虎符 Xin Qi Hu Fu has the following inscription “用兵五十人...”.
functioning as a classifier for itself.

This is not to suggest, however, that there is no real difference between EIC and Mandarin classifiers. Syntactically, N₂ in EIC order III constructions (N₁ Num N₂) are prosodically unstressed nouns receiving reference from an antecedent like an epithet. They are not generally specialized forms unable to function as full nouns in other contexts as are most Mandarin classifiers. Rather than forming a lexical class of classifiers (as Mandarin classifiers do), they are common nouns that receive interpretation as classifiers only through the semantics and pragmatics of marked focus structures. Given that the dominant strategy in OBEL, and to a lesser extent BIL, was to covertly mark number, it comes as no surprise that EIC had not developed a specialized set of classifiers. Semantically, however, N₂ serves to map transnumeral nouns to singular individuals, and, as such, performs the same function as classifiers do in Mandarin. Thus, though syntactically and perhaps lexically distinct from singulative classifiers in Mandarin, N₂ in EIC order III constructions, in being lexical items that map transnumerals to individuals, are a type of singulative classifier.

7.4 Were OBIL and BIL classifier languages?

Since we have claimed that individual denoting N₂s should be considered singulative classifiers, the next logical question is whether OBIL and BIL are classifier languages. Above we defined a classifier language as having the following properties, extensively use singulative classifiers, allow bare nouns which can be both transnumeral and are able to refer to kinds, do not have obligatory plural marking, and employ classifiers as the primary method of marking number. The first criterion is a
bit vague, but if we consider “extensive” to mean “in most cases”, then OBIL is
definitely not a classifier language and BIL probably not either. On the other hand,
both OBIL and BIL do have bare transnumeral nouns and do not show evidence of
obligatory plural marking. However, both OBIL and BIL fail to conform to the final
criterion: neither uses classifier constructions as the primary method of marking
number. In fact, as we have argued above, it seems that the unmarked form of
numerical expression was order I where the noun is modified by the numeral directly.
That the classifier construction was only used in special focus related situations in
OBIL and also to some extent in BIL also argues against this being the favored
strategy in these stages of Chinese. In addition, since the classifier construction
provides a means of overtly marking number, it may be for this reason that it is used
in lists as well as becomes so much more frequent in the formal language of the
Bronze Inscriptions. Thus, although OBIL and BIL have singulative classifiers, the
singulative classifier construction is a marked construction related to focus, and
perhaps other, extra-linguistic, issues. Since covert type shifting of the transnumeral
to singulative in quantitative contexts is the basic strategy of number marking in
OBIL and BIL, neither can be considered a classifier language like modern Chinese.

\[^{192}\text{Note that in multiple focus situations it is still not necessary to overtly mark number as order II examples show. However, we should distinguish this covert number marking from order I which lacks even a covert classifier. Note that it is not possible to omit classifiers in Mandarin numerical expressions even when the numeral appears post-nominally. This underscores a key distinction between Mandarin and EIC: in the former, but not the latter, number must be marked overtly.}\]

\[^{193}\text{Unlike English where the default is singular, BIL and OBIL nouns are default transnumeral and thus ambiguous when simply combined with a number. Thus, the indefinite phrase "three minions" is ambiguous between individuals, groups or even kinds since } \text{chen} \text{ can freely admit all three interpretations. This suggests that in lists of war booty captured or gifts received, events whose importance is evidenced by their being cast into bronze, clarity took priority over economy and the classifier structure was used.}\]
7.5 The Development of a Classifier Language

As we have argued above in the case of Tibetan, bare transnumeral nouns are a necessary, but insufficient, condition in the development of a classifier system. In the case of OBIL and BIL a multiple focus structure forcing a partition of information created a classifier form in analogy to mass and group measure structures. This structure provided another necessary condition for the development of a classifier system: namely, classifiers. However, the mere presence of classifiers in a marked structure is still not enough to make a classifier language. And yet, though this structure probably began as a purely focus related phenomenon in OBIL, it may have spread through analogy to other situations not related to focus, such as in formal expressions of number. Though the precise reasons why any linguistic change takes place can probably never be known, the above account at least shows the necessary conditions for the development of a classifier system were already present in EIC. Thus, the hypothesis put forward by some scholars\(^\text{194}\), that the classifier system of modern Chinese is not native to the language and was borrowed from Thai, is unnecessary. In fact, the evidence from EIC provides striking confirmation of Greenberg's (1972) hypothesis on the genesis of numerical classifiers,

\[\text{It is our working hypothesis that unit counters are modeled after the construction of mass nouns which cannot stand directly with numerals but require a measure or quasi-unit counter as}\]

\[^{194}\text{For instance, Erbaugh (1986: 401) claims that the classifier system of modern Chinese is “not native to Chinese” and was borrowed, probably from Thai. Peyraube (1991: 121) while noting that there existed “internal mechanisms of the birth of the noun classifier system” in Chinese, agrees that Chinese classifiers may have been “borrowed from the Thai and that they have never become a fully automatic part of the grammatical level”}\]
intermediary. (16)

and

From the fact that certain languages have developed the numeral classifier system, it by no means follows that it must have appeared in a single step in all numerical constructions compulsorily. There is some evidence that it tends to appear first as focus, particularly in answers to quantitative WH – questions and later spreads to other constructions. (33)

Though his insights were not gleaned from OBIL data\textsuperscript{195}, his proposal of a relationship between classifiers and focus related to quantitative Wh- questions seems tailor made for the Oracle Bone Inscriptions. If this analysis is correct, then classifiers first arose in Chinese in marked, focus related constructions analogous to measure phrases, and then later spread to other constructions through analogy.

\textsuperscript{195} He does however cite Dobson’s (1962) writings on Early Archaic Chinese which covers BIL. Interestingly, Dobson arrives at an insight similar to mine about the semantics of BIL quantification: “it is not a feature of “substantial quality” that it distinguishes between class and member, between the genera itself and “an instance of”, or “instances of”…” (28). This is similar to the insight behind the ideas of bare nouns denoting kinds or transnumeral instances of a kind. In what follows he calls N2 the “quantification”, which Greenberg rightly notes is “what is usually called a classifier”(26).
Chapter Eight  Conclusion

In summary, this study has reached several conclusions about numerical expressions in OBEL and BIL, the quantificational typology of EIC and the origin of classifiers in Chinese. We have argued for a classification of OBEL and BIL numerical expressions into three word orders, order I (Num N), order II (N Num) and order III (N Num N) which can be put into two basic types: post and pre-nominal numeral orders. We have presented evidence that these orders were motivated chiefly by focus phenomena, specifically multiple focus\(^{196}\) whereby the kind of entity was focused separately from the number. We further argued that the post-nominal numeral orders (II and III), were appositional structures where the numeral and second noun, or numeral and pro, form an adjunct DP to the first DP and the second nominal is an unstressed noun co-referential to the first noun. Noting the similarity of \(N_2\) in count noun order III (N, Num N\(_2\)) constructions to measures in measure constructions, the possibility that \(N_2\) was a classifier was considered. Turning our attention to classifier theory, we argued that the distinction between measures and classifiers was due to the semantics of plurality and mass. The conclusion was reached that though different languages use lexical strategies to mark number that range from unmarked, to affixes, to clitics, to full lexical items, they must perform the same basic semantic function. Furthermore, it was found that there are at least two general strategies for organizing the count domain, the "sum of" and the "part of" approaches that either start with a set of atoms and create pluralities of them (like English), or that start with an undifferentiated set of instances of a kind and creates singularities from it (like Chinese). It was also shown that singulative classifiers perform a function on

\(^{196}\) Perhaps more accurately, the nested evocation of alternative sets.
transnumeral nouns directly analogous to the function of mensural classifiers with mass nouns. Thus it was claimed that in OBIL and BIL post-nominal orders N2 and pro function as singulative classifiers. Finally, it was shown that despite the presence of a marked classifier construction, neither OBIL nor BIL could be considered classifier languages given that classifiers were not the primary mode of marking number. Thus, although classifier structures appeared in the Oracle Bone Inscriptions in analogy to measure constructions in focus related contexts, the seeds of a classifier system that were sown in the Shang would take another 1600 years to come into flower at the end of the Han¹⁹⁷.

Bibliography

Abbreviations


Works Cited


In Events and Grammar. Dordrecht: Kluwer.


Rong Geng 容庚. 1941. *Shang Zhou yiqi tongkao* 邻周彝器通考. Beijing:
Harvard Yanjing Institute.


Wu Hesheng 吳闕生. 1933. Jijingwenlu 吉金文錄.


Yu Xingwu 于省吾. 1933. Shuangjian chiji mingwenxuan 雙劍 吉名文選.