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Forward

The editors are pleased to present this long awaited issue of the Calgary Working Papers in Linguistics. This is the fourteenth in a series of working papers published by the Department of Linguistics at the University of Calgary. These papers represent works in progress and a such should not be considered in any way final or definitive. Appearance of papers in this volume does not preclude their publication in another form elsewhere.

This collection of essays is quite diverse, drawing from several language families and different areas of linguistic study. Although CWPL usually consists of current work by the students and faculty of the Linguistics Department at the University of Calgary, we are pleased to welcome in this issue the presence of a paper by L.O. Adewole of Ile-Ife, Nigeria. Adelowe conducts an examination of aspect and phase morphology in Yoruba. David Bellusci also writes about an African language in his investigation of morpheme serialization in Shona. Adding to the linguistic variety in this collection is Lorraine Shelstad's paper on functional categories in Thai. We have also in this issue an excerpt from Liu Cai-Xia's thesis which looks at serial verb construction in Chinese. Herbert Izzo's paper discusses Romance Linguistics from a historical perspective and thus represents a study in meta-historical linguistics. In addition, Camille Owens gives us an example of work from the phonological area with her contribution of an investigation on tone in Chilcotin.

We are especially grateful to Vi Lake for her invaluable time, skill and patience involved in preparing the papers for printing.

Thanks to Marguerite Prevost, Chris Diehl, Kathy Wu, Naomi Cull and Giselle Dumaine for their help in proofreading. Thanks also to André Isaak for his typing services.

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Aspect[1] and Phase Systems in Yoruba

L.O. Adéwọlé
Department of African Languages
and Literatures,
Obáfẹ́mi Awólọ́wọ̀ University,
Ilé-Ifẹ̀, Nigeria

1. Introduction

Despite Oyelaran's (1982:41) claim that both the imperfective and what he regards as the perfect aspect in Yoruba are not controversial, a look at some of the writing on the topics shows several crucial problem areas.

Where the imperfective aspect is concerned, if Oyelaran's reference to Comrie's (1976) instructive account on the topic is anything to go by, one could say that none of the Yoruba scholars to date has actually written anything on this subcategory of aspect. What previous writers (i.e. Awobuluyi [1967] and Oke (1969)) often mention are the durative and the habitual aspects. Though these two could be regarded as subcategories of the imperfective as defined by Comrie (1976) (if we tentatively take durativity as equivalent to progressivity), they are characterized differently by these writers and no attempt is made by any of them to account for "both in relation to each other and each to other subcategories" (Oyelaran 1982:41).

For example, Awobuluyi (1967:263-264) regards both *máa ń/máa ń* and *ń/ń* as in (1) and (2) respectively as having the same meaning, hence, "the preverb *maa* seems redundant" in (1):

(1)   bọ́lá máa ń ta ìwé
        "Bola sells books"
        or "Bola used to sell books"

(2)   bọ́lá ń ta ìwé
        (i)   Present: "Bola is selling a book (right now)"
                        or "Bola sells books"
        (ii)   Past: "Bola was selling a book"
                        or "Bola used to sell books"

He even confuses issues by stating that there is no difference (if we understand him correctly) between the usages of the word *máa* in the following sentences[2]

(3)   (i)   bọ́lá máa ń ta ìwé
                    "Bola sells books"
                    or "Bola used to sell books"

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(ii)   máa ta ïwé
         "Keep selling books"

(iii)   bólá máa lọ
         "Bola will go"

Oke (1969:440-448), on the other hand, regards *máa ń* as a single auxiliary. Awoyale (1974:18) disagrees with this view and concludes without justifying his claim that "there is no entity *máań* in Yoruba but *má* and *ń*.

Some writers even believe that the progressive aspect is not marked in the language. For instance, Dalphinis (1985:87-88), after giving the following sentences as examples from Yoruba:

Yoruba:

eni mu [sic] lo si oja -   'Today I'm going to market' i.e. literally 'today I'm in
                            the process of going to market'
ola mu [sic] lo si oja -   'Tomorrow I'll go to market' i.e. literally 'tomorrow
                            I'm in the process of going to market'

ano mu [sic] lo si oja -   'Yesterday I went to market' i.e. literally 'yesterday I'm
                            in the process of going to market'

concludes that "... it is the progressive aspect rather than time which is the standard by which the *action* of the verb is judged; it could be 'today, yesterday or tomorrow', ... in ... Yoruba one can say: 'I'm in the process of going to market' - the verb does not change its form nor the personal pronoun its shape with any change along a time-scale".

Bamgbose (1963:144) also classifies what Oyelaran regards as the perfect marker in Yoruba as the perfective marker. Abraham (1958:639) regards this same item as the past tense marker in the language. Amuda (1986:199-200) also makes the following remarks about what he regards as the Yoruba Tense and Aspect Systems:

The tense system of Yoruba has two terms: *simple* and *perfective*. The simple tense has five positive and four negative sub-terms. The positive sub-terms include: future, conditional, continuative, habitual, and unmarked. The unmarked tense, whether in the positive or negative, is made up of *past* and *present* or *neutral*. The perfective is also made up of the same number of sub-terms as in the simple tense. The only difference is the occurrence of the perfective marker, *ti*, "have" with each of the sub-terms in the perfective. Unlike English, Yoruba has no affixes with base forms of the verbs for deriving past tense such as the *-ed* or the third person singular *-s* form.

As no examples are given, it is not clear to us how Amuda's simple tense terms can be realized in the language. His perfective term is the same as that of Bamgbose noted above.

We also have some misgivings about the accuracy of the use of such terms as durative, terminative, ingressive etc. by Awobuluyi (1967) and Odunuga (1982) for some subcategories of aspect in the language. Studies have shown that these terms do not refer to aspectual subcategories. Rather, they are elements of what is often referred to in literature as *mode of action* (=*aktsionsart* in German). In Safarewicz's (1974:328) opinion, "they are nothing else but certain features of the vocabulary; they do not form any grammatical category".

Apart from the controversies noted above, a greater weakness of all the previous works which have anything to do with any aspect of the perfect and the imperfective is their failure to discuss their form and content in detail. Our concern in the remaining part of this paper, then, is to account for some of the discrepancies mentioned above. We begin with the imperfective.

2. The Imperfective Aspect in Yoruba

Comrie (1976:24-25) takes the imperfective aspect as referring "to the internal temporal structure of a situation, viewing a situation from within". He also identifies two different types of imperfective (IMPFV henceforth) in languages - one in which IMPFV is realized as a single subcategory of aspect and the other in which IMPFV itself could still be divided into other subcategories. The Yoruba IMPFV belongs to the second class. It differs, however, from Comrie's (1976:25) classification shown in (4) in that there is no non-progressive continuous marker in the language as shown in (5).

(4)

Imperfect

Habitual

Continuous

Non-prog

Prog

3

(5)

Imperfect
```
                    Imperfect
                        |
        ┌───────────────┴───────────────┐
     Habitual                          Prog
```
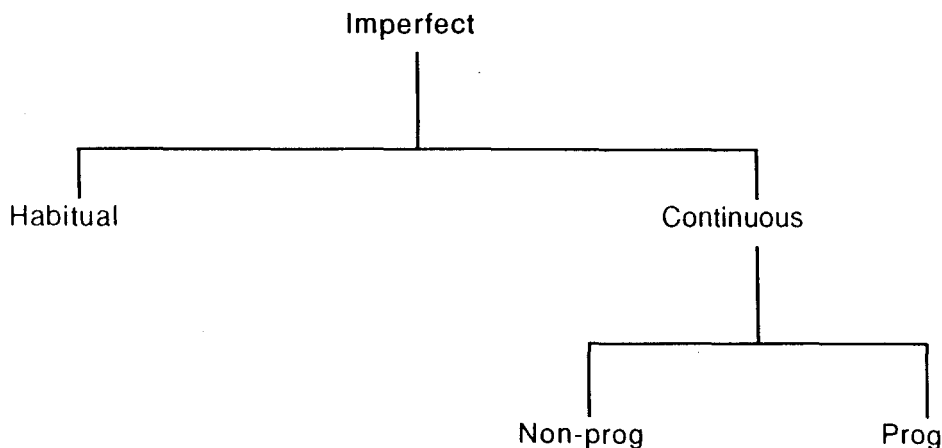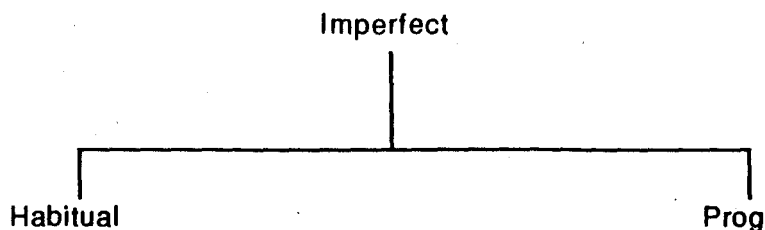
2.1 The Progressive Aspect

The progressive aspect, according to Freed (1979:14) and Dahl (1985:91), could be regarded as a subcategory of the imperfective which allows us to view an activity not only as durative or continuous but essentially as on-going. The item that performs these types of functions in Yoruba and so could be said to mark the progressive aspect in the language is *ń*. It has a suppletive, *máa*, which replaces it after modal verbs and in imperative constructions. Both items are exemplified in the following sentences:

(6) (i)   Mo ń na Adé
          I PROG hit Ade
          "I am hitting Ade"

     (ii) Máa lọ
          PROG go
          "Start to go (now)"

     (iii) Mo lè máa na Adé
          I M PROG beat Ade
          "I can start hitting Ade"

Apart from the examples in (6), Oyelaran (1982:45) also states that this suppletive form of *ń* also occurs "before (a certain *ń*) in a modal construction" and after the NEG. Since examples are not given, we can only guess that it is the occurrence of *máa* together with *ń* in such constructions as *O máa ń jẹ ọgẹdẹ* "He usually eats bananas" that he is referring to. If this is the case, we doubt the correctness of this view. Our claim here is very much in line with the one made by Oke (1969:440-449) who, with convincing evidence, shows that *máań* is a polymorphemic word used in the language to mark Habitual Aspect.

Some scholars do not accept Oke's argument. The question they often ask is that if *máań* is the habitual aspect marker, why are its functions often taken over by the progressive marker as in *Ó ń lọ* which, depending on the context, could be given a

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progressive reading, glossed by "He is going" or a habitual reading, "He usually goes". Because the progressive could be so used, they argue that both the progressive and the habitual aspects should be classified as one.

We find this argument difficult to accept because habitual readings of the progressive in some contexts are common in many languages of the world. These readings are not, in any way, used as points against the establishment of the imperfective subcategories of progressive and habitual in such languages, especially if evidence that they are distinct can be provided. Mufwene (1984:41) refers to this habitual use of the progressive as "the habituative extension of the progressive".

To account for the habitual interpretation of the progressive, one can propose a habitual subcategory for the language and "distinguish between a metalinguistic (and perhaps universal) (sub)category of progressive and the progressive form" (Freed 1979:15 quoting Comrie) in Yoruba of which the range of the latter is wider than the former. This suggestion becomes tenable when one notes many examples where both the progressive and the habitual contrast. An example of such contrasts is given in (7).

(7) (i)   Ó ḿ gbẹ
           "It is/was becoming dry"

     (ii)   Ó máa ń gbẹ
           "It usually becomes/became dry"
           (Quoted from Awobuluyi 1967:265)

In (7), the progressive cannot be given any habitual reading, nor can the habitual marker be given a progressive reading. Examples of these types of sentences which abound in the language call for a progressive/habitual distinction.

It will be recalled that "ongoingness" has been suggested as the most important property central to the use of progressive aspect (Freed 1979:14 and Dahl 1985:91). Most Yoruba scholars do not give this property the prominent treatment it deserves when discussing the progressive aspect in the language. They often lay emphasis on the durativity of the action expressed by the verb with which the progressive marker cooccurs. Most of them even drop the term "progressive" and adopt the term "durative" while discussing the item we have identified as the progressive marker. Dahl's (1985:91) comment on this is that "The label 'durative' for PROG, ... is misleading in that it gives the impression that PROG is used in contexts where duration of a process is stressed". Hence, while "PROG naturally occurs with punctual temporal reference" in (8) (i), it is generally avoided in (8) (ii) (a).

(8) (i)   Ní ìwòyí àná, ó sì ń na Olú
           In this time yesterday, he still PROG hit Olu
           "By this time yesterday, he was still hitting Olu"

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(ii) (a) ? Ó ń kọrin fún wákàtí mẹ́ta
He PROG sing for hour three
"He was singing for three hours"

(b) Ó kọrin fún wákàtí mẹ́ta
He sing for hour three
"He sang for three hours"

At first glance, it may look as if Awobuluyi's treatment of what he regards as 'durative' is very much in line with the view of the progressive expressed by Dahl. This claim becomes stronger if one notes the following comments made by him on his idea of durativity. First, he defines the subcategory as indicating "action occurring through time" which, depending on the context, "may be interpreted as either continuous or habitual" (Awobuluyi 1967:262). He then goes on to add that:

> The durative does not cooccur with such adverbials of time as 'three hours', a whole day' etc. Thus, one does not say in Yoruba:
>
> *bọ́lá ń ṣe iṣẹ́ fún WÁKÀTÍ MẸ́Ẹ̀TA
> "Bola aspect-marker do work for three hours"
> i.e."Bola works for three hours"
> but
> bọ́lá ṣe iṣẹ́ fún WÁKÀTÍ MẸ́Ẹ̀TA
> "Bola worked for three hours"
>
> without a durative aspect marker. In view of this, our term 'durative' is for the present account not likely to signify more than the feature that is common to habitual and continuous action (Awobuluyi 1967:284, n. 93).
> (our capitalization)

From the above quotation one could deduce that the feature common to both the habitual and the continuous is the non-collocability with the type of adverbials of time capitalized in the quotation. But a look at Awobuluyi's discussion on the 'durative' shows that most of the examples used can cooccur with the adverbials of time noted in his examples. Almost all his examples with habitual marker take these adverbs freely. So, whereas a sentence with a progressive marker, as the one in Awobuluyi's quotation, is not acceptable, sentences of the type in (9) are:

(9) Ó máa ń ṣe iṣẹ́ fún wákàtí mẹ́ta lójúmọ́
He HAB do work for hour three in one day
"He usually works for three hours a day"

So, with (9), we are saying that the claim made by Awobuluyi in the above quotation, applies to the progressive (or what he calls the continuous) aspect alone. Thus, the collocability or the non-collocability of the progressive and the habitual with

these types of adverbials of time serves as another valid ground for our wanting to distinguish the habitual from the progressive aspect.

2.2. Dynamic - Stative

Another important feature often ascribed to the progressive is the non-stativity feature. By this is meant that the use or non-use of the progressive depends on the type of verb with which it cooccurs. Various writers have expressed this claim in different ways. According to Lyons (1966:222), "the notional categories of action and state are relevant to the classification of verb...for the purpose of generating well-formed sentences". Though Comrie uses the term 'situation' as a cover term for state, event or process, his remark that "in discussing aspect it is often necessary to refer to the differences between states, events, processes etc." Comrie's observation (1976:13) is very much in line with Lyons' observation. To most Yoruba linguists, the progressive naturally cooccurs with the dynamic verbs. But does this mean that the progressive cannot occur with the stative in the language?

The following comments are noted in the literature. In Ajeigbe's (1979:16) opinion, the stative verbs in the language can cooccur with all tense markers. His examples are:

(10) (a) Adé ti burú rí ṣùgbọ́n kò burú mọ́
            Ade have been wicked before but not wicked again
            "Ade has been wicked in the past but he is no longer wicked"

      (b) Òjó yíò ga tó Adé ní ọdún yí
            Ojo shall tall equal Ade in year this
            "Ojo will be as tall as Ade this year"

As he does not state whether the progressive is one of the tense markers and the examples given to justify his claim do not include the progressive, his view on the cooccurrence of the stative verbs and the progressive is not clear to us.

Oyelaran (1982:37), on the other hand, states clearly that when the stative verb (he uses the term "verbs of perception") takes the progressive marker, (he also calls this "imperfective marker") "the only permissible reading is iteration, since reference to situation-internal time would be nonsensical".

In as much as we agree with Oyelaran that the progressive can occur with stative verbs for iterative purposes, we are also of the opinion that reference can still be made to the situation-internal time of such verbs. A look at the sentences in (11) shows that, with the presence of the progressive marker, apart from the fact that the verbs are iterated or itensified, the speaker is also focussing on the properties of states that resemble those of events (Smith 1986:498).

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(11) (i)   Mo ń gbọ́n sí i
            I PROG wise more it
            "I am becoming wiser"

      (ii) Mo ń gbọ́ Yorùbá sí i
            I PROG hear Yoruba more it
            "My knowledge of Yoruba is improving"

      (iii) Ó ń jọ baba rẹ̀ sí i lójoojúmọ́
            He PROG resemble father his more it everyday
            "He gets more like his father every day"

The verb in the individual sentences have now been given the dynamism of an event. Hence one is able to perceive not only the internal structures of the situation, but also successions of stages which are located on a continuum. Thus, the stative verbs: *gbọ́n* "to be wise", *gbọ́* "to hear", *jọ* "to resemble" are now seen to be involved in some changes "from one stage to the other" (Smith 1986:483).

Smith's view is very similar to Mufwene's (1984:35) notion of the progressive "as a kind of quantifier" which (i) converts events expected to be punctual into longer-lasting, even if transient, states of affairs (ii) conversely converts those states of affairs expected to last long [lexical statives] to shorter-lasting/transient states of affairs (iii) simply presents those verbs whose denotations are neutral with regard to duration as in process/in [transient] duration, though duration is expected of statives.

These observations lead us to the conclusion that, though it is natural for the progressive to occur with dynamic verbs, it also occurs with the stative verbs in the language. When this happens, just as in other languages, such stative verbs are treated as dynamic verbs.

2.3. The Progressive in Imperative Constructions

The occurrence of the progressive aspect in the Yoruba imperative constructions merits some mention in this work. Apart from the notion of futurity (which is often explained in pragmatic terms) only a progressive reading can be given to an imperative. This principle also applies to Yoruba, but in a rather peculiar manner. Observe the following non-progressive imperatives and their progressive counterparts.

(12) (i)   Lọ   Máa lọ
            "go"   PROG go
                      "Start going"

      (ii) Jẹun   Máa jẹun
            "eat"   PROG eat
                      "Start eating"

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(iii)   Sùn   Máa sun
         "Sleep"   PROG sleep
                     "Continue sleeping"

All three non-progressive imperatives are matched with the progressive ones. We think there are two ways in which the frequent occurrence of the progressive in the imperatives can be explained. First, the progressive marker cooccurs obligatorily with some verbs. So, the question of whether the verbs are used declaratively, imperatively or interrogatively does not come up, they both have to cooccur. Examples are:

(13)   DECLARATIVE
        Mo ń bò   *Mo bò
        I PROG come   I come .
        "I am on my way"

        INTERROGATIVE
        Ṣé o ń bò ?   *Ṣé o bò
        Q you PROG come   Q you come
        "Are you coming?"

        IMPERATIVE
        Máa bò   *bò
        PROG come   "come"
        "Start coming"

Second, just as it does elsewhere, the progressive "allows the speaker to tell the addressee, not merely to do something, but to be in the process of doing it at some particular moment" (Davies 1986:15—16).

(14)   (i)   Ṣọ ọ́ kí n tó dé
                Say it that I before arrive
                "Say it before my arrival"

        (ii)   Máa ṣọ ọ́ kí n tó dé
                PROG say it that I before arrive
                "Start saying it before my arrival"

(14)   (i) does not require the type of action in progress required in (14) (ii).   ○

It should be noted too that just as in the declarative sentence, the progressive can also be given an habitual interpretation. But this can only be possible in a positive construction. In a negative construction, the progressive is quite distinct from the habitual. The distinction is shown clearly in (15).

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(15) (i) POSITIVE
Máa jẹun
"Start eating
or
Stay eating"

(ii) NEGATIVE
Má jẹun
"Do not eat" (for prog)

Má máa jẹun
"Do not eat (at all)" (for Hab)

Thus, the distinct habitual and progressive negative imperative constructions also stand as another valid ground for our proposed subcategories of habitual and progressive in the language.

3. The Yoruba Habitual Aspect

The habitual aspect is regarded as "describing a situation which is characteristic of an extended period of time, so extended in fact that the situation referred to is viewed not as an incidental property of the moment but, precisely as a characteristic feature of a whole period" (Comrie 1976:27-28). The notion of "extended period" as used in the above definition is conceptual rather than linguistic, hence, Comrie (1976:27) warns that habituality should not be confused with iterativity. According to him, "the mere repetition of a situation is not sufficient for that situation to be referred to by a specific habitual ... form". The reason for this is that "a situation can be referred to by a habitual form without there being any iterativity at all" (Comrie 1976:27). In support of this view, Dahl (1985:97) adds that "the difference between 'once' and 'twice' or even 'seven times' is almost totally irrelevant to HAB". With these two writers' views of the habitual, one can conclude that sentences such as (16) are not in any way habitual.

(16) (i) Ó lọ sí oko púpọ̀ ní èsí
He go to farm plenty in last year
"He went to the farm many times last year"

(ii) Ó lọ sí oko ní ọgọ́rùún ìgbà ní èsí
He go to farm in hundred times in last year
"He went to the farm a hundred times last year"

Rather, what actually marks the habitual aspect in the language is the polymorphemic word *máa ń*. What the use of this item in any sentence indicates is that the action expressed "took place in the majority of those occasions" (Dahl 1985:97) indicated or understood in the sentence. Thus the item, as used in (17), refers to indefinite individual occasions when the action takes place.

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(17)   Ó máa ń lọ
       He HAB go
       "He usually goes"

The notion of an indefinite occurrence of an action credited to the habitual aspect does not mean that it could be interpreted as denoting the same notion with such adverbials of time as *nígbà gbogbo* "every time". The fact that the appendage *ṣùgbọ́n ní ẹ̀ẹ̀kọ̀ọ̀kan ó máa ń wọ aṣọ funfun* "but once in a while, he puts on white clothes" is possible with (18) (i) but not with (18) (ii) brings this out clearly.

(18)   (i)   Ó máa ń wọ aṣọ dúdú ṣùgbọ́n ní ẹ̀ẹ̀kọ̀ọ̀kan
             He HAB wear clothes black, but in one one time,

             ó máa ń wọ aṣọ funfun
             He HAB wear clothes white

             "He usually puts on black clothes but once in a while he puts on white"

       (ii) *Ó máa ń wọ aṣọ dúdú nígbà gbogbo, ṣùgbọ́n ní
             He PROG wear clothes black in time all, but in

             ẹ̀ẹ̀kọ̀ọ̀kan, ó máa ń wọ aṣọ funfun
             in one one time, he HAB wear clothes white

             "He is always putting on black clothes but once in a while, he puts on white".

       Despite the fact that there is no controversy about the notion of the habitual aspect as defined above, the form in which the subcategory is realized in the language is still a subject of dispute. To most Yoruba scholars, the subcategory does not exist. To some few others, only some Yoruba speakers use it, "other speakers use the *n* form (the progressive marker) freely in both senses" (Comrie 1976:101 quoting Rowlands). The only Yoruba scholar who has given unqualified support for the postulation of the subcategory in the language is Oke (1969:440-448). One of the reasons he gives for regarding the habitual as a distinct subcategory from the progressive is that the distribution of the habitual is quite different from that of the progressive. According to him, whereas verbs such as *wá* "to come" and *wà* "to be" cannot be immediately preceded by the progressive, they occur with the habitual quite freely. Examples are:

(19)   (i)   Ó máa ń wá
             He HAB come
             "He usually comes"

       (ii) Ó máa ń wà ní ibẹ̀
             He HAB be in there
             "He is usually there"

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(iii)   *Ó ń wá
         He PROG come
         He is coming

(iv)   *Ó ń wà[3]
         He PROG be
         "He is being"

On the other hand, verbs such as *bọ* "to come" and *bẹ* "to be", are not also immediately preceded by the habitual markers. Examples are:

(20)   (i)   *Ó máa ń bọ̀
           He HAB come
           "He usually comes"

      (ii)   *Ó máa ń bẹ
           He HAB be
           "He is usually existing"

      (iii)   Ó ń bọ̀
           He PROG come
           "He is on his way"

      (iv)   Ó ń bẹ ní ibẹ̀
           He PROG be in there
           "He is there"

These examples, according to Oke, show that the progressive and habitual markers have different distributions.

Our previous discussion has shown that we are very much in support of Oke's view that there should be a distinct habitual subcategory of Aspect in the language. One may then wonder why the opinions of the Yoruba grammarians differ on the status of the Habitual subcategory of Aspect in the language.

The main reason for this divided view can be traced to the fact that both the habitual and the progressive share the same variant forms. Hence, the sentence in (21) has two interpretations which the negations in (22) clearly distinguish:

(21)   Máà ṣe é
      (a)   Start to do it (right now)
      (b)   "Continue to do it (henceforth)"

(22)   (a)   Má ṣe é
           NEG do it
           "Don't do it (now)"

(b)   Má máa ṣe é
      NEG HAB do it
      "Do not do it (henceforth)"

While (22) (a) negates the progressive, the habitual can be negated only as in (22)(b).
Most linguists who do not consider examples such as (21) and (22) or the ones given by
Oke in (19)-(20) or the ones we have given earlier on in (7) often conclude that *máa ń* and
máa are the contextual realizations of the Progressive.

We hope that enough has been said here to show that the Habitual to which
almost all Yoruba scholars give a notional recognition, needs to be formally distinguished
from the progressive.

4.   Phase System in Yoruba

In the previous sections of this paper, we have been able to show how the
Yoruba speakers indicate when the action expressed by the verb can not be said to have
any clear limit. This case is achieved in the language by the use of the markers of the
imperfective subcategories. There is still another Yoruba grammatical category that we
need to discuss. For instance, King (1983) discusses the grammatical categories from the
relational point of view. First, he defines orientation "as that semantic notion which
allows the speaker to express an ordering relationships for the reported situation". He
then classifies the types of ordering relationship into two—the primary form and the
relational form. He classifies both the perfective and the imperfective as the primary
form. By the primary form he means that they do not express any orientation and that
no ordering relationship is involved in the action they depict. The relational form on the
other hand relates one situation to another.

We have discussed how some of the primary forms[4] are expressed in Yoruba.
What now remains is for us to show how the Yoruba speakers relate one situation-token
to another situation-token in an utterance-situation[5]. This relationship is shown by what
Thrane (1983:188) regards as the Phase. Thrane defines Phase as "the category which
enables H (the hearer) to identify a particular S-token of a certain type in terms of its
sequential order relative to some other S-token". The item that is used in the language to
show such a relationship is *ti* "has/have/had". This item, as we have discussed above,
has been analysed either as a past tense marker or a perfective marker.

According to Thrane (1983:189), "the basic semantic function of Phase is such
that it will allow valid inferences to be drawn from it in the direction of both Tense and
Aspect" but whereas the two latter categories are concerned with matters of time, the
former is concerned with space. For example, in (23), the Phase marker *ti* "...," only
indicates the sequential ordering of the S-tokens involved relative to the Utterance-
situation.

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(23)   Ó ti lọ kí a tó ó dé
       He PH go before we equal INF come
       "He had left before our arrival"

The Phase marker in (23) does not say where the entities are in any absolute sense. What it states is that "the entities are arranged relative to one another along a single spatial dimension" (Thrane 1983:188).

King (1983:147) uses the term "relational form" for this marker. The reason is that, in terms of orientation, what the marker does is to relate two S-tokens to each other relative to the utterance-situation. The Utterance-situation is not fixed in any way. Thus, (24) (i) can be read either as (24) (ii) or (24) (iii) depending on the nature of the Utterance-situation.

(24)   (i)   Ó ti lọ
              He PH go
              "He has gone"

       (ii)   Ó ti lọ (Ó fún un lówó nì yẹn)
              He PH go (He give him money is that)
              "He has gone (He must have given him some money)

       (iii) Ó ti lọ (Ó fẹ́ ẹ fún ún lówó nì yẹn)
              He PH go (He want INF give him in money is that)
              "He has gone (that means he wants to give him some money)

It will be noted that the "sequentiality of the anterior S-token" (Thrane 1983:188) in (24) (ii) has undergone a subtle change in (24) (iii). This change, according to Thrane, shows that Phase is essentially concerned with sequence and only inferentially with time.

4.1.   Tense, Aspect and Phase

With the notion of Phase as described above, the reason why its marker has been analysed either as a past tense marker or as a perfective marker can now be explained. Tense has been defined as "the category which enables H (the Hearer) to identify a particular S-token in terms of its temporal occurrence relative to the deictic centre of the Utterance-situation" (Thrane 1983:188). With this definition, it becomes clear why two sequentially arranged S-tokens are given some temporal cooccurrence attributes. Before two S-tokens can be sequentially ordered, "they both have to be 'there' at the same time" (Thrane 1983:189). What time does in such circumstances is to impose some direction on the sequential order of the S-tokens. The mere mention of the terms 'anterior', 'posterior', 'after' and 'before' while defining Phase shows that time has to impose some directionality on the sequential order. It is because of this linguistic encoding of sequential order that some Yoruba scholars inaccurately regards the item *ti* "has," as a past tense marker.

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The past tense, in the languages in which it occurs, is regarded as simply stating that a given situation obtained before the Utterance-situation without any reference to overt orientation. The item *ti* does not function in this way. Rather, what it indicates is only the sequentiality of S-tokens. In our opinion, it is the notion of one S-token being anterior to another which the advocates of the past tense analysis of *ti* "has," regard as tense.

If we now turn to the perfective, what we note is that Phase also draws some Aspectual meaning especially from this sub-category of Aspect. Aspect is taken as "a category which enables H to identify a particular S-token in terms of its internal temporal structure" (Thrane 1983:188). For two S-tokens to be considered sequential, one must have been perceived as either 'complete' or 'finished'. Since the notion of perfective denotes a situation viewed in its entirety, it is not surprising that the perfective and the Phase are often confused with each other. The confusion stems from the 'complete' notion which Phase partially shares with the perfective.

4.2. The Phase as a Relational Form

Phase, as we have stated, is by orientation a relational form. It does not refer to any particular S-token but relates one S-token to another. Both the perfective and the imperfective subcategories, on the other hand, are regarded as primary forms, the reason being that no sequential ordering of any S-token is made by them. They can both cooccur with the Phase.

When the perfective cooccurs with the Phase in an S-token, it views such an S-token in its entirety and orders it sequentially relative to the Utterance-situation. When the Phase cooccurs with the progressive, it indicates that what is ordered sequentially relative to the Utterance-situation is the middle of the said S-token. Finally, the Phase marker cooccurs with the Habitual marker to indicate that an indefinite occurrence of S-tokens is ordered sequentially relative to the Utterance-situation. Examples are:

(25) (i)   PERFECTIVE AND PHASE
             Olú ú ti lọ kí Òjó tó ó dé
             Olu HTS PH go before Ojo equal INF come
             "Olu had left before Ojo's arrival"

      (ii)   PROGRESSIVE AND PHASE
             Ó ti ń lo kí a tó ó dé
             He PH PROG before we equal INF come
             "He was leaving when we arrived"

(iii)   HABITUAL AND PHASE
Ó ti máa ń lọ kí a tó ó dé
He PK HAB go before we equal INF come
"He usually leaves before our arrival"

5.   Summary

In this paper, we have discussed some issues regarding aspect and phase in Yoruba. We started with the discussion of the imperfective aspect. Following Comrie (1976), we proposed two subcategories of the imperfective for the language—the progressive and the habitual. We then contested the classification of the item *ti* "has/had/have," either as a past tense marker or as a perfective marker. We suggested that the item should be regarded as the relational Phase marker in the language.

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Notes and References

1. Only the progressive and the habitual subcategories of aspect shall be discussed here. For a comprehensive discussion of the perfective aspect in the language, see Adewole (1986). See also Adewole (1987).

2. Awobuluyi's remark on the sentences is that "it is this preverb, *máa* incidentally, which appears to be shared by both the temporal and the aspectual subsystems, that led us to the conclusion that the terms in the Yoruba temporal subsystem should perhaps be definite and indefinite rather than past, present and future" (p. 265). What is not clear here is whether *máa* is the same both in form and function in these sentences. See Adewole's (1986) comments on this type of situation.

3. *Ó ń wà nî ibẹ* "He is usually there" is possible but according to Oke, the *n* form used is not a progressive marker. It is a variant of the habitual marker. We support this claim.

4. Note that only the imperfective aspect is discussed in the previous paragraphs of this paper. For some discussions of the perfective aspect in Yoruba, see Adewole (1986; 1987).

5. Thrane (1983:182) defines a situation as "a delimited organization of entities between which specifiable relations hold". In this definition, a situation is taken to be language-independent. To link situations to linguistics, he introduces the terms situation-token (S-token), situation-type (S-type) and Utterance-situation (US) where S-token stands for "a situation identified or identifiable in terms of its actual occurrence in space and time", and S-type stands for "a situation identified or identifiable in terms of the relationship holding between the entities that make up the situation" and the Utterance-situation as "a particular type of actual occurrent situation, established in each case by someone making an utterance".

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Serialization Patterns
in Shona Verbal Morphology[1]

David Christian Bellusci
University of Calgary

1.0 Problem

Shona is a Central Bantu language that has been classified as an SVO language (Comrie 1981). As with other Bantu languages, however, Shona has SOV characteristics reflected in its morphology. This is not surprising since morphology often reflects earlier word order patterns and Proto-Bantu has been reconstructed as SOV (Givón 1975). This paper focusses on Shona verbal morphology, particularly on the serialization of [valence] [aspect] [tense].[2]

Valence can be analysed in both semantic and syntactic terms.[3] Semantically, a verb is modified according to the affix attached; for example, the meaning of the simple verb changes to causative with the suffix expressing causation. Syntactically, valence has implications for the arguments that the verb takes; for example the applied suffix produces a ditransitive verb, which means the applied valence has two arguments. In some instance suffixes in Shona, such as the neuter valence, produce intransitive verbs, thus taking no arguments.[4]

In Shona, the verb is preceded by the tense (TNS) marker, and in cases where both aspect (ASP) and tense markers occur, tense is located closest to the verb root. The valence (VAL) category is found in postverbal position immediately following the verb root.

(1) Shona

    ndi -no-set-sa   vafundi
    SUB-TNS-VRT-VAL   OBJ
    I-amuse   students
    'I amuse the students'

---

[2] The categories enclosed in square brackets indicate free lexical items.

[3] There are twelve valencies in Shona; the valence category being examined in this paper is the causative.

[4] Lyons (1977:486ff.) points out that predication in terms of arguments suggests that a predicator with one argument has a valency of 1 (intransitive verb); a predicator with two arguments has a valency of 2 (transitive verb); and a predicator with three arguments has a valency of 3 (ditransitive verb).

(2)   nd-a-i-ka^5-set-sa   vafundi
              SUB-(ASP) -ASP-TNS-VRT-VAL   OBJ
              he-used to-amuse   students
              'I used to amuse the students

(3)   nd-a^6-ka-set-sa   vafundi
              SUB-(ASP)-TNS-VRT-VAL OBJ
              I-amused   students
              'I amused the students'

The [aspect-tense]^7 combinations of (2) and (3) appear in Shona as shown in (4) with both the perfective and habitual markers preceding the tense:^{8}

(4)

$$\left\{ \begin{matrix} \textbf{a-} \\ \textbf{i-} \end{matrix} \right\} \textbf{ka-}$$

The serialization of [aspect-tense] and verb root, however, appears to contradict Bybee's proposed universals (1985) based on the following semantic hierarchy:

(5)   **Semantic Hierarchy**

                            VERB ROOT

                            category

                            VALENCE
        high   VOICE
                            ASPECT
                            TENSE
  degree of relevance   MOOD
                            NUMBER AGREEMENT
                            PERSON   AGREEMENT
        low   GENDER AGREEMENT

---
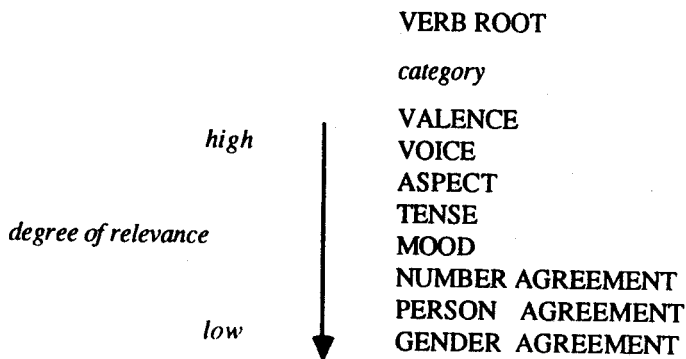
^{5} The aspectual construction with **ka-** is a variation of the past habitual; in standard Shona the **ka-** marking the past habitual is commonly deleted.

^{6} The aspectual marker **a-** loses its perfective meaning in constructions with **ka-**; however, **a-** signifies the perfective when it appears without **ka-**, as in **nd-a-enda** 'I have gone'.

^{7} The two categories enclosed in square brackets indicate univerbation between the two.

^{8} My thanks to Karikoga Bamhare for checking and correcting the Shona data.

According to Bybee, this hierarchy will be directly manifested through the serialization of morphological markers as follows:

(6)
i (VERB ROOT) VALENCE VOICE ASPECT TENSE MOOD AGREEMENT (N / P / G)
   or
ii AGREEMENT (N / P / G) MOOD TENSE ASPECT VOICE VALENCE (VERB ROOT)

As evident in (1) to (3), however, Shona departs from Bybee's categorial serialization with respect to aspect and tense; moreover, Shona shows the [aspect-tense] categories in preverbal position, while valence remains postverbal. We face two possibilities: (a) Bybee's hierarchy is inadequate and should be rejected; or (b) an explanation of the discrepancy must be provided which is coherent with the hierarchy. This paper attempts to explain the discrepancy between Shona serialization, and the serialization expected on the basis of Bybee's semantic hierarchy.

Before turning to our problem in detail, I would like to briefly discuss the basis of Bybee's semantic hierarchy. Bybee (p.24) maintains that the iconicity of linguistic expression is evident by the proximity of the verbal categories to the verb root, and predicts that categories that are more relevant will have greater morphophonemic impact on the verb root than categories that are less relevant. While serialization provides evidence for the semantic hierarchy that Bybee proposes, language acquisition as well, supports the semantic hierarchy.

A child language acquisition study conducted by Brown (1973) indicates how morphemes with greater saliency are acquired before morphemes whose meanings are not identifiable: aspect as -*ing* is acquired before tense as in -*ed,* while person agreement -*s,* is acquired after aspect and tense.

In another study, morphological categories reflecting the semantic hierarchy proposed by Bybee are illustrated in Brazilian Portuguese. In Brazilian Portuguese the child uses the 3SG present at first to express all functions, and then acquires the 3SG preterite which is extended to all persons (Bybee 1985:59-60). The 1SG present and 1SG preterite are built from the 3SG with the present being acquired before the preterite. This indicates that tense/aspectual distinctions are made first, with agreement distinctions following, and the same process of acquisition applies to the imperfect:

(7)   Brazilian Portuguese

ASPECT		
present	1SG	abro
	2/3SG	abre
preterite	1SG	abri
	2/3SG	abriu

ASPECT   3SG > 1SG

Evidence from language studies, therefore, supports the hierarchy proposed by Bybee: the acquisition of verbal categories reflects a semantic hierarchy as shown with aspect, tense and agreement.

2.0 Specification: Pre- and Post-

The conflict between serialization of verbal categories expected on the basis of the semantic hierarchy and the serialization evident in Shona should be considered in the light of pre- and postspecification. Claims relating to specification have been largely influenced by the research of Lehmann (1973), Vennemann (1974), Comrie (1981), Hawkins (1983), and Bybee (1985). Characteristics of word order associated with specification had been noted as early as 1782 by Adelung. He observed that German syntax of that period placed specifying elements before the specified. Specification patterns had also been recorded by Voretzsch and Rohlfs in 1901 maintaining that in Vulgar Latin "the governing word tended to precede the governed one" ([1901] 1966:139). Regula, in 1966, observed that Modern French had the *déterminant,* the determining word, follow the *déterminé,* the determined one. Vennemann expresses this relationship as operand-operator in the case of verb-object (VO) languages, and operator-operand in the case of object-verb (OV) languages (Vennemann 1974; Comrie 1981). The operator-operand relationship is also referred to as specifier-specified. In specifier-specified relationships Vennemann gives the following assignment:

(8)   *specifier*   *specified*

OBJECT   VERB
ADJECTIVE   NOMINAL
GENITIVE   NOMINAL
RELATIVE CLAUSE   NOMINAL
NOMINAL PHRASE   ADPOSITION
STANDARD OF COMPARISON   COMPARATIVE ADJECTIVE
MAIN VERB   AUXILIARY
ADVERB   VERB

Example (8) also appears in reverse order with the *specified* column preceding the *specifier* column. Vennemann distinguishes two extreme word order types: consistently prespecifying languages where the specification is always specifier-specified, and consistently postspecifying where the specification is always specified-specifier. The OV or VO word order appears to be primary, while other word order patterns are secondary, in which the following is subsumed:

(9)   Principle of Natural Serialization

The preference for a unidirectional word order in which either a specifier-specified or specified-specifier relationship is maintained.

The specification of VO or OV is seen as basic: VO produces a pattern of postspecification, and OV shows a pattern of prespecification. The more consistent the order of specification, the more the pre- or postspecification word order is preferred. Examples of specification are evident in word order typology, such as Hindi, which reflects consistent prespecification, and Thai, whichs reflects consistent postspecification:[9]

Hindi_____

(10) OBJ-VRB   aurat   sabji   banati hai
                  SUB   OBJ   VRB
                  woman   vegetables   cook
                  'the woman cooks vegetables'

(11) ADJ-NOM   bada   adami   sharab   peeta hai
                  ADJ   NOM (SUB)   NOM (OBJ)   VRB
                  big   man   alcohol   drinks
                  'the big man drinks beer'

(12) GEN-NOM   bachon   ki   kitaben
                  NOM   VRB (POS)   NOM
                  children   belong   books
                  'the childrens' books'

(13) REL-NOM   khelti hui   ladkiyon   ko dekho
                  VRB   REL   NOM   VRB
                  playing   girls   look
                  'look at those girls who are playing'

(14) NPH-ADP   ladke   ghar   me   rah rahe hain
                  NOM   NPH   ADP   VRB
                  boys   house   in   are staying
                  'the boys are staying in the house'

(15) SCP-CPA   Yamini   Valsamma   se choti hai
                  NOM   SCP   CPA
                  Yamini   Valsamma is small
                  'Yamini is smaller than Valsamma'

(16) MNV-AUX   log   nach-enge

---

[9] I am indebted to Yamini Vijayaraghavan for the Hindi examples, and to Lorraine Shelstad for the Thai.

```
NOM    MNV   AUX
people  dance will
'the people will dance'
```

The Hindi examples, (10) to (16) serve to illustrate how the specifiers precede the specified. In contrast, Thai shows VO word order:

Thai_____

(17) VRB-OBJ   phuuyiŋ   phat   phak
                 SUB   VRB   OBJ
                 woman   fries vegetables
                 'the woman fries vegetables'

(18) NOM-ADJ   phuuchaay   khon   yay   dɨɨm   bia
                 SUB (NOM)   CLS   ADJ   VRB   OBJ (NOM)
                 man   big   drink beer
                 'the big man drinks beer'

(19) NOM-GEN   naŋsɨ̆   khɔɔ   nakrian
                 NOM   GEN   NOM
                 books   of   students
                 'the books of the students'

(20) NOM-REL   duu   dekyiŋ   khonŋ   nan   thii   len
                 VRB   NOM   CLS   DEM   REL   VRB
                 look girl   that   who   play
                 'look at those girls who are playing'

(21) ADP-NPH   dekchaay   yuu   nay   baan
                 NOM   VRB   ADP   NPH
                 boys   stay   in   house
                 'the boys are staying in the house

(22) CPA-SCP   Sawat   lek   kwaa   Charun
                 NOM   CPA   than   SCP
                 Sawat   small than   Charun
                 'Sawat is smaller than Charun'

(23) AUX-MNV   khon   ca   ram   thii   Naan
                 NOM   AUX   MNV   NOM
                 people will   dance   dance
                 'the people will dance'

```

The Thai examples, (17) to (23), have the specifier follow the specified.[10]   The prespecifying-postspecifying continuum can be expressed as follows:

(24)    **Specification**

*prespecifying*                                                                                    *postspecifying*

**Hindi**                                                                                                      **Thai**

                              German      English    French
                                                               Italian
                                                               Spanish

We saw with the Hindi data that each example provided a consistent pattern of OV word order, and in some cases was comparable to English and German.

(25)      I like to drink sweet coffee.

The English example has characteristics of both word order types since the adjective 'sweet' prespecifies the noun 'coffee' (OV), while the object, 'coffee' follows the verb 'like' (VO).  This pattern is in contrast to the German one:

(26)     er    sagt,   daß    er    süßen   Kaffee    trinken   mag
         he    says    that   he    sweet    coffee    to drink   like
         'he says that he likes to drink sweet coffee'

In the German subordinate construction the verbs are found in final position, and with the prespecification of 'coffee' an OV pattern is evident; however, in main clauses, either the modal appears in second position (27), or the main verbs appear in second position (28):

(27)     ich    mag    süßen    Kaffee    zu    trinken;
         I      like    sweet    coffee    to    drink
         'I like to drink sweet coffee'

(28)     ich    mag    süßen    Kaffee
         I      like    sweet    coffe
         'I like sweet coffee'

---

[10] In the Thai data /ch/ =  palatal affricate, unvoiced and aspirated (18) and (21); and /c/ = palatal affricate unvoiced and unaspirated (23).  Tone is not indicated on the Thai data.

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In other words, German, like English, shows both prespecification and postspecification but in contrast to English has additional prespecification patterns such as OV serialization in subordinate clauses.

With the Thai data, clear patterns of VO word order were apparent in each of the examples, showing similar constructions with the Romance languages, such as Italian:

(29)    io   bevo  il   café     dolce
         I    drink  the  coffee   sweet
         'I like to drink sweet coffee'

In the Italian example the specifier of the 'coffee' follows, unlike the English and German, where it precedes; thus, the Italian shows evidence of VO word order with the verb 'drink' in second position. Given the data supporting specification patterns as a result of the Principle of Natural Serialization, we can now examine the Shona data.

## 2.1    Shona Word Order as Postspecifying

The following examples demonstrate clearly that Shona is a postspecifying language:

(30)    VRB-OBJ       **mukadzi**    **a-no-bika**       **miriwo**
                           SUB         AGR-TNS-VRB    OBJ
                           woman     cook           vegetables
                           'the woman cooks vegetables'

(31)    NOM-ADJ       **murume**        **mu-kuru**  a-no-nwa      hwahwa
                           SUB(NOM)    AGR-ADJ  AGR-TNS-VRB  OBJ
                         man          big        drink        beer
                         'the big man drinks beer'

(32)    NOM-GEN      **mabhuku**     a-vafundi
                         **NOM**         **GEN-NOM**
                         books        of-pupils
                         'the books of the pupils'

(33)    NOM-REL       tarisa     **vasikana**     vayo    **va-ri**      kutamba
                         VRB      **NOM**        DEM    **REL-ASP**  to-play
                       look      girls       those   who-are
                       'look at those girls who are playing'

(34)    ADP-NOM      vasikana   va-ri       kugara    **mu-mba**
                         NOM       AGR-ASP  to-stay    **ADP-NPH**
                         boys       are          in-house
                       'the boys are staying in the house'

| (35) | CPA-SCP | Ignasiyo | a-ri | mu-duku | kuna | **Davhiti** |
|------|---------|----------|------|---------|------|---------|
|      |         | NOM | AGR-COP | AGR-CPA | | **SCP** |
|      |         | Ignatius | i s | small | | David |

'Ignatius is smaller than David'

| (36) | AUX-MNV | vanhu | **va-cha-tamba** |
|------|---------|-------|---------|
|      |         | NOM | **AGR-AUX-MNV** |
|      |         | people | AGR-will-dance |

'the people will dance'

Indeed, Hawkins (1983:277) maintains that almost all Bantu languages have the basic word order:

(37 )    SVO / PRE / NOM-ADJ / NOM-GEN / NOM-REL

An SVO word order is clearly evident in Shona; however, as with other Bantu languages, Shona's morphology shows quite a different pattern of serialization

## 2.2    Shona Morphology as Prespecifying

Several areas of Shona morphology reveal patterns of prespecification, in particular cliticized objects and adverbs, as well as nouns and verbs:

| (38) | mufundisi | **a-no-va-batsira** |
|------|-----------|---------|
|      | SUB | **AGR-TNS-POB-VRB** |
|      | teacher | them-help |

'the teacher helps them'

Example (38) shows the verb -batsira with both the tense marker and pronominal object preceding the verb root. In Modern Shona, adverbs, as well, show an SOV construction in which the adverb precedes the verb it specifies:

| (39) | ADV-VRB | nd-a-ka-swero-funda |
|------|---------|---------|
|      |         | SUB(ASP)-TNS-ADV-VRB |
|      |         | I/PST-all day long-study |

'I studied all day long'

The adverb in example (39) not only specifies the verb root but the adverb is also a clitic: the adverb in the preverbal position is always affixed to the verb root.

Let us now examine the nature of the nominal morphology of Shona, which can be applied to Bantu nominals in general. Givón maintains that inflexional and derivational bound morphemes derive from historically free lexical morphemes. With the syntax of the language determining the order of these free lexical items, the syntax also determines the morphotactics of the evolving affixal morphology (Givón 1971:409). If we now apply this to Shona we can consider how it relates to the nominal morphology in terms of the Noun Classes. The morphemic nature of the Noun Classes in the Bantu

languages may be a reinterpretation of what had been at an earlier stage free lexical items, as the following Shona examples illustrate:

(40)    mu-kadzi
        NCL-NRT
        'woman'

(41)    *mu        *kadzi
        QLF        NOM
        one human    female

**Mukadzi** 'woman' is composed of a the singular morpheme **mu-** used only for humans, and the noun root **-kadzi** producing 'wife' or 'married woman'. The plural is expressed by replacing **mu-** with **va-:** the Noun Class employed for more than one human. It has been hypothesized that Noun Classes given by Bantu prefixes have characteristic semantic content. Further, evidence indicates that Proto-Bantu noun prefixes maintained a semantic system whereby each prefix was associated with a particular meaning (Denny and Creider 1983:217). Example (40) represents Modern Shona nominal morphology; however, a reconstruction based on Givón's claims produces (41) in which the noun root develops from a nominal, and the Noun Class develops from a qualifier. The position of the qualifier as preceding the noun producing QLF-NOM suggests a frozen morphology of an OV syntax, since prespecification is expected in OV languages. If we contrast this to the present VO word order evident in the postspecification patterns noted, the Noun Classes represent the earlier morphology of Bantu, which implies an earlier OV word order. Such word constructions are supported by both Greenberg (1966) and Givón (1971, 1975) in which OV word order in SOV languages show QLF-NOM nominalization. We can now compare this to other patterns found in the qualificative morphology of Shona.

A feature of Shona verbal morphology is the rich application of affixes giving the verbs new meanings producing a derivational morphology. We have also noted that Givón refers to such suffixes as verbal derivational suffixes or VDS. McCawley (1968) postulates that the lexicalization of causative-transitive verbs, illustrated by the derivation of causative affixes, may historically have risen from a main verb [CAUSE]. We can then analyse the suffixal morphemes as follows:

| (42) | fara 'happy' | fa-dza | [happy] | + | [CAUSE] | 'excite' |
|------|--------------|--------|---------|---|---------|----------|
| (43) | seka 'laugh' | se-tsa | [laugh] | + | [CAUSE] | 'amuse' |
| (44) | tenga 'buy' | teng-esa | [buy] | + | [CAUSE] | 'sell' |
| (45) | [CAUSE] | ---> | [AUX] | ---> | [SFX] | |
|      | kuita | *ita | -tsa | | | |
|      | 'to make' | 'make' | [CAUSE] | | | |
| (46) | [CAUSE] | ---> | [AUX] | ---> | [SFX] | |

The causative suffix in examples (42) to (44) reveals the same phonological process of assibilation. The verb in Modern Shona 'to make' **kuita** is a good candidate for the present causative suffix with its various allomorphs: the high front vowel followed by the

alveolar palatalized into /s/ ~ /dz/ ~ /ts/. The diachronic process is shown in (45): the position of the verbal causative led way to the development of the auxiliary (46) and eventually a suffix (SFX).

With the derivation developing in postverbal position, the verbal specifier, that is, the verb root, reflected the unidirectional pattern expected in natural serialization. In the case of Proto-Bantu the object preceded the main verb and thus, the main verb preceded the auxiliary. In Modern Bantu languages, the presence of modality suffixes is manifested through a vowel; this vocalic morpheme is reconstructible to Proto-Bantu, and due to the modal's final position, support for Proto-Bantu as SOV is maintained.

In additon to the postverbal affixes modifying the verb to produce a change of meaning, another means of producing such derivatives is through verb initial voicing. Such verb initial changes add an adverbial meaning to the verb such as the following:

(47)     kwiza 'rub'          --->     gwiza 'rub against'

(48)     tepuka 'sway'        --->     depuka 'great sway'

The verbs in (47) and (48) have an adverbial meaning with verb initial voicing. The position of sound change suggests a development from prefixal modification; in other words, the qualificative meaning preceding a verb supports a pattern of prespecification. Since adverbs prespecify the verb in OV languages, the voicing of Shona verbs producing an adverbial meaning implies the remnants of a frozen SOV morphology.[11] This preverbal modification further supports an earlier OV morphology since prespecification is once again evident. The examples presented above serve to illustrate how Modern Shona is postspecifying in word order, whereas its morphology betrays traces of prespecification. This is not surprising since Proto-Bantu has been reconstructed as SOV.

## 2.3     Proto-Bantu as Prespecifying

An analysis of the morphological pattern of prespecification in Shona requires an examination of Proto-Bantu. Such an examination will reveal Shona's morphological origins in Proto-Bantu syntax. Scholars, such as Givón (1971, 1975) and Hyman (1975) have provided evidence to support the SOV structure of Proto-Bantu and its diachronic development into SVO Bantu languages. Givón (1971:394) postulates that the normal syntactic order of the verb phrase in most Bantu languages is VO:

(49)     AGR-ATM-POB-VDS[12]

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[11] I am indebted to Robert Murray for this observation.

[12] Note: (i) where Givón uses COMP I use OBJ; (ii) Givón's M, in this case ATM, includes all three: aspect, tense and modal morphemes; (however, while a modal auxiliary may occur in this position, some Bantu moods are expressed only through a suffix, as in Shona -e, on the verb root with no modal auxiliary; Givón's M position can be reanalysed as ASP-TNS/MDD; (iii) the POB (Givón uses OP) refers to an anaphoric object pronoun; (iv) VDS is a

Givón claims that ATM and VDS 'have historically arisen from main verbs dominating sentential complements' (Ibid.). He also argues that main modals operating as modal prefixes is a recent process in Bantu, while the modal suffixes were reduced from modal verbs at a much earlier Proto-Proto-Bantu stage. At the time when the suffixal position of the verbal derivative developed from main verbs, Givón hypothesizes that the syntactic order in Bantu must have been OV.

### 2.3.1 Evidence from Swahili

Evidence of OV morphology in contrast to VO word order in Shona has been shown in sections 2.1 and 2.2. Patterns of VO word order and OV morphology are currently evident in other Bantu languages, such as Swahili:

(50)      **ni-li-ona**        **kitabu**
            **SUB-TNS-VRB**    **OBJ** (NOM)
            I-TNS-see          book
            'I saw the book'

(51)      ni-li-**ki**-ona
            SUB-TNS-**POB**-see
            I-TNS-it-see
            'I saw it'

The Swahili examples, as with the previous Shona examples, show the object as a nominal follows the verb (50), while the object as a pronominal is in preverbal position (51). The difference between the position of these two objects in both Swahili and Shona (and other Bantu languages) relates to the historical development of Bantu, as Givón points out. This development is evident by the presence of postverbal and preverbal ATM and VDS affixes, as well as the POB.

In addition to the OV morphology of object pronominals, Swahili shows an interesting case of relativization. While an "attraction principle" causes the relative pronoun to gravitate towards the position adjacent to the head noun, this is not always the case with Swahili (Ibid.).[13] In Swahili the verb **amba** 'say' adjacent to the head noun introduces the relative which is then suffixed to **amba**:

(52)      mwanamke     a-me-pika       mboga
            woman         AGR-ASP-cook   vegetables
            'the woman has cooked vegetables'

---

verbal derivative suffix. I have modified Givón's abbreviations to correspond to those which I have used throughout this paper.

[13] Givón provides examples from Bambara, a Mande language of Niger-Congo (data based on Karen Courtenay's work), as well as Bemba, a language closely related to Shona, to explain this "attraction principle".

(53)    mwanamke    amba-ye        a-me-pika        mboga
        woman       *say-REL       AGR-ASP-cook     vegetables
        'the woman who has cooked vegetables'

In the relative construction of (52) we find the relative pronoun -ye 'who' suffixed to the verb introducing the relative, but also separating the relative from the head noun. This is in contrast to the 'attraction principle' expected from relative pronouns. In instances where tense markers are present, the relative pronoun is suffixed to the tense marker:

(54)    mwanamke    a-li-pika        mboga
        woman       AGR-TNS-cook     vegetables
        'the woman cooked vegetables'

(55)    mwanamke    a-li-ye-pika            mboga
        woman       AGR-TNS-REL-cook       vegetables
        'the woman who cooked vegetables'

In example (55) where the past tense is expressed **amba-** is not used; instead, **-ye** follows both the agreement morpheme and the tense marker. The relative pronoun in this case is attached to a tense marker having been historically derived from verbs (Ibid.). Once again, the separation between head noun and the relative pronoun is not expected given the "attraction principle". Givón (1971:399) accounts for relativization in Swahili with three hypotheses: (i) Swahili had at an earlier stage of its syntax REL-NOM word order, that is OV; (ii) the relative pronoun arose at a time when it appeared as a verb suffix, which kept it next to the head noun; and (iii) the word order changed to NOM-REL, that is VO, while the OV relative pronoun morphology remained frozen. The OV morphology of Proto-Bantu can further be supported by an areal study.

### 2.3.2 Tunen and Bandem SOV: a Case of Geography
        Findings in support of an SOV word order for Proto-Bantu have also been provided by Hyman who brings evidence from two Bantu languages, Tunen and Bandem - both languages are still SOV (Hyman in communication to Hawkins 1983). Tunen and Bandem are languages spoken in isolated communities of the Cameroon grasslands. This region is the core from which the Bantu-speaking people penetrated into equatorial and subequatorial Africa between southeastern Nigeria and northwestern Cameroon. Accordingly, Tunen and Bandem would have remained conservative Bantu languages maintaining earlier SOV word order patterns. The SOV characteristics of Shona, Swahili, Tunen and Bandem are representations not only of Proto-Bantu word order, evident by the relics present in these languages, but also suggest an SOV word order of other languages in the Niger-Congo phylum.

### 2.3.3 Statistical Data
        The postverbal categories of Proto-Bantu are further supported by the findings of Hawkins and Gilligan (1988) who postulate language universals with regard to affixes. In Universal 12 (p.224) it is observed that when a language is SOV, mood affixes on V (if

any) are suffixed with greater than chance frequency. Perkens-Bybee (see Hawkins and Gilligan (1988) for sample analysis) shows 88% of SOV languages with mood affixes as suffixing, and Gilligan's sample show 93% of SOV languages with mood affixes as suffixing. In conclusion, both internal reconstruction, comparative evidence and statistical studies support the assumption that Proto-Bantu was SOV. This also supports Greenberg's universals. According to Greenberg's universals, SOV languages largely show auxiliaries following the verb with the largest number preceding the verb in SVO languages as expressed in Greenberg (1961:85):

(56)    Universal 16

>       . . . *In languages with dominant SOV, an inflected*
>       *auxiliary always follows the main verb.*

## 3.0    Review of problems

As outlined in section 2.1, in Modern Shona the dominant word order is SVO; i.e., the language is totally postspecifying. In section 2.2 it was maintained that Proto-Bantu was SOV. If Proto-Bantu is reconstructed as SOV, and Modern Shona is presently SVO, some explanation must account for the transition in word order. Such a transition must have taken place at some stage in the linguistic evolution of Proto-Bantu. Relics of the SOV Proto-Bantu word order in Modern Shona are evident in preverbal pronominals and adverbs. Furthermore, the presence of both preverbal and postverbal categories in Modern Shona implies a shift in the verbal morphology. The postverbal affixal position of the causative valence does not reflect SVO morphology because verbal specifiers are expected in a preverbal position in VO languages. Given the claims made by Bybee, Comrie and Vennemann indicated above, the verbal categories in postverbal position must represent relics of an earlier SOV word order. This leads to our problem regarding Shona, which is threefold: (a) why valence appears in postverbal position, while aspect-tense are in preverbal position; (b) the serialization of [aspect-tense] and verb root which appears to violate Bybee's predictions, since aspect is further from the verb root than tense; and (c) how the SOV to SVO shift occured.

## 4.0    Analysis

Proto-Bantu has been reconstructed as a prespecifying (SOV) language. In such a language valence, tense and aspect would appear in postverbal position:

             VALENCE
(57)    SOV   ASPECT
             TENSE

Similarly, the historical word order for Romance, Germanic and Sudanic languages was SOVAUX:[14]

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[14] Examples taken from Hock (1986).

(58) Latin
cuius pater . . . a senatu populi Romani amicus **appellatus erat**
                                                                   **MNV        AUX**
'whose father . . . had been called friend by the senate of the Roman people'

(59) Sicilian
la picilidda **vattiata è?**
             **MNV    AUX**
'has the baby girl been baptized?'

If we take Bybee's semantic hierarchy into account, we would expect the following serialization:

(60)    S O V   [VALENCE]   [ASPECT]   [TENSE]

Let us assume this as stage 1 for Proto-Bantu with each category expressed lexically. We know that lexical items, particularly auxiliaries, can be subject to morphologization over time. Auxiliaries are regularly found in postverbal position in SOV languages resulting in a suffix when the auxiliaries become morphologically bound, as in the following construction:

(61) Spanish
                amar-é
                MNV-FUT
                'I shall love'

In Spanish the future (FUT) **amaré** 'I shall love' is a construction built on the infinitival main verb (MNV) **amar**, and the auxiliary **hé** 'have.' The univerbation of the two shows the auxiliary having fused with the verb in the position preceding it. Such a process is common with Romance languages and reveals the fossilized position of the auxiliaries, and is thereby, suggestive of a morphology representing an earlier word order, namely that of SOV. In the linguistic evolution of Proto-Bantu to Bantu to Shona, postverbal categories undergo a process of morphologization reducing the lexical items to affixes. This process of morphologization often involves an intermediate clitic stage. The intermediary clitic stage can be illustrated by Germanic:

(62) Runic (pre-600 A.D.)
                flag da **faikinaz ist**
                         **MNV      AUX**
                'is menaced by evil spirits'

(63) Old English (post-600 A.D.)
                ni s            solu sot, ni s   Akse stAin   skorin
                AUX-CLITIC          MNV   AUX-CLITIC MNV
                'is not hit by the sun, the stone is not cut with a sharp stone'

The Runic example of pre-600 shows the auxiliary element in (62) ist as having been reduced by the post-Beowulfian period in Old English to s, as in example (63). Romance languages show a similar clitic development as illustrated by the present day French, Italian and Spanish:[15]

(64)     /a/ < habet (Latin) 'has'

The Latin **habet** has been reduced to the phonemic /a/ in the Romance languages. The erosion of the auxiliary results simply in a morphological sign, the clitic. From the clitic stage the process of change can further lead to an inflexional stage of affixation. The morphologization process in which clitics and affixes develop from words can be summarized as follows:

(65)     <u>**Morphologization**</u>

**word**

**clitic**

<u>cliticization</u>

morphological elements that have been
phonologically reduced; clitics cannot occur
by themselves, but lean on a host
(cf. Hock 1986)

**affix**

<u>affixation</u>

a derivational-inflexional stage in morphology
whereby a morpheme is bound to a free lexical
item; affixes are identifiable by set conditions
(cf. Anderson 1982; Zwicky and Pullum 1987)

The morphologization process in (65) shows how the clitic stage is an intermediary stage between the word and affix. If morphologization occurred at the Proto-Bantu stage, we would expect only postverbal affixes:

[15]Ibid.

(66)     VERB ROOT + [VALENCE] + [ASPECT] + [TENSE][16]

Morphologization, resulting in univerbation, does then seem to answer one of our questions; namely, valence, as a postverbal affix. I assume, then, that the valence as a postverbal affix resulted from the morphologization at the earlier SOV stage of Proto-Bantu.

    We are then left with the question of [aspect-tense].[17] To account for the preverbal position of [aspect-tense] in Modern Shona from the earlier postverbal position, another process requires consideration in addition to univerbation, namely that of the Principle of Clitic Placement:

(67)     Principle of Clitic Placement

> *The preferred position for sentence clitics is position 2*
> *of the phrase (cf. Hock 1986). (The shift that follows*
> *I refer to as AUX-Clitic Movement.)*

The Principle of Clitic Placement is also supported by Wackernagel's Law: the latter maintains that historically enclitics occupied the second position of a sentence (in Collinge 1985:217-223).

    The verbal categories aspect-tense underwent morphologization at the SOV stage; but rather than univerbation occurring between these two categories and the verb root to produce a postverbal affix, they fused onto each other, as commonly found in Canadian English:

(68)     I'd've been in Zimbabwe by now
         'I would have been in Zimbabwe by now'

The modal 'would' 'd and the aspect 've 'have' underwent univerbation followed by the phonological reduction and cliticization of the two auxiliaries. In Shona, the [aspect-tense] fused onto each other in their serialized position, which was followed by phonological reduction, whereby [aspect-tense] became clitics. These AUX-clitics then shifted into postsubject position as a result of the Principle of Clitic Placement, which takes us to stage 2. Since the movement to preverbal position occurred as a unit after the morphological serialization of [aspect-tense], aspect is further from the verb root than tense. Through the process of univerbation and the Principle of Clitic Placement we can answer another question; namely, the preverbal position of [aspect-tense] plus the unexpected serialization of these two categories.

    Now we can consider question three: the SOV to SVO shift. Hock (1986) maintains that the change of position 2 to a verbal position is brought about by "reinterpretation":

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[16] The + indicates an affix.

[17] The - indicates cliticization, and in this case, univerbation as well.

(69)     Reinterpretation

> *The new AUX-clitic position is then extended to*
> *include other auxiliaries, modals and any finite verb.*

Once auxiliary clitics have shifted to postsubject position an eventual pattern develops:
the verbal change of position 2 includes other auxiliaries, and ultimately, main finite
verbs, as shown below:

(70)     **Reinterpretation**

S  AUX-Clitic  O  V-

1      2      ◄——————— auxiliaries / modals / verbs [fin]
                                                    [main]

Reinterpretation thus leads to position 2 being interpreted as a verbal position.  This
brings us to stage 4 involving Behaghel's Law :

(71)     Behaghel's Law (in Collinge 1985:241-42)

> *Languages are inclined towards continuous rather than*
> *discontinuous constituents.*

This can be illustrated by French examples where position 2 is occupied by the auxiliary,
and position 3 is occupied by the main non-finite verb which is in contrast to Old French
where the main non-finite verb is in clause final position, and the auxiliary is in second
position:

(72)     Old French
         vertet  est    de terre      nee
                 AUX              MNV
         'truth is born from the earth'

(73)     Modern French

         la verité   est   née   de la terre
                 AUX  MNV

38

(74)    **Main Verb Shift**


S    auxiliaries / modals                          O
1              2                    3    ◄──────────── V [main]
                                                          [-fin]


Behaghel's Law expresses the preference for continuous constituents. As a result,
SAUXOV is possible only when the object is a pronoun. Old English testifies to the
possibility of SAUXOV: in sentences where the main clause is a declarative, the finite
verb is in second position but pronouns and adverbs may precede the verb, as shown by
the following (in Vennemann 1974:360):

(75)    Old English
                    se   papa   **hine**   neht   Petrus
                                **POB**
                    'this Pope him called Peter'


The example above shows the object pronoun **hine** immediately followed by the verb,
thus permitting an SAUXOV word order. With clitics, auxiliaries and finite verbs in
position 2, Behaghel's Law serves to bring the main verb into position 3. At this point
it can be concluded that a total verbal shift has taken place from SOV to SVO.
        Finally, once SVO word order is established, other word order patterns follow
according to the Principle of Natural Serialization since a unidirectional word order is
favoured. We have seen specification patterns, and evidence supporting Shona word order
as having serialized as SVO. The serialization of word order begins once the verbal
position is interpreted as position 2 / 3, in which specifiers follow accordingly. We can
now also provide an account of the complete SOV to SVO shift, which can be explained
by the following: (a) univerbation; (b) cliticization; (c) reinterpretation; (d) Behaghel's
Law; and (e) the Principle of Natural Serialization.


**5.0    Conclusion**
        Let us now return to Bybee's predictions. Bybee predicts that aspect would be found
closer to the verb root than tense, and at first, the Shona data appear to be a deviation
from Bybee's claims, given the position of the [aspect-tense] categories in relation to the
verb root. However, such a deviation can be interpreted as the result of diachronic change,
and in fact, the starting point of the analysis provides support for Bybee's position vis-à-
vis verb root aspect-tense at the SOV stage. Accordingly, we can provide a coherent
account of all the pertinent aspects of the development into Shona. The processes appear
in the following stages: stage 1 occurring at SOV with the univerbation of [verb
root+valence] and [aspect-tense]. This is also in accordance with Bybee's semantic
hierarchy since it shows the closer morpho-semantic relation between the verb root and
valence, but not the verb root and [aspect-tense]; stage 2 producing SOV > SAUX-

[clitic]OV as a result of the AUX-cliticization and AUX-Clitic Movement; stage 3 with the reinterpretation of the AUX-clitic position 2 as a verbal position for other auxiliaries, modals and finite verbs. Stage 3 is followed by Behaghel's Law, that is, stage 4: this stage brings the main verb[non-fin] to position 3. Finally, in stage 5, the Principle of Natural Serialization produces a complete shift in word order as shown in (76) below:

(76)

a  SOV  STAGE 1:          S  O  V[*ROOT* VALENCE]  [ASPECT   TENSE]
        UNIVERBATION            *(univerbation)*       *(univerbation)*

b  SAUX-cliticOV
        STAGE 2:          S[ASPECT-TENSE]O[V*ROOT* +VALENCE] +
        AUX -CLITIC          *AUX-clitic  < - - - -  - - - - - - - - - - - - - - - -(shift)*
        MOVEMENT

c

S $\begin{cases} \text{AUX} \quad \text{OV} \\ \text{V [+fin]} \quad \text{O} \end{cases}$

        STAGE 3:
        REINTERPRETATION

S $\begin{cases} \text{[ASPECT-TENSE] O  V } ROOT \text{ +VALENCE} \\ \text{V}_{\text{[+fin]}} \qquad\quad \text{O} \end{cases}$

d  SAUXVO
        STAGE 4:          S [ASPECT-TENSE]+[V+VALENCE] O
        BEHAGHEL'S    1                   2                  3
        LAW

e  SVO  STAGE 5:          *consistent postspecification*
        PRINCIPLE OF
        NATURAL SERIALIZATION

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# On the "pre-history" of Romance linguistics: precursors of Friedrich Diez

Herbert J. Izzo
Department of Linguistics
University of Calgary

ABSTRACT. It is received opinion that Romance linguistics is a scientific discipline that begins with Friedrich Diez, who in his *Grammatik der romanischen Sprachen* (1836-43) first applied to Romance the principles and methods of IE comparative linguistics newly developed by Rask, Bopp, and Grimm. In fact, however, many of the innovations attributed to Diez (and his Indo-Europeanist contemporaries) were anticipated by now-forgotten predecessors like Pierre Nicholas Bonamy (1694-1770), Carlo Denina (1731-1813), and Carl Ludwig Fernow (1763-1808). It even seems probable that the concept of an Indo-European proto-language and the IE family tree was indirectly inspired by the generally recognized relationship between Latin ("Proto-Romance") and its "daughter languages", French, Italian, Spanish, etc., and that the beginnings of IE linguistics owe at least as much to Romance linguistics as Diez's Romance linguistics owes to the Indo-Europeanists.

According to a tradition that goes back more than a century to G. Ascoli (1829-1907), Romance linguistics as a scientific discipline begins with the *Grammatik der romanischen Sprachen* of Friedrich Diez (1st ed. 1836-43), which was the product of the applications of views, methods, and procedures developed in the first decades of the Nineteenth Century by Bopp, Rask, and Grimm, who in turn were inspired by the discovery of Sanskrit by William Jones and its diffusion especially by Schlegel. An overly simplified, almost mythologized history of linguistics, which comes to us North Americans through Holger Pedersen's *The Discovery of Language*, Bloomfield's *Language*, and John T. Waterman's *Perspectives in Linguistics* (as well as through a number of introductory linguistic textbooks, etc.) would have it that with one flash of insight Sir W. Jones in 1786 perceived or intuited a previously unsuspected relationship between Sanskrit and the languages of Europe and that this insight was the seed that grew to a flower (or should I say a tree?) in the works of Bopp, Rask, and Grimm who created the historico-comparative study of Indo-European and thereby replaced the Eighteenth Century ignorance and confusion about languages by modern scientific linguistics.[1] Many Romance scholars have been willing to accept not only that IE comparativism is the creation of Bopp, Rask, and Grimm but that the creation of Romance linguistics

follows and is dependent upon their works. Hence we read in Iorgu Iordan's *Romance Linguistics, Its Schools and Scholars*: "[u]ntil the early 19th century there is no scientific scholarship in the field of Romance linguistics" (introduction sentence, p.3); "[o]ur discipline really begins only after 1800, when, with the discovery of Sanskrit, Indo-European linguistics begins" (p.8); "[w]e cannot talk about Fr. Diez, the real founder of Romance linguistics without first mentioning his precursors in related fields. In 1816 Franz Bopp published his *Über das Konjugationssystems der Sanskritsprache*, which initiated the comparative method and so gave rise to the scientific study of the Indo-European languages" (p.15); "[t]aking as his point of departure the works of Bopp and Grimm, F. Diez published his *Grammatik der romanischen Sprachen*, in which he applied the comparative method of the first and the historical method of the second" (p.18).[2]

Maurizio Vitale in *Prehistoria e storia degli studi romanzi* is equally emphatic: he calls the third chapter of his study simply "La linguistica scientifica" and devotes its twenty pages to the propositions that Schlegel, Bopp, Rask, and Grimm created comparative linguistics (which equals scientific linguistics) and passed it on to Diez. Comparative Indo-European may therefore be said to have been born with Bopp.[3] And more recently Robert Hall, in his brief history of Romance linguistics which constitutes the last chapter of his *External History of the Romance Languages* (1974) states without qualification that "[t]he title of founder of Romance linguistics must be given to Fr. Diez".[4] On the other hand, the possible contributions of Romance linguistics to general and to IE linguistics are not even mentioned.

I wish to argue that the contribution of the early IE comparativists to Romance linguistics and even to linguistics in general has been greatly overestimated and the work of certain of their predecessors, especially in Romance, has been much underestimated (In fact the three scholars whom I wish to call attention to were, until very recently, entirely forgotten by the history of linguistics).

Perhaps to begin with, we should ask ourselves why historico-comparative linguistics should be identified with scientific linguistics. It is quite possible to do non-historical linguistics scientifically and also to do historical linguistics scientifically. To claim that only the comparative method is scientific and that no scientific (i.e. sound, objective) study of language existed before its development is narrow-minded and even absurd.

But let us grant that the development of the comparative method and the recognition that such dissimilar languages as Welsh and Hindi come from the same source are intellectual achievements of a very high order. Are they in fact the achievements of a mere three or four scholars during the first two decades of the Nineteenth Century? And more important to me as a Romance linguist, was the course of Romance linguistics really begun by the discovery of Sanskrit and the publication of *Über die Sprache und Weisheit der Indier* (1808), *Über das Konjugationssystem der Sanskritsprache* (1816), and *Deutsche Grammatik* (1819)?

Already in the Sixteenth Century it was established beyond doubt that French, Italian, Spanish, and Portuguese were descended from Latin. For example, Benedetto Varchi wrote in 1565 that we rightly call French and Spanish sisters of Italian for they all have the same mother, Latin (cf. Izzo 1976); and Juan de Valdés comments that Spanish is merely Latin somewhat corrupted by contact with Gothic and Arabic.[5] Though there were (and still are) disagreements about the relationships between formal, classical Latin and the *sermo cotidianus* or *vulgaris* form which the Romance languages derived, only the occasional eccentric or Celtomaniac questioned the Latin origin of any of the Romance languages (except Romanian, which for a long time was simply unknown in the West; and even Romanian was established as a Romance language sixty years before Diez [by J. Thunmann, 1774]). Obviously then, and not surprisingly, the idea that the Romance languages had a common source was not borrowed from Bopp, Rask, or Grimm. What is surprising — in view of received doctrine — is that the IE hypothesis (if I may call the idea by its modern name) did *not* originate with Bopp or Jones. Carlo Denina (1731-1818), whose linguistic work has been completely ignored and forgotten for almost a century, claimed in a paper written several years before Jones' famous pronouncement that all the modern languages of Europe came from Latin, Greek, Slavonic, or Germano-Celtic and that these four had come from a single language once spoken in the Caucasus, from which Persian and Sanskrit had also derived. This proto-Indo-European avant-la-lettre Denina called Scythian (cf. Izzo 1985, Marazzini 1985).

Denina, as I indicated earlier, was like the other two authors I shall discuss, entirely forgotten by the history of linguistics for eighty years. He was born in 1731 in a small town in the North Italian region of Piemonte, which at that time was an independent state, the Kingdom of Sardinia, with its capitol at Torino. He entered the Church at an early age, but soon became a professor of Greek literature, then author of a very successful survey of European literature, and soon after that of a controversial work on the history of Italy, which cost him his professorship and internal exile because of his criticism of the role of the Church in Italian society. In 1782 Frederic II invited him to Prussia to be a member of the famous Berlin Academy, and it was there (while also preparing a survey of German literature and a four volume history of Germany) that Denina presented a series of papers on language that he later put together to form the three volume book *La clef des langues*. Whole sections of that work are devoted to etymologies which are intended to demonstrate the relationship among the four European branches and in some cases also their relationship with Persian or Sanskrit. While some of these etymologies are grossly and naïvely mistaken, many show real insight. Consider, for example, Denina's recognition that Latin *hortus*, English *yard*, German *Garten*, and Slavic *grad/gorod* are all the same word; or the following passage: "I don't know how the Scythians may have said the word which in Greek is *pyr*; but we see that *pyr* has become *Feuer* in German and *fire* in English. But another word which also meant 'fire' in Asia spread into Eastern Europe and replaced the word *pyr*; Sanskrit *akni* is *ogien* in Slavic [Polish] and *ignis* in Latin. The daughter languages of Latin have replaced *ignis*

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by *focus*, taking the container for the content".[6] This passage shows that Denina was by no means stupid or naïve.

Denina's concept of IE (Scythian) is not identical to our own. For one thing, the Baltic languages don't figure in it at all, and he thinks Gothic is Proto-Germanic. On the other hand, unlike some Indo-Europeanists, he is not tempted to call Sanskrit or any other attested language the *Ursprache*. All the languages we know about, he says, come from earlier languages. There are no primitive languages — except perhaps in America.

But to return to the surprising age of the IE hypothesis, Denina states both in his preface and near the end of volume I that resemblances between Persian and the languages of Europe were recognized long ago:

> Depuis deux siècles qu'on commence à faire des recherches sur l'origine des langues, les auteurs qui s'en sont occupés ont trouvé dans la langue latine des rapports frappants avec la persane, ainsi qu'avec l'allemande et la flamande. Dernièrement le père Paolino Carme déchausse Hongrois, après avoir établi que l'ancienne langue persane est au fond la même que celle qu'on nomme Samscridamique, a donné une assez longue liste tant de noms que de verbes de cet idiome, qui ressemblent en tout point aux latins, à quelque diversité près d'orthographe, suite certainement de la différence de l'accent. Quand même on supposeroit que quelques uns de ces mots peuvent avoir été portés dans l'Inde par des missionaires chrétiens européens, la plus grande partie cependant présentent la racine incontestable du mot latin. Mais ce qui est à remarquer c'est qu'ils l'ont aussi commune avec les mots grecs et avec les allemands. Cela vient puissamment à l'apuy de ce que nous avons avancé sur l'origine commune de ces langues.... (Denina 1804:1, 378).

In view of the reverence with which we regard Jones' famous statement in 1786, Denina's "two centuries" seems impossible; but recently George Metcalf (1974), in a very interesting article, has shown that the IE (Scythian) hypothesis was in fact current more than 100 years before Denina.

> An ancient language, once spoken in the distant past in the area of the Caucasus mountains and spreading by waves of migration throughout Europe and Asia, had itself ceased to be spoken and had left no linguistic monuments behind, but had as a "mother" generated a host of "daughter languages", many of which in turn had become "mothers" to further "daughters" (for a language tends to develop dialects, and these dialects in the course of time become independent, mutually unintelligible languages). Descendents of the ancestral language include Persian, Greek, Italic (whence Latin and in time the modern Romance tongues), the Slavonic languages, Celtic, and finally Gothic and the other Germanic tongues.

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The similarity with views held today concerning the Indo-European family is obvious despite certain quaintnesses:

> Yet the views are the summary of a public lecture delivered in 1686 in Wittenberg, Germany (and published there that same year) by one Andreas Jäger. Far from being new or sensational, they are highly derivative and typical of at least one important strand of linguistic tradition in Northern Europe during the sixteenth and seventeenth centuries (Metcalf 1974:233).

If the relatedness of the IE languages because of descent from a common ancestor is not a discovery of the beginning of the Nineteenth Century, one might suppose that at least the method of proving relatedness by means of regular sound correspondences is. But this does not seem to be the case either. Schlegel speaks only of shared vocabulary and, especially, of grammatical similarity. Rask wrote "[a] language belongs to the same branch as another if it has in common with it the most essential, most concrete, most common words" but "[g]rammatical similarity is a much more certain indication of relatedness or original identity, because a language rarely or never borrows morphological changes or inflexion from another". Rask does in fact speak of regularity of sound (letter) correspondences, but he does not put it in first place for proof of relatedness as we do today. While regularity of sound correspondences is assumed, the *insistence* that sound correspondences *must* be regular and that apparent irregularities must be explained as phonetically conditioned subrules or as due borrowings or analogical levelling develops considerably later. Denina's position was inconsistent, or perhaps transitional. On the one hand, he lists a number of universal sound affinities — sound substitutions that may occur in any language at any time; on the other hand, he generally assumes regular sound change for specific languages at specific times. For example, he says about Spanish,

> When *f* was initial, Castile changed it to *h* in all the words that came from Latin and were in common use, like *filio*, which became *hijo* and *herir*. The Spanish words in which the letter *f* is found were introduced by learned people after the common people had already formed the body of the language; or they were taken from Aragonese, which had retained it.[7]

This passage takes in all the points that we consider today: the change occurs in a particular phonetic environment (word initial); it occurs in one particular dialect (Castilian but not Aragonese); it affects all words that were in the dialect at the time of the change (words that do not show the sound change must be either learned or dialect borrowings).[8]

I have tried to show that the early Nineteenth Century was a less miraculous period in the development of linguistics partly by alleging that some of what has been credited to it actually existed earlier and partly by claiming that some of what we attribute to it did not come about until later. There are still other negative aspects to be mentioned. The early Indo-Europeanists did not bother to learn anything about phonetics;

they were content to talk about changes of letters and seemed to know nothing about such simple phonetic processes as voicing, palatalization, spirantization, etc. They looked upon linguistic evolution as decay, hoping that by going back to older and older stages of IE they were getting nearer to its original perfect state. Because they considered decay inevitable, they did not seek causes of linguistic change. Because they were interested only in the oldest stages of the IE languages, they concerned themselves only with written records and did not deal in the descriptions of living languages and dialects, or with the relationship of dialects to national languages. They considered inflecting languages intrinsically superior to isolating languages, and they thought that peoples using different types of language structure had the supposed superiority or inferiority of the languages they spoke. Since inflecting languages were superior languages, IE speakers were a superior race.

Romance linguists, perhaps because they studied living languages and because their proto-language was a fairly understood entity rather than a mysterious and mythical entity lost in the obscurity of dim and distant past, generally had ideas and attitudes that seem saner and sounder today. Denina, for example, conjectured that the "barbarians" among whom the Latin poet Ovid was forced to live probably found his polished Latin just as strange and disagreeable as he found their language; and he comments further that "[i]t is quite natural that each person finds richest and most beautiful the language that he has the best mastery of; and it also seems natural that every language has all the words necessary to name all the things known to the nation that speaks it. Aside from their more or less noble or ancient origin, the words of every people are equally pure, proper, and expressive". Likewise for Denina the dialects of the Romance languages are not corruptions of the national language but sisters to it, born from the same mother at the same time. The rise of one of them (e.g. the dialect of Florence in Italy) to the status of national language is due to the cultural superiority or political and economic strength of the region that uses it. Likewise Carl Ludwig Fernow and Pierre-Nicholas Bonamy have very modern attitudes towards dialects.

Fernow, who was born in a small North German town in 1763 and died in Weimar in 1808, went to Rome in 1794 to study art history and returned to Germany an expert on Italian language and dialectology. His two volume *Italienische Sprachlehre* (Tübingen, 1804) is one of the most complete descriptions of Standard Italian ever written, and the third volume of his *Römische Studien* (Zurich, 1808) contains the first (and for a century the only) detailed survey of Italian dialects. Among other things Fernow deals with the possible influence of pre-Roman (or substratum) languages and the Germanic invasions (or superstratum languages) on the evolution and differentiation of the Romance languages. In his long and impassioned defense of dialect study he suggests that instead of puristic language academies (like the Académie Française) whose effects are entirely deleterious, there should be academies of dialectology, which could help us to understand language and language history.[9]

Bonamy (1694-1770), the earliest of the three scholars mentioned at the beginning of this paper was, like Denina, chiefly an historian. He is somewhat less in need of rediscovery since he is at least mentioned in one recent survey of Romance linguistics, since his total linguistic output was small, and since it was republished in its entirety (by Jörn Albrecht) in 1975. Some things about him seem worth mentioning however: in a time and place of linguistic elitism he studied the living speech of French peasants for the light they could throw upon the history of the language and was able to notice that the despised patois of Southern France were more like the parent Latin than standard French; in a period of rational grammar, when speech seemed less important than writing, Bonamy distinguished carefully between sounds and letters; and he seems to have been the first to reconstruct hypothetical proto-forms for Romance words whose etyma could not be found in Latin.

This paper has not, of course, considered all the precursors of Friedrich Diez or of IE comparativism;[10] but I hope that by pointing out (a) that the relatedness of Germanic, Slavic, Italic, Hellenic, Iranian, and Indic was recognized well before the beginning of the Nineteenth Century, (b) that regularity of sound change was assumed and exceptions to regularity were explained as they are today, and (c) that the known descent of the Romance language from their known proto-language, Latin (and the reconstruction of unattested Proto-Romance [Latin] words), provided the model for the postulation (and reconstruction) of Proto-Indo-European, it has shown that the work of Bopp, Rask, and Grimm was not a new departure and the beginning of "scientific linguistics" but merely the further development, solidification, and codification of ideas that had been known to students of language for some time.

# NOTES

[1]     Cf. Pedersen 1931:1-13, Bloomfield 1933:14f, Waterman 1970. There is, of course another view of the history of linguistics, set forth in Chomsky 1966 and 1968 and treated as received doctrine in Newmeyer 1980, according to which the current of linguistics which supposedly ran from the beginning of the Nineteenth Century to the middle of the Twentieth Century was an unfortunate, entirely wrong-headed deviation from the path of true scientific linguistics that had started with Descartes and Port Royal and was revived by Chomsky 1957. For refutation of this version of the history of linguistics cf. Aarsleff 1970 and 1971, Hall 1981, Izzo 1976, Koerner 1983.

[2]     This book was originally written more than half a century ago, but the editor-authors of the recent revised and updated versions in English (1970) and Spanish (1967), Rebecca Posner and Manuel Alvar have not thought it necessary to modify these judgements.

[3]     "Con il Bopp può quindi considerarsi nata la linguistica comparata indoeuropea; sull'esempio e per l'insegnamento di essa sorse la linguistica romanza che trasse da quella, nel metodo e nella impostazione, le lezioni più significative. Successivamente la linguistica romanza, operando su lingue le cui fasi di origini e di sviluppo sono storiche e attestate, escogitò altri principi e altri metodi che la resero autonoma e le consentirono grandi progressi; ma alle sue origini essa si ispirò ai metodi e ai principi della linguistica indoeuropea, alla quale sola spetta d'aver dato origine alla linguistica scientifica" (Vitale 1955:98).

[4]     "Diez' method was essentially that of his contemporaries: Rasmus Rask, Jakob Grimm, and Franz Bopp in Indo-European comparative linguistics" (Hall 1974:235).

[5]     Cf. also J. J. Scaliger (1540-1609), who classified the Romance languages as daughters of Latin and who also set up Germanic and Slavic families (*matrices*), although it apparently did not occur to him that these families were related to each other.

[6]     "Je ne sais pas comment les Barbares asiatiques ont pu orthographier le mot qui chez les Grecs est *pur*, mais nous voyons que ce *pyr* est devenu *Feuer* chez les Germains, *fire*, prononcé *faïre*, chez les Anglois, ...Cependant un autre monosyllable qui dans l'Asie signifioit aussi *feu*, se répandit dans l'Europe orientale, et remplaça le mot *pyr*; *akni* samscridamique devint *ogien* en esclavon, *ignis* en latin. Les langues filles de la latine, lui ont substitué *focus*, prenant le contenant pour le contenu" (Denina 1804:1.xxvii).

[7]     "Lorsque l'*F* étoit initial, le Castillan l'a changé en *H* dans tous les mots venus du latin, et qui étoient fort usités et inévitables, comme dans *filio*, *ferire*, dont il fit *hijo*, *herir*. Les noms et les verbes espagnols, où cette lettre *F* se retrouve, ont été introduits par les gens lettrés, après que le peuple ignorant avoit formé le corps de la langue; où etoient pros des Aragonois dont l'organe l'avoit retenue (Denina 1804:1.27).

8       But it is important to keep in mind that already in the Sixteenth Century Claudio Tolomei (1492-1555) had established precisely these same points, as Robert Hall has pointed out several times (most recently in Hall 1974:231f).

9       For more on the life and work of Fernow see Izzo 1976c, Thun 1976.

10      Most in need of reconsideration by Romance scholars is, I believe, François Raynouard (1761-1836), who has not been entirely forgotten but is remembered only for his work on Old Provençal poetry. His views on the origins and relationship of the Romance languages have been misunderstood and therefore disparaged. (cf. Hall 1974:235)

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# The autosegmental distinction of tonal language types: with specific reference to Chilcotin tone phenomena

Camille Owens
University of Calgary

A distinction has been drawn in phonology between two types of languages which exhibit tone phenomena. Languages are traditionally categorized as pitch accent or tone languages. Proponents of autosegmental phonology have captured these categories or language types by employing a separate method of tone association for each. Chilcotin is an Athaspaskan, language, spoken in the mid-interior region of British Columbia. It exhibits tone phenomena, although whether it belongs to the category of pitch accent languages or to the category of tone languages is debatable. In the course of this paper, some of the traditional features of these two types of tone phenomena will be examined in an attempt to categorize, accordingly, the Chilcotin language. The ability of autosegmental phonology to accurately account for the data provided by Chilcotin, will then be evaluated.

The behavior of tone in tone languages is similar to the behavior of most segmental features, in that it is phonemic. Most syllables of most words are associated with a tone of some sort in the lexicon, (sometimes enclitics or unstressed morphemes are excepted), and can be contrasted with other syllables or words associated with another tone. These tones are usually subject to sequential constraints. They can be affected by the segments to which they are assigned, or the neighboring segments, and they generally undergo such phonological processes as tone assimilation and dissimilation. Generally, there are more than two pitch levels involved in the tone behavior of tone languages, (Hyman 1975).

Pitch accent languages, on the other hand, generally use a given pitch, (or tone), to indicate prominence of a given syllable within a word. Tone is used in a prosodic function in pitch accent languages. Only one prominent tone or marked tone is associated with each word, and although it does occur, tonal contrast is not a fundamental part of pitch accent languages. Not every pitch accent language marks the prominent tone in the lexicon. It may be assigned by a phonological rule, in which case the surface realization should be regular for all words, (eg. always on the penultimate syllable). If the prominent tone is marked in the lexicon, usually it is because it cannot be predicted by a phonological rule. Tones in pitch accent languages do not tend to undergo the phonological processes of tone assimilation and dissimilation, and indeed the presence or absence of tone in pitch accent languages can be said to influence segmental changes. Finally, pitch accent languages generally only associate one pitch level or tone with primary prominence, and possibly another with secondary prominence. Further distinctions of pitch level are not common in pitch accent languages, (Hyman 1975).

Before examining the tone processes of Chilcotin, some preliminary comments on morphology and phonology of the language, are necessary. First, the tone processes of Chilcotin which will be examined here are only those involved in the verb morphology

of the language. Although the processes are morphophonemic, it is assumed that they are characteristic of other tone processes in other areas of Chilcotin morphology.

All the data and information about Chilcotin, provided here, are taken from Cook, (1989). According to this article, Chilcotin is a prefixing language, with an extensive verbal morphology. The relative positions of the verb stem and its prefixes are illustrated in diagram 1.1 below.

## Diagram 1.1

### Chilcotin Verbal Prefix Positions

```
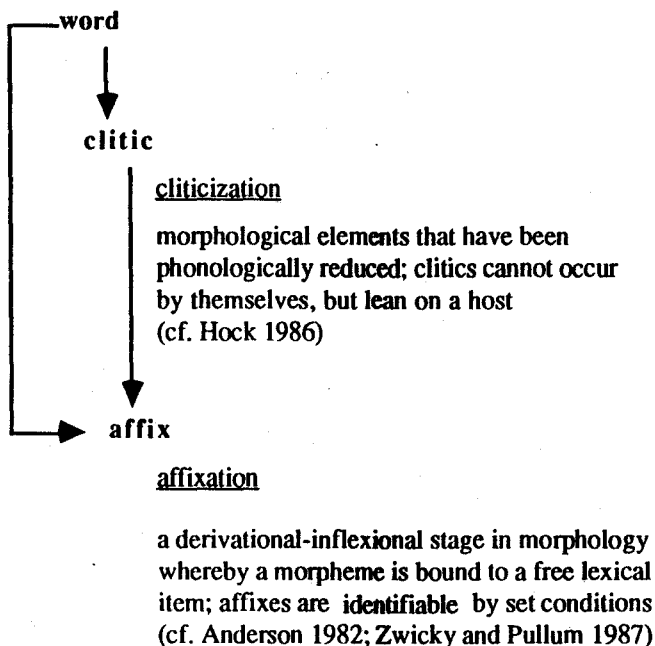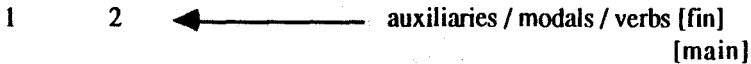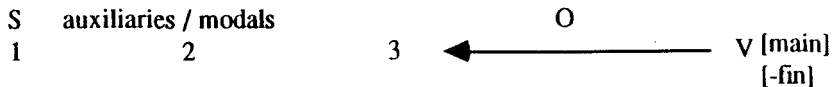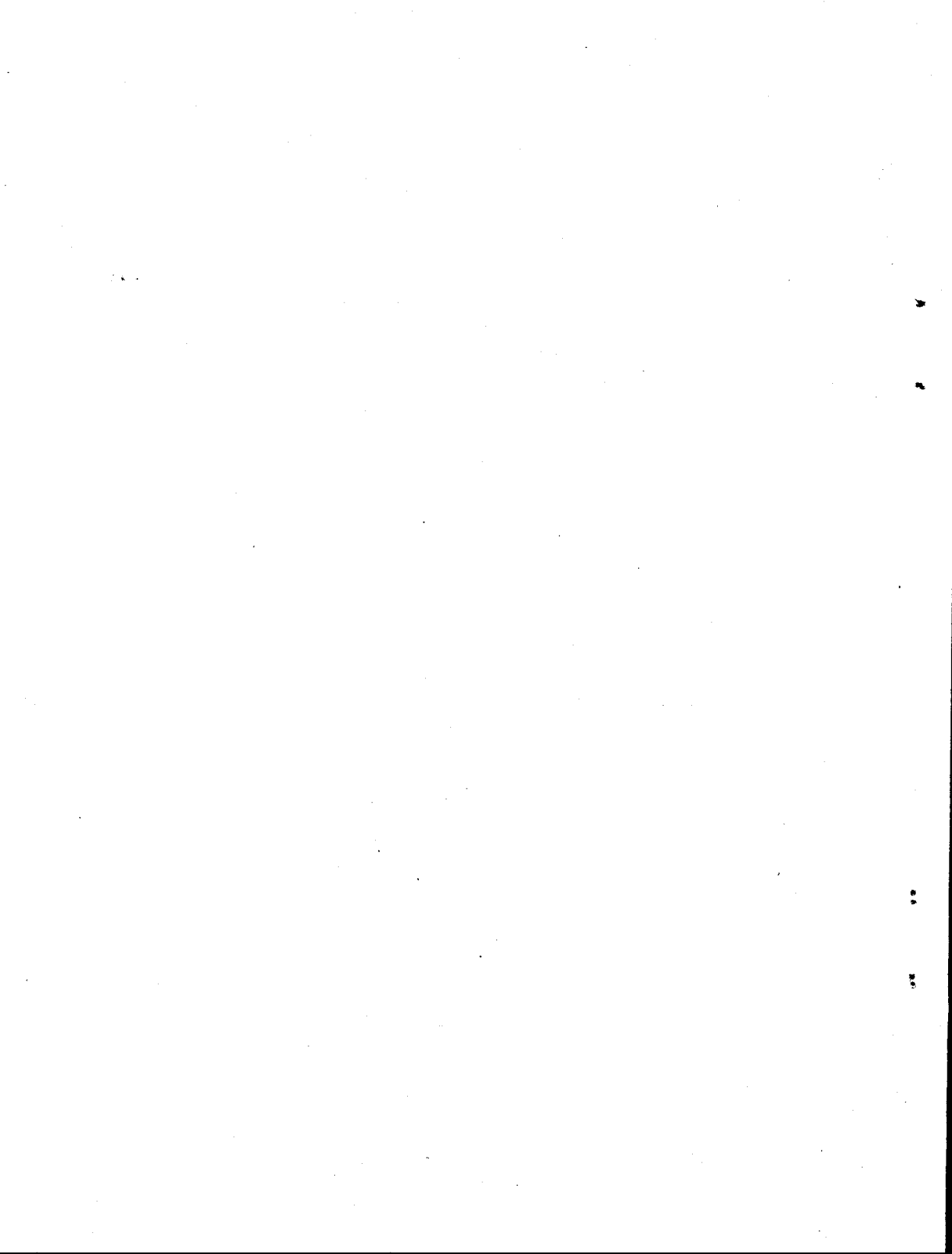#
##
+   6   5   4   3   2   1   0

      | | | | | | |
                                               verb stem
                                        classifier
                                 subject   Ø
                                 s- (1sg)   ɬ-
                                 ne- (2sg) ɬ-
                                 íd- (1dp) d-
                                 h- (2dp)
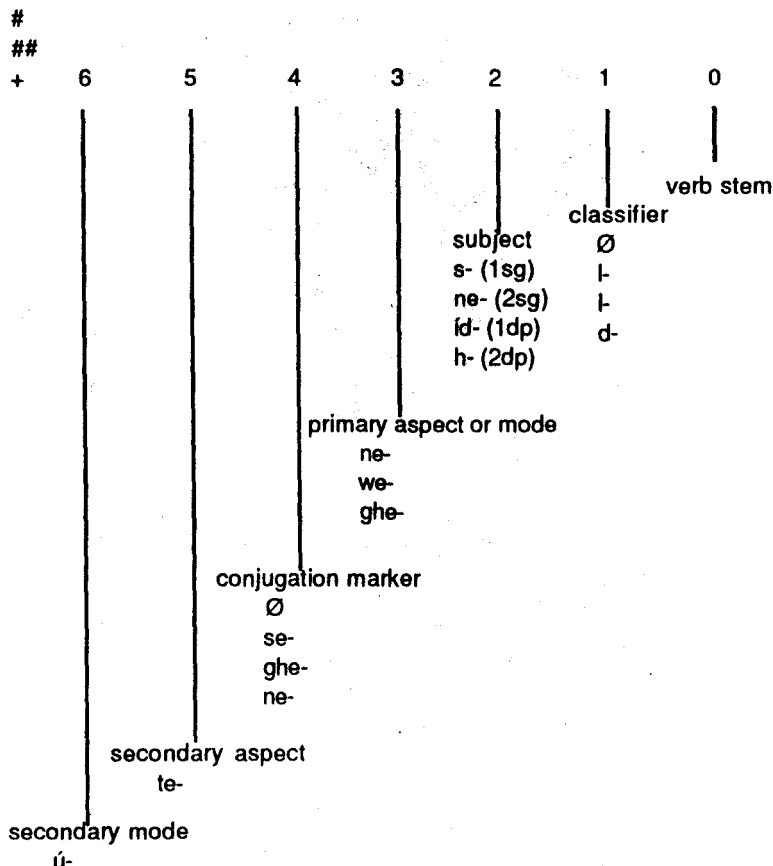
                          primary aspect or mode
                                 ne-
                                 we-
                                 ghe-

               conjugation marker
                      Ø
                      se-
                      ghe-
                      ne-

        secondary aspect
              te-

secondary mode
      ú-
```

Since it is not the purpose of this paper to provide an exhaustive description of the phonological processes that occur in Chilcotin, some of the processes referred to in Cook, (1989), will not be mentioned here. Those that will be mentioned are intended to provide the mechanisms necessary to understand the changes which occur between the

phonemic level and the phonetic level in the data which will be provided later. With this in mind the following phonological processes are listed in order so that a bleeding and / or feeding order is indicated.

## 1. Epenthesis

When the prefix following a disjunct boundary, (##), is not syllabic, epenthetic [he-] is added after the boundary. When the prefix is only a vowel, epenthetic [h-] is added. Only the second phenomenon will be encountered in the data examined here. This process is illustrated in the following word:

| a) | /- ú | - ne | - s | - d | - yan/ | --〉 | [húnèsjàn] |
|---|---|---|---|---|---|---|---|
| | mod | - perf | -1sg | - cl | - shy | | |
| | 'I am shy' | | | | | | |

## 2. Metathesis and Tensing

ne- (2sg, subject prefix), ne- (perfective prefix) and ŝe- (conjugation marker), become metathesized when they are in an internal position in the verb prefix complex, as illustrated by the following word:

| b) | /ne | - ne | - bin/ | --〉 | /ne | - en | - bin/ |
|---|---|---|---|---|---|---|---|
| | perf | - 2sg | - swim | | perf | - 2sg | - swim |
| | 'You swam' | | | | | | |

As a result, the vowel /e/ of these prefixes may come into contact with a preceding /e/ as it does in the above example. This triggers a tensing rule which states that if the boundary between the two vowels is the + conjunct boundary, they collapse into a single [e], or if the boundary between the two vowels is the - conjunct boundary, they collapse into the vowel [i]. In the case of the example above the boundary is the - conjunct boundary and thus the vowels collapse into [i]:

| c) | /ne | - en | - bin/ | --〉 | [nĭmbĭn] |
|---|---|---|---|---|---|
| | perf | - 2sg | - swim | | |
| | 'You swam' | | | | |

## 3. Nasal Assimilation

A nasal consonant becomes co-articulated with the following stop consonant. This was seen in example c) above, where, after metathesis the /n/ of the 2sg morpheme /ne/, becomes assimilated in point of articulation with the /b/ which it precedes, making it a bilabial nasal or [m]. The example from c) is repeated in d) below:

| d) | /ne | - en | - bin/ | --〉 | [nĭmbĭn] |
|---|---|---|---|---|---|
| | perf | - 2sg | - swim | | |
| | 'You swam' | | | | |

## 4. Lax Vowel Deletion

A lax vowel is deleted when it comes into hiatus with a tense vowel.[1]

e)　　/ne　　　　- ne　　- íd　　- qa/　　--⟩　　　[nèníqà]

　　　　p4 prefix[2]　　- perf　　- 12sg　- sew

　　　　'you and I sewed'

## 5. D - effect

/d/ is either deleted before a stop or an affricate (f), or else it combines with a continuant to form an affricate (g).

d-deletion

f)　　　　/ne　　- i̱d　　- bin/　　　--⟩　　　　[níbín]

　　　　perf　　- #12　　- swim

　　　　'you and I swam'

d-affrication

g)　　　　/ú　　- ne　　- s　　- ḏ　　　- yan/　　--⟩　　　[húnésjàn]

　　　　mod　　- perf　- 1sg　- cl[3]　　- shy

　　　　'I am shy'

There are two level tones in Chilcotin; high (H) and low (L). Low tone is considered to be the default tone, while high tone is considered to be marked in the lexicon. There are two different types of behavior associated with the marked high tone in Chilcotin verb paradigms specifically. One marked high tone spreads to the right, causing tone assimilation in all of the following syllables. This process is blocked in syllables where the coda is a nasal consonant, but it is promoted in syllables where the onset is a tense (fortis) consonant, and the nucleus is a high front vowel, regardless of the coda. The second marked high tone is associated only with the first person duo-plural, (12), subject prefix, 'id-'. This high tone causes a reversal of the tonal value of the vowel in the syllable immediately to its right, which is the vowel of the verb stem. That is, if the stem tone is low underlyingly, it becomes high after the 12 subject prefix; if it is high underlyingly, it becomes low after the 12 subject prefix. This second process appears to occur even when the vowel of the 12 subject prefix, which was originally

---

[1] With the intent of accounting for regular correspondences of the vowel phonemes, Cook (1989: 148), has drawn the following tense/lax vowel contrasts for Chilcoltin:

Tense: i, u, a

Lax: ɨ, o, e

[2] p4 indicates prefix position 4 as indicated in diagram 1.1.

[3] cl indicates a classifier as indicated in diagram 1.1.

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associated with the high tone, is deleted due to phonological processes. Finally, low tone is associated with any vowel which is not already associated with a tone. These processes are illustrated in the examples below.

High tone spreading

ná-; p2 prefixes; -bish, 'swim'(customary)

| | | | |
|---|---|---|---|
| 1 | /ná#s-bish/ | --) | násbĭsh |
| 2 | /ná#ne-bish/ | --) | námbĭsh |
| 3 | /ná#ø-bish/ | --) | nábĭsh |
| 12 | /ná#íd-bish/ | --) | nábĭsh |
| 22 | /ná#h-bish/ | --) | náhbĭsh |
| 33 | /ná#je+ø-bish/ | --) | nájébĭsh | (Cook 1989: 188) |

Low tone reversal

ne-, p4; p2 prefixes; -bin, 'swim'(perfective)

| | | | |
|---|---|---|---|
| 1 | /ne-i-bin/ | --) | nĭbĭn |
| 2 | /ne-ne-bin/ | --) | nĭmbĭn |
| 3 | /ne-in-bin/ | --) | nĭmbĭn |
| 12 | /ne-íd-bin/ | --) | níbĭn |
| 22 | /ne-h-bin/ | --) | nèhbĭn |
| 33 | /je+ne-in-bin/ | --) | jènĭmbĭn | (Cook 1989:184) |

High tone reversal

ne-, p4; ne-, p3; p2 prefixes; -qâ, 'sew'(imperfective)

| | | | |
|---|---|---|---|
| 1 | /ne-ne-s-qá/ | --) | nènèsqá |
| 2 | /ne-ne-ne-qa/ | --) | nèninqá |
| 3 | /ne-ne-ø-qá/ | --) | nènèqá |
| 12 | /ne-ne-íd-qá/ | --) | nèníqà |
| 22 | /ne-ne-h-qá/ | --) | nènèhqá |
| 33 | /ne-je+ne-ø-qá/ | --) | nèjènèqá | (Cook 1989: 184) |

Before providing an autosegmental analysis of this data, a few of the assumptions made by proponents of the framework, must be addressed. First, in autosegmental phonology, an autosegment is said to be any phonological element , (p-

segment), which affects an entire word, and not just a segment. In structural phonology, an autosegment was often referred to as a suprasegmental feature. However, autosegments, in this case tone, can operate independently of the segmental structure of the word, as indicated in those cases where the vowel which carries the tone disappears, while the tone continues to have the same effect on the following vowel. Autosegments are associated with the segmental structure of a word by linking rules, which are constrained by a well-formedness condition. Segments which can be associated with or linked to a p-segment are called p-bearing units. Segments which are not associated with the p-segment, but which block its spreading process, are called opaque segments. Segments which are not associated with the autosegment, and which do not block its spreading process are called transparent segments. Diagram 1.2 below indicates the format of this type of a phonological analysis of 'suprasegmentals'.

Diagram 1.2

Sketch of Autosegmental Phonology

AUTOSEGMENTAL TIER

| p-segment (a) | p segment (b) |
|---|---|

SEGMENTAL TIER

| p-bearing segment | transparent segment | p-bearing segment | opaque segment | p-bearing segment |
|---|---|---|---|---|

ASSOCIATION/LINKING RULES

    - associate p-segment (a) to every p-bearing segment, beginning with the leftmost segment
    - associate any unassociated p-bearing segments with p-segment (b)

WELL FORMEDNESS CONDITION

    - association lines must not cross

| p-segment (a) | p-segment (b) |
|---|---|

| p-bearing segment | transparent segment | p-bearing segment | opaque segment | p-bearing segment |
|---|---|---|---|---|

Association of p-segments and p-bearing segments does not have to be rule governed. There are instances when certain p-bearing segments are considered to be marked in the lexicon for a certain p-segment, and therefore do not come to be associated with that p-segment via a rule. This would include those pitch accent languages which do not appear to have a regular syllable upon which the primary prominent tone falls. In this case, any secondary p-segment, or tone, would be associated with other p-bearing segments using the pre-linked or lexically marked p-bearing segment as a point of reference. In the case of Chilcoltin, both tone phenomena, spreading and reversing, occur only in conjunction with specific morphemes, and are thus considered to be lexically marked. Therefore both of these lexical tones will be characterized as pre-linked in the autosegmental analysis. Any other analysis would require that conditioning factors for the variations in these tones be determined, and according to the data, there are none.

To continue with the Chilcotin data, an autosegmental analysis for the two high tone processes will be given separately, as the two processes appear to operate quite independently. First, the spreading high tone can be formalized as follows:

1.　　　p-segment = high tone (H)

　　　　p-bearing unit = most vowels

　　　　opaque segments = any vowel in a syllable with a nasal coda

　　　　transparent segments = all consonants

　　　　domain = at least the phonological word

　　　　rule = associate L to every vowel which is not already associated with a tone and then associate H with every vowel to the right of the prelinked H, disassociating the original tones.

　　　(i)　　ú, p6; ne-, p3; s-, p2; d-, p1; -yan, 'be shy'
　　　　　　/ú-ne-s-d-yan/　-->　　　[húnésjàn]



　　　(ii)　ná#; te-, p5; ghe-, p4; ne-, p2; -bil, 'swim'
　　　　　　/ná-te-ghe-ne-bil/　-->　[nátéghàmbǐl]

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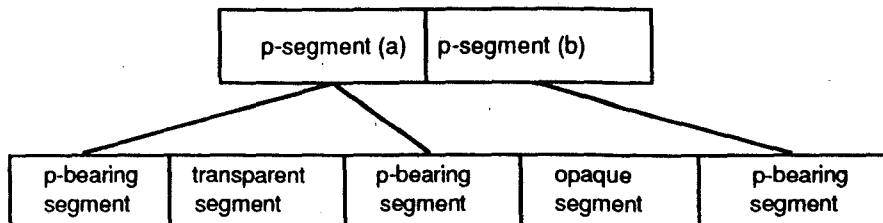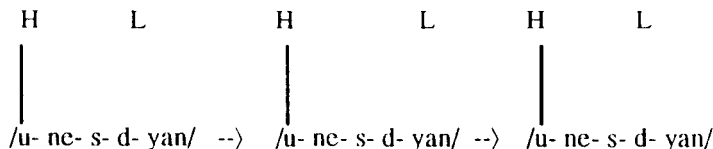H   L   H   L   H   L
| | |
```
/na-tc-ghe-ne-bil/  --⟩  /na-te-ghe-en-bil/  --⟩  /na-tc-ghan-bil/

In the examples given here the high spreading process is blocked by the syllables with nasal codas which leaves the remaining part of the two words with the default tone L. As the second example indicates, in order to achieve the correct surface form of the verb, this high tone spreading process must apply after the phonological rule of metathesis and tensing. Otherwise there would be no nasal coda in the second to last syllable, which is what ultimately halts the spreading process here. This indicates that the process of high tone spreading is quite closely linked to the surface form of the word, and is probably more akin to a phonological process than it is to a morphophonological process.

Next, the high tone which causes tone reversal on the following vowel can be schematicized as follows:

2.    p-segment = high reversing tone ($H^r$)

p-bearing unit = most vowels

opaque segments = high tone marked high, front vowels in syllables with a fortis onset.

transparent segments = all consonants

domain = one syllable

rule = associate L with every unassociated vowel and then associate the prelinked $H^r$ tone with the vowel in the following syllable, effecting a reversal of its original tone value.

(i)    ne-, p4; íd-, p2; -bin, 'swim' (Cook 1989: 184)

/ne-íd-bin/  --⟩  [níbín]

```
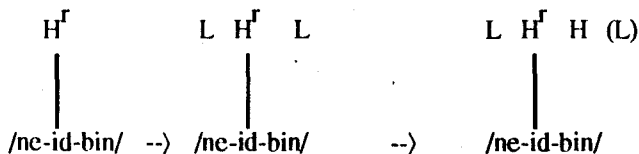H^r   L H^r L   L H^r H (L)
| | |
```
/ne-id-bin/  --⟩  /ne-id-bin/      --⟩      /ne-id-bin/

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(ii)     ne-, p4; ne-, p3; íd-, p2; -qá, 'sew' (Cook 1989: 184)

/ne-ne-íd-qá/  --⟩   [nèníqà]

$$
\begin{array}{ccc}
\text{H}^r \ \text{H} & \text{L} \ \text{H}^r \ \text{H} & \text{L} \ \text{H}^r \ \text{L} \ \text{(H)} \\
| \quad | & | \quad | & | \quad | \\
\text{/ne-ne-id-qa/ --⟩} & \text{/ne-ne-id-qa/ --⟩} & \text{/ne-ne-id-qa/}
\end{array}
$$

There are exceptions to this tone reversal rule as Cook points out, however, they remain as yet to be completely accounted for. For the purpose of this paper, these exceptions are not pertinent. The important information to be gained from this autosegmental analysis of the Chilcotin tonal variations, is the linking conventions which must be used to adequately account for the data. In the case of Chilcotin, it appears that linking is most accurate when it is applied using the prelinked segment as a reference point.

With two independent tonal processes interacting in Chilcotin, it would be impossible to propose a consistent melody which might always be associaicu with a given segmental structure. An example of such a case is Goldsmith's analysis of English, (1976). Here only the H is marked in the lexicon, and M and L are always distributed to the left and right of H, respectively, using the H as a point of reference, (Hulst and Smith, 1982:16).

$$
\begin{array}{c}
\text{M H L} \\
| \\
*
\end{array}
$$

archipelago

This cannot be done for Chilcotin because the possible combinations of tones are numerous, depending on the morphemes that are involved. It would still be necessary to indicate in the lexicon the two different high tones, H and $\text{H}^r$, and their completely different behaviors. It would have to be determined whether one of these tone processes can predict the other, which appears not to be the case. These tones appear to operate in completely separate tiers. An autosegmental analysis of the two of processes affecting one word might be presented as follows:

neghá#, across; ghe-, p3; íd-, p2; -bil, 'swim'

/neghá#ghe-íd-bil/  --⟩   [nèghághíbíl]  (Cook 1989: 189)

$$
\begin{array}{ccc}
\text{H} \quad \text{H}^r & \text{L H L H}^r \ \text{L} & \text{L H L H}^r \ \text{H (L)} \\
| \quad | & | \quad | & | \quad | \\
\text{/negha#ghe-id-bil/---⟩} & \text{/negha#ghe-id-bil/ --⟩} & \text{/negha#ghe-id-bil/}
\end{array}
$$

It is possible that the spreading high tone is the one that causes the final tone to become high, rather than the reversing high tone as diagrammed here. The two processes would affect the final vowel here in the same way, but which one affects it first, if indeed one process can be said to operate previous to the other, is indeterminable. It is evident, at least that these two processes operate quite independently, and as such result in quite successfully obscuring the underlying tone of the morphemes involved. So much tonal variation occurs on the surface in Chilcotin, that devising a tonal sequence for the words is virtually impossible and highly cumbersome.

According to Hulst and Smith, (1982), autosegmental phonology accounts for the differences between pitch accent languages and tone languages, by means of method of tone association employed. Pitch accent languages are said to have a single starred or prelinked syllable associated with a given pitch or tone, (usually H), around which secondary pitches are then associated with the remaining syllables in the word. This method was illustrated in the Chilcotin data and in the word "archipelago", given above, and it will be referred to here as the pre-linking association method.

Tone languages, on the other hand associate tones with tone bearers in a unidirectional, left to right, (or vice versa), fashion, mapping a lexically determined melody onto the segmental structure of the word. In tone languages, there is at least one tone per vowel, and the number of tones carried by a vowel can depend on the number of syllables in the word. The examples below are from the African language Etung, as described in Edmundson and Bendor-Samuel, (1966). The words given are of a class which follows one tone sequence or melody, (HHL):

| 'cloth' | 'pepper' | 'spear' | 'sand' |
|---|---|---|---|
| H HL | H H L | H HL | H H L |
| \| \|/ | \| \| \| | \| \|/ | \| \| \| |
| [efo] | [ŋgare] | [erop] | [esebe] |

It has been indicated above that a representation like this one, for Chilcotin, would be next to impossible. Thus, according to the autosegmental definition of a tone language and a pitch accent language described by Hulst and Smith, (1982), Chilcotin must be considered a pitch accent language, since it utilizes the tone association method which is supposedly characteristic of pitch accent languages.

Returning to the descriptive definitions of pitch accent languages and tone languages given earlier in this paper, however, it seems that Chilcotin really does not exhibit the features of a pitch accent language. The high marked tones of Chilcotin do not appear to indicate the primary prominence of a given syllable within the phonological word, as marked tones of pitch accent languages are supposed to. Chilcotin words which do not contain the high marked spreading or high marked reversing tones show no tonal alternation. By default, every syllable is assigned a low tone, (unless segmental phonology results in the development of a specific tone phenomenon). This is not characteristic of pitch accent languages, in which one tone in every word is supposed to be marked with a primary prominent tone. It is clear from the data above that tone assimilation (spreading), and dissimilation (reversal), are intrinsic to the tonal variations

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which occur in Chilcotin, while, in most pitch accent languages, tones do not tend to undergo these processes. Tones in pitch accent languages are supposed to condition segmental changes, not be subjected to segmental changes which occur.

Tone in Chilcotin, can be said to be lexical, as it is associated with only some morphemes in the lexicon, and based on these lexical tones, tonal assimilation or reversal may result. Therefore, based on the descriptive information available on Chilcotin, and on the descriptive distinctions drawn between tone languages and pitch accent languages, (Hyman 1975), a more accurate categorization of Chilcotin would be to call it a tone language and not a pitch accent language.

The distinction between languages which employ the unidirectional association method, and languages which employ the pre-linking association method, obviously, is an empirically interesting and important distinction. It may be merely a distinction between languages which have regular syllabic tone patterns and languages which have irregular tone patterns. Languages with irregular tone patterns would employ the pre-linking method of associating tones and segments, while languages with regular syllabic tone patterns would employ the unidirectional method of associating tones and segments. Languages with irregular tone patterns do not preclude tone languages, and languages with regular tone patterns do not preclude pitch accent languages.

In this paper a clear descriptive distinction was made between pitch accent languages and tone languages, and then the tone processes of the verb morphology of Chilcotin were analyzed, in order to provide insight into the tonal characteristics, of the language. With this information it was proposed that Chilcotin be analyzed within the autosegmental framework, using the pre-linking association conventions. It was later pointed out that proponents of autosegmental phonology have proposed that the difference between pitch accent languages and tone languages can be attributed to the association conventions commonly used to link tones to segments. Pitch accent languages were said to use pre-linking association conventions, while tone languages were said to use uni-directional association conventions. However, it was also recognized that although Chilcotin does use the prelinking association conventions, it actually exhibits the characteristics of a tone language. Thus, it has been concluded here that the autosegmental typology of languages according to their method of associating tone and segments, cannot be applied to the distinction between pitch accent and tone languages.

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# Agrammatism and functional categories*

Lorraine Shelstad
Department of Linguistics
University of Calgary

ABSTRACT. The loss of function words and grammatical morphemes in agrammatism has been investigated by a number of researchers. Different theories have been put forth by Goodglass (1968), Kean (1977), and Grodzinsky (1984), as well as several others. One of the problems they faced was that these function words and morphemes did not form a natural class in syntactic theory. The three theories mentioned will be reviewed. The implications of a new theory of syntax (Fukui 1986) for the study of agrammatic speech will then be examined in the hopes that they will encourage further research in this particular area.

## 1.0 INTRODUCTION

Broca's aphasia is a syndrome resulting from damage to the anterior portion of the brain's left hemisphere. The accompanying speech deficits include poor articulation, substitution and deletion of sounds, and impairment in the formation of syntactic patterns. The latter symptom is known as agrammatism.

One of the most striking characteristics of agrammatism is the omission of function words (such as English *the*) and grammatical morphemes (for example, *-ed*) causing speech to sound *telegraphic*. There have been several popular theories regarding the deficit or deficits causing this type of speech. In this paper I will first describe the condition known as agrammatism in more detail. Function words will be defined and I will discuss the problems in deciding which items to include under that definition. I will then review three theories concerning the underlying nature of agrammatism. Finally, a recent theory of syntax within the GB framework, which promises to resolve some of the problems regarding function words and grammatical morphemes, will be briefly outlined. The implications of this theory for agrammatism will also be discussed.

### 1.1 Agrammatism

Agrammatism is the term used for the syndrome in which there is omission of function words and certain grammatical morphemes, and a tendency to use more nouns than other grammatical categories. In reality there is much variation amongst patients.

Although agrammatism is primarily associated with Broca's aphasia, it can also be present in other types of aphasias. In English speaking patients, omission of grammatical morphemes includes loss of verb inflection and agreement in person, number and gender, as well as genitive and plural omissions on nouns. Verbs, when they are used, are often in the infinitival form (e.g. *to like*). Speech may consist of *serial naming* when only nouns, or nouns plus a few other grammatical categories are used.

Two examples of agrammatic speech from English speaking patients are included below to illustrate both the omission of elements and how variation can be manifested:

(1) Yes..ah..Monday..ah..Dad and Peter Hogan [the pseudonym of the patient] and Dad...ah...hospital...and ah Wednesday...Wednesday, nine o'clock...and Thursday...ten o'clock ah doctors...two...two and doctors and ah...teeth. And a doctor...an girl...and gums, and I. (from Goodglass 1968)

(2) Cinderella...poor...um'dopted her...scrubbed floor, um, tidy...poor, um...'dopted...si-sisters and mother...ball. Ball, prince um, shoe...(from Schwartz, Linebargar, and Saffran 1985)

The lack of function words is more evident in the second speech than in the first where there are a number of *and*'s, *an* and *a*, but no *the*'s. The first patient may be using *and* as a time filler rather than as a function, much as the second patient uses *um*. The lack of verbs and the presence of nouns can be clearly seen in both examples but is more marked in the first where no verbs have been used. An obvious example of a missing pronoun is when the patient refers to himself by name rather than using *I*.

## 1.2 Function words and grammatical morphemes

There has been some disagreement as to what vocabulary items should be included in the classification of function words and this naturally influences both the definition of 'function words' and the theories which have been generated to explain their omission. The categories which have been included are determiners (e.g. *the, a*), auxiliary verbs (e.g. *have, was*), conjunctions (e.g. *and, or*), and complementizers (*if, that*, and *whether*). An example of *that* used as a complementizer is in (3).

(3) He heard *that* Calgary had a lot of snow.

Function words have traditionally been defined as words which are relatively abstract, have little or no semantic content, do not have referents, do not enter into morphological transactions, and are in a closed system. They are also not usually stressed in a sentence.

Function words are abstract when compared to content words, such as nouns, particularly concrete nouns. However, while it could be said that *the* has little content, prepositions such as *under* have more content, whereas pronouns can, and usually do, refer to something or someone in the real world. This is, however, by virtue of an interpretive dependency on an antecedent, not inherent lexical content. Instead of only two distinct categories, words could be considered as being on a continuum such as the following:

## Figure 1: Word category abstractness

| More Abstract | | | | | | Least Abstract | |
|---|---|---|---|---|---|---|---|
| Det | Prep | Pronoun | Adjectives | Exist. | Action | Abstract | Concrete |
| Comp | Aux | Adverbs | | verbs | verbs | nouns | nouns |
| Conj. | | | | | | | |

Besides being more abstract, function words do not normally undergo morphological changes that other words do. They are not usually pluralized or associated with possessiveness, except for pronouns which do have plural and genitive forms (e.g. *he*, *they*, and *his*).

Function words are considered to belong to a closed class of words. New determiners, auxiliaries, or pronouns are not being added to the vocabulary, whereas new nouns and verbs and even adjectives are always being added (e.g. *jog*, *microwave*, and *microwaveable*).

Another feature of function words is that they are not stressed in normal speech unless the speaker wishes to emphasize a function word for a special reason.

Most researchers (e.g. Kean 1977, 1980, 1985; Goodglass 1973) when discussing agrammatism are concerned not only with free standing morphemes, such as the function words we have been discussing, but also with bound or grammatical morphemes. These researchers have found that it is inflectional morphemes (such as the genitive -'s and the past -ed) that are more likely to be omitted by agrammatics than derivational affixes (such as -ity in *divinity*). (Kean 1977).

I will be looking at Kean (1977), Grodzinsky (1984), and Goodglass (1973) as examples of those who have investigated the problem of why some morphemes are omitted by agrammatics more consistently than other morphemes.

## 2.0 THEORIES

Two main streams of thought have developed regarding the cause of agrammatism. One is that agrammatism is a result of a grammatical deficit; the other is that agrammatics simplify their speech as a coping strategy. The first claims that agrammatism has a linguistic explanation, whereas the second suggests that the explanation is psychological in nature.

Those in the "grammatical deficit school of thought" are further divided in their suggestions of the cause of the grammatical deficit. Kean (1977, 1980, 1985), for example, feels that a phonological deficit leads to the omission of function words and grammatical morphemes as well as phonological errors, thereby explaining the co-occurence of phonological paraphasias (saying *pun* for *fun,* for example) and agrammatism in Broca's aphasics. Grodzinsky (1984) feels that it is primarily a loss of syntax or syntactic ability which causes agrammatism. As pointed out by Goodglass (1968), the term *agrammatism* us biased towards this viewpoint. Goodglass claims instead that the problems are more psycholinguistic in nature than purely linguistic. Although he has investigated agrammatics' use of linguistic structures (e.g. plural vs. genitive -'s), he introduces constructs which are not linguistic terms. I will discuss the findings of these three researchers in more detail in the following sections.

### 2.1 Phonological deficit

Kean (1977, 1980, 1985) discusses both free standing function words and grammatical morphemes in her articles. Her argument is that a phonological deficit is responsible not only for phonemic paraphasias in Broca's aphasics, but also for the omission of function words and grammatical morphemes.

Her first claim is that many of the morphological omissions have to do with the *sonorance hierarchy,* a ranking of segments first done in Sanskrit by the ancient grammarian, Panini. The sonorance hierarchy places vowels as the most sonorant. These are followed by glides, liquids, nasals, and fricatives. Stops, at the end of the scale, are the least sonorant.

## Figure 2:  Sonorance hierarchy

Most Sonorant                    Least Sonorant

| vowels | glides | liquids | nasals | fricatives | stops |
|--------|--------|---------|--------|------------|-------|

Accordingly, the -s of the English plural will most likely be deleted after fricatives and stops and least likely deleted after vowels. Kean gives the example of a patient, reported by Goodglass et al. (1972), who could say *kills* and *shoes* (-s after a liquid and a vowel respectively) but omitted the -s in *laughs* (after a fricative).

Kean's second major claim is that agrammatics are more likely to omit word boundary affixes (such as -*ing* in *dancing* ) than formative boundary affixes (such as -*tion* in *destruction* ). In English, inflectional affixes (and some derivational affixes) are word boundary morphemes. Word boundary morphemes do not affect the stress pattern of words (again in English). Note that the following words have different stress patterns after adding formative boundary affixes:

(4) définite            defínitive

(5) légal            legálity

Compare word boundary affixes in the following words in which stress is not affected by the affix:

(6) róse            róses

(7) définite            définitely

Similarly, function words do not affect the stress pattern of sentences:

(8) Close the dóor.

(9) Clóse the door.

Kean concludes that a Broca's aphasic will "...reduce the structure of a sentence to a minimal string of elements which can be lexically construed as phonological words [words with semantic content found in the patient's mental lexicon] in his language" (Kean 1977:25). So the agrammatic may omit the -*ly* in *definitely* leaving a pronounceable word and one which will be in his lexicon, but would not omit *ob* in *object* as *ject* is not a phonological word. Moreover, without the -*ive* the word *définite*, with the stress on the second syllable, is not a word either and this affix would not be omitted. In English, the phonological words carry or affect the stress pattern, but function words and inflectional affixes do not. Kean also claims that this fact explains why Broca's aphasics do not produce jargon words such as *blick,* as other types of

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aphasics do. Broca's aphasics only produce what is in their lexicon as phonological words.

Kean maintains that since her conclusion is not based on stress alone as a factor but on "...whatever is construed as a phonological word" the explanation is applicable to languages other than English. She gives an example from Russian in which polysyllabic prepositions are phonological words and monosyllabic prepositions are not and are therefore more likely to be omitted by agrammatics (Kean 1980). She claims that Russian agrammatics do tend to omit the monosyllabic prepositions rather than the polysyllabic ones (Kean 1980).

## 2.2 Syntactic deficit

Grodzinsky (1984) argues against Kean's hypothesis by claiming that if it were correct, Hebrew speaking agrammatics would have to be mute. The roots of Hebrew words consist only of consonants. Because affixes are added by the addition of intervening vowels (and perhaps an extra consonant), a Hebrew word without the affix would be unpronounceable. For example, the verb *keep* consists of the consonants *šmr* and has the following infixes:

(10)     šamœr    'he kept'
         šamrah    'she kept'
         nišmær    'he has been kept'
         səmor     'keep thou (masc.)'

Grodzinsky found, that in reality, Hebrew speaking agrammatics tend to substitute the incorrect form of a word for the correct form rather than omit it. An example would be using the masculine form of the word when the feminine form is required or using the wrong tense of the verb as the following patient did:

(11)     šaloš milim...lo...šloša milim ve 'arba'a ne 'elam.

         three (F) words (F)...no...three (M) words (F) and four (M)
         disappear (M sing.) (from Grodzinsky 1984).

Therefore, Grodzinsky suggests that agrammatism is the incorrect selection from a number of possible items. In some languages (English, but not Hebrew) this may include a null (or uninflected) item. In English, *walk* (the null item) may be substituted

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for *walking* (the inflected item). In Hebrew and similar languages, as there is no null item, the patient will substitute another inflected item instead.


## 2.3 Psycholinguistic deficit

Goodglass (1973) tested patients' repetition abilities using sentences or phrases with function words in various stress patterns, such as the following (˘ indicates weak stress; ´ indicates strong stress):


| (12) | ˘ ˘ ´ in the house | ´ ˘ ´ Close the door. |
| | ˘ ˘ ´ Is he home? | ´ ˘ ´ Where is Jack? |
| | ´ ´ ´ Cows eat grass. | |


He found that function words were more likely to be omitted when they were in initial position than when the function word was between stressed words. Goodglass interprets this to mean that the agrammatic needs a stressed word to begin an utterance. He found that the position of the function word in the stress pattern was more significant than the complexity level of the sentence (simple interrogative being considered as simpler than negative interrogative, for example).

Sentences which had the stress pattern of ´ ´ ´ with N - V - N, such as *cows eat grass* were all perfectly reproduced. There are no function words in this sentence and all words are equally stressed in normal speech (i.e. when stress is not used for emphasis).

Goodglass and Hunt (1958, quoted in Goodglass 1973) also tested the patient's ability to handle inflectional endings using a question and answer task. They found that patients were more likely to omit the genitive -'s and the 3rd person verb agreement -s than they were the plural -s. This is surprising as all three affixes have the same phonological forms, [s], [z], and [əz], depending on the environment in which they are found (see table 13):


| (13) | | [s] | [z] | [əz] |
|---|---|---|---|---|
| | plural: | cats | dogs | roses |
| | third person agreement: | walks | jogs | blushes |
| | genitive: | cat's | dog's | judge's |


Goodglass attributes all of these results to a concept he calls saliency although he realises this involves defining a new construct. He says that saliency is the

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"...psychological result of stress [pattern], of the informational significance, of the phonological prominence and of the affective value of a word" (Goodglass 1973:204).

Other studies offer evidence that the idea of saliency may be a valid one. For example, Healy (1980) gave normal subjects a printed passage and instructed them to cross out all instances of the letter *t*. Subjects typically missed out an average of 6.9 out of a total of 40 *t*'s in the passage. What was significant was that 62% of the *t*'s missed were in the word *the*. One explanation for this result is that this particular function word, in reading at least, is not as salient as other words. There were other words in which the *t* was part of the digraph *th* (e.g. *they*) and the *t*'s in these words were not missed as frequently as in *the*. Healy's hypothesis was that the *the* is read as a complete unit (because it is a frequent word) and so the individual *t* is missed in it more easily.

Another study was done by Nespoulous et al (1985, quoted in Caplan 1987:285) on a patient who had problems with pronouns and auxiliary verbs when they occurred in sentences. When these words were in isolation he had no trouble reading them aloud. Nespoulous presented sentences in which some of the function words were highlighted with a magic marker. Function words which had previously been omitted were not omitted when they were highlighted but the patient omitted other function words which were not highlighted instead. It appears that making the function words more salient by highlighting them improved this patient's ability to read them. Though both of these examples involve reading, they do illustrate the concept of saliency and how it can affect people's awareness of certain words. Goodglass' idea of saliency is reminiscent of Kean's claim that in English, words and morphemes not affected by stress would be more likely to be omitted. However, it includes other qualities of the words as well, such as abstractness and the affective or emotional quality of the word. Obviously, function words would have little emotional content.

## 3.0   FUNCTIONAL CATEGORIES

We have examined three hypotheses which attempt to explain why function words and certain grammatical morphemes are omitted in the speech of agrammatics. One of the problems investigators noted was that function words did not seem to belong to a *natural class*. For example, Grodzinsky says, "[t]he problem is that prepositions, determiners, auxiliaries, complementizers, and the like do not constitute a natural class within the theory of syntax" (Grodzinsky 1984). Kean felt that there was no way, syntactically, that these words could be grouped together and came to the conclusion that only phonology provided a rationale for their being omitted as a group. She says, "if it is not possible to distinguish between the major categories and the function words on the basis of some general property of syntactic representation, then such analyses will fail to be empirically adequate" (Kean 1980:246).

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Goodglass' comment is similar: "...the boundaries of psychological components of language, as marked by aphasic symptoms, usually cut across the preconceived categories that we have inferred from a logical analysis of normal speech" (Goodglass 1973:184). A statement by Caplan is even more explicit: the function words and function word categories themselves specify a wide variety of syntactic structures, which makes it hard to capture what they have in common syntactically" (Caplan 1987:266). Recent work in Government and Binding (GB) Theory of syntax, however, appears to provide a solution to this dilemma.

Chomsky (1986) has recently suggested extending the X-bar schema so that CP (COMP phrase) and IP (INFL phrase) both have specifier positions. Fukui (1986), in his dissertation, takes the position of Abney (1987) that in addition to COMP and INFL, determiners (DET) are heads of phrases as well so that we have DP (determiner phrases). According to Fukui, these three (C, I, and D) make up the category *Functional Heads* or *Categories*. Abney (1987) defines Functional Heads as closed class items, elements that lack the semantic value of lexical categories and items that select a unique (that is, non-iterable) specifier.

The following phrase structures are built around these Functional Categories (INFL, COMP, and DET):

(14)

```
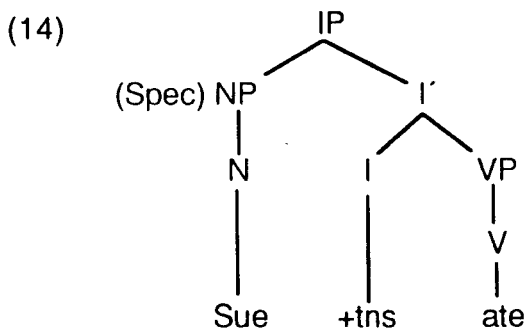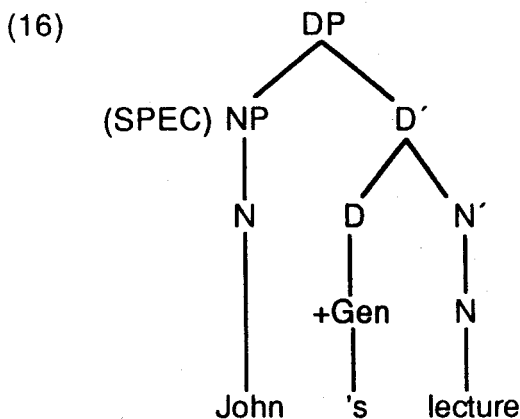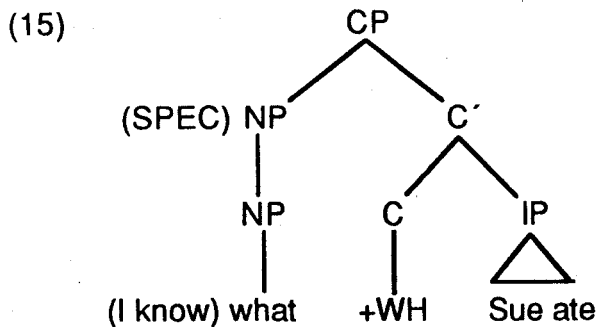                    IP
                   /  \
         (Spec) NP      I´
               |       /  \
               N      I    VP
               |      |    |
               |      |    V
               |      |    |
              Sue    +tns  ate
```

(15)

```
                    CP
                   /  \
         (SPEC) NP      C´
              |        /  \
             NP       C    IP
              |       |    /\
        (I know) what  +WH  Sue ate
```

(16)

```
                 DP
                /  \
        (SPEC) NP    D´
             |      /  \
             N     D    N´
             |     |    |
             |   +Gen   N
             |     |    |
           John   's  lecture
```

Note that in examples (14), (15), and (16), only one prehead element is allowed, so that the following sentences would be ungrammatical:

(17) *Sue Mary ate (cf. 14)

(18) *what that Sue ate (cf. 15)

(19) *yesterday John's lecture (cf. 16)

Fukui (1986) observes that traditional X´ theory did not explain why sometimes two or more prehead elements are permitted (as in 20 and 21 below) whereas sometimes only one is allowed.

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(20) the *very very old* lady

(21) Boris *has been* eating garlic

Fukui maintains that specifiers of Functional Categories are defined by the fact that their specifiers close off their projections and therefore do not allow anything to be added outside the phrase. For example, in (17), *Mary* (the subject which is the specifier of IP) closes off the projection of the functional head INFL so that adding *Sue* outside the phrase makes the sentence ungrammatical.

The fact that *the* is not iterable suggests that it could be a specifier but as mentioned above Fukui is assuming determiners to be heads of phrases in agreement with Abney (1987). To summarize, Fukui says "[t]he proposal that DET, COMP, and INFL [and prepositions in Abney's view] constitute a natural class of Functional Categories allows parallel structures to be assigned to DP (determiner phrase), IP, and CP" (Fukui and Speas 1986:133). This suggests that there is an answer to the issues raised by others that function words do not constitute a unified category or natural class and makes syntactic explanation of agrammatism more plausible.

Included in Fukui's theory is the idea of F-features or Function-features which includes nominative Case, assigned by tense/agreement, genitive Case, assigned by -'s, and +Wh, assigned by Wh-COMP. The term *Kase* is introduced to include Case in the usual sense (e.g. objective case assigned by transitive verbs) and F-features assigned by Functional Categories. Fukui (1986) gives the following paradigm of English functional categories and their Function features:

Table 3: F-Features

	Functional Categories		
	C	**I**	**D**
Kase assigner	+Wh	Tns/Agr	's
non-Kase assigner	that	to	the,a
	if, whether		that,those

4.0 FUNCTIONAL CATEGORIES AND AGRAMMATIC ERRORS

4.1 Discussion

The words and grammatical morphemes which are included in the Functional Categories in Fukui's system (in English) are: determiners, the genitive marker (-'s), tense affixes, verb agreement affixes, and COMP (*that, if,* and *whether*). Abney (1987) also includes prepositions and pronouns. Goodglass (1985) claims that conjunctions, such as *and* and *or,* are not deleted as much by agrammatics as other function words. It appears that Fukui's list of Functional Categories resembles the list of categories that agrammatics tend to omit the most frequently.

Kean mentioned the distinction between heads of phrases and their specifiers in her discussion of the problem of finding a unified category in order to base agrammatism on a syntactic problem. But she rejected this discussion as a solution to the problem since "...some function words can act as the heads of phrases. Prepositions, which are generally classed as function words, are the heads of prepositional phrases" (Kean 1980:246). If Fukui is correct and DET, COMP, and INFL are also heads of phrases, then they are a unified category in that they are Functional Heads as opposed to Lexical Heads (Noun, Verb, etc.). Prepositions remain a problem as they are often included in the set of function words and at other times are included in the set of lexical categories.

Kean raised a problem regarding affixes, "...some of the elements typically omitted in agrammatism are inflectional affixes on the heads of phrases and not distinguished in the syntax from their heads under the proposed algorithm" (Kean 1980:246). Since genitive -'s and Tns/Agreement are included in Fukui's theory as Functional Categories (DET and INFL, respectively) and thus as heads of phrases this problem is also solved. The following illustrates the genitive -'s as head of a phrase (DP) and movement of the noun's argument into the specifier position:

(22) D-structure

```
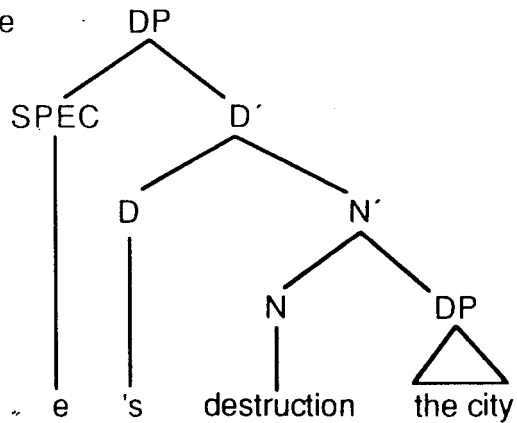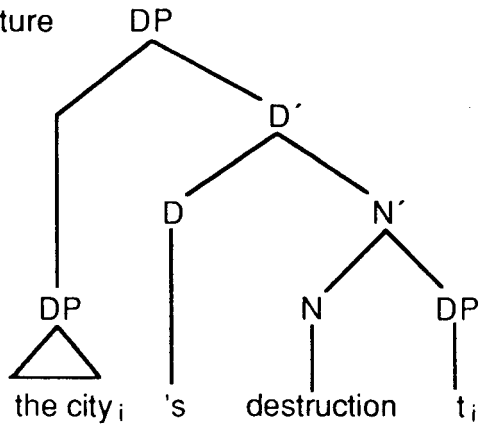                    DP
                  /    \
              SPEC      D'
               |       /  \
               |      D    N'
               |      |   /  \
               |      |  N    DP
               |      |  |    /\
               e     's destruction  the city
```

(23) S-structure

```
                    DP
                  /    \
                 |      D'
                 |     /  \
                 |    D    N'
                DP   |    /  \
                /\   |   N    DP
          the city_i 's destruction  t_i
```

As mentioned in 2.3, Goodglass found that the possessive -'s and the 3rd person verbal agreement -s were more likely to be omitted in agrammatic speech than the plural -s. Again, we see that the words/morphemes omitted seem to belong to Fukui's Functional Categories.

Grodzinsky (1984) reports that agrammatics retain prepositions which are heads of phrases adjoined to S (in 24a) or when when they are used as particles (in 24b) better than when they are the heads of prepositional phrases contained in an NP (in 24c) or VP (24d).

(24)   a. John plays tennis on Sundays.

   b. John ran up a large bill.

   c. a rose for Emily

   d. John put the cookie on the table

A possible explanation for this selective omission of certain prepositions is that prepositions which are the heads of complements (as in 25 c and d) are the ones which agrammatics will tend to omit rather than prepositions which are not heads of complements (25 a and b).

(25)   a. John plays tennis *on Sundays*. (temporal modifier)

   b. John *ran up* a large bill. (verb and particle)

   c. a rose *for Emily* (argument-benefactive q-role)

   d. John put the cookie *on the table*. (argument-locative q-role)

In the above sections we have seen that the words and grammatical morphemes which may be classified under Fukui's (1986) and Abney's (1987) Functional Categories are the ones which agrammatics seem to find problematic.

4.2 Implications

Recall that Fukui claimed there are languages which lack some or all Functional Categories and he has given arguments that Japanese lacks all three categories[1]. If this is true, and agrammatics omit or substitute only Functional Category words, then Japanese agrammatics should not omit any words. Agrammatism, however, does exist in Japanese.

Tonoike (1988) disagrees with Fukui's analysis of Japanese and suggests that inflectional endings, case markers, etc. are INFL, COMP, and DET in Japanese. A few examples are given in (26).

(26)   a.   INFL=*ta* (past tense marker)

      Tabe-ta

      eat-Past

      'I ate it'

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b. COMP=*ga* (subordinate clause marker)

Tabe-ta-ga

eat-Past-though

'though I ate it'

c. DET=*wa* (topic marker)

John-wa kawa-nakat-ta hon

'book John did not buy' (others may have bought it)

If this is so, are these the elements which are consistently missing in the speech of Japanese agrammatics? A case study of a Japanese agrammatic was done by Panse and Shimoyana (1955) in which the patient omitted or substituted words. Some of the omitted elements were case markers but, as other words were omitted or substituted as well, it is not conclusive evidence. More data from other patients are needed.

Lamontagne and Travis (1986), in their discussion of the Case Filter and the Empty Category Principle, suggest that Case be represented by the functional category K and be accorded categorial status. Their theory would also predict that Case markers would be the elements most likely to be omitted by aphasics speaking languages which have overt Case marking, such as Japanese and Turkish.

Chinese, Korean, and Thai may lack some or all of Fukui's Functional Categories and the study of agrammatic speech in these languages may open many interesting avenues for research. Chinese and Thai differ from Japanese and Korean in that they do not use case marking or inflectional endings. Are there other elements which are consistently omitted in the agrammatic speech of these languages? Analyses of these languages, using Fukui's framework, may shed light on why agrammatics omit the words they do.

5.0 Summary

Fukui's theory seems to have solved the problem that words systematically omitted in agrammatic speech do not form a natural class. As yet, no solution has been offered to explain what categories are omitted in the speech of agrammatics whose language does not have Functional Categories. At any rate, it does seem to be the case that Functional Category words tend to be the elements omitted in agrammatic speech in English. It is hoped that this paper will encourage future research in the areas of Functional Categories and agrammatic speech across languages in order that we may understand language and how it is organized in the human brain.

Notes

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1 Fukui claimed in his dissertation that Japanese had a defective INFL without F-features. However, in a later work with Speas (1986) he claims that Japanese lacks all three Functional Categories.

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THE CHINESE SERIAL VERB CONSTRUCTION PROPER

Liu, Cai-Xia

(Excerpt from Master's Thesis)

1.0 Introduction

Although *serial verb constructions* (SVCs) in Chinese have been the subject of a number of studies, *serial verb constructions proper* (SVCPs) have rarely been investigated by Chinese linguists. It is these Chinese SVCPs, which have the sequence of NP V NP V (NP), that is the concern of this thesis.

Following is an example of an SVCP

(1). zhangsan   yang   zhu   mai

Zhangsan   raise   pig   sell

Zhangsan raises pigs and sells pigs

Chinese is an SVO language, that is to say, a sentence should consist of a subject followed by a verb, which, if transitive, should be followed by an object. In (1), there is no problem for the first three words. *Zhangsan* appearing before *raise* is the subject of the verb and the NP *pig* appearing after *raise* is its direct object. However, for the second verb *sell* there is no following noun phrase even though it is a transitive verb.

Mark C. Baker's (1989) theory of SVCPs, which provides an account for a similar phenomenon in some African languages, provides the theoretical framework used in this thesis. I will be using this approach to investigate different types of Chinese SVCPs and I will show that no matter whether the SVCP is composed of two transitive verbs, a transitive and an intransitive or two intransitives, the construction can be accounted in a relatively simple and straightforward manner.

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Abbreviations

Following abbreviations are used in this thesis:

Adv   :   adverb

Adv.P: adverbial phrase

Ag   :   agent

AP   :   adjective phrase

COMP : complementizer

Det. :   determiner

Go   :   goal

INFL : inflection

LE   :   an aspect or a particle in Chinese

Loc   :   loctive

MW   :   measure word

N   :   noun

NP   :   noun phrase

P   :   preposition

PP   :   prepositional phrase

Q   :   quantifier

SVC   :   serial verb construction

SVCP : serial verb construction proper

Th.   :   theme

V   :   verb

Vi   :   intransitive verb

VP   :   verb phrase

Vt   :   transitive verb

THE APPLICATION OF BAKER'S THEORY TO THE CHINESE SVCP
(PART I)

2.1 How Baker's theory works for the Chinese SVCP
2.1.1 Both V1 and V2 are dyadic verbs

In   Chinese there is   a type of serial verb construction (SVCP) that is composed of a sequence of two transitive verbs with a shared object between them as example (1) shows.

(1). zhangsan yang zhu mai

Zhangsan raise pig sell

'Zhangsan raises pigs and sells pigs.'

In this sentence, *Zhangsan* is the agent who both raises pigs and sells pigs. And *pig* is the shared object of both *raise* and *sell* Following Baker, we have the tree structure illustrated in (2).

(2).

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The SVCP here is the higher V' consisting of V1 *raise*, the shared theme NP *pig*, and V2 *sell* projected to the V' level.

This structure is consistent with Baker's Head Licensing Condition (HLC). In accordance with HLC, at each point a bar level can either increase by one or remain the same. In (2), from V1 to the higher V', the bar level increases by one; from V2 to the lower V', the bar level also increases by one. But from lower V' to higher V', the bar level remains the same. Moreover, consistent with the HLC, the SVCP in this structure has two heads---V1 *raise* and V2 *sell*.

According to Baker (1989:546), there are three possible structures for a double-headed V': the V' immediately dominates (i) two V^0s; (ii) a V^0 and a V'; or (iii) two V's. For the correct representation of the structure of SVCP, (i) and (iii) are ruled out since (i) violates the principle of word order as explained in Chapter III and (iii) represents the structure for coordination. In Baker's opinion, only [$_{V'}$ V1   NP V'2], i.e. the tree structure in (2), is appropriate for the SVCP.

The tree structure of (2) also conforms with the principles of word order and theta-role assignment in Chinese. The principle of word order says that at the X' level, X theta-marks a phrase in a direction opposite to the one employed at the X^0 level. And the principle of theta-role assignment requires that X may theta-mark a phrase if X or the projection of X is a structural sister of the phrase.

According to Travis (1987:127), at the X^0 level in Chinese, X assigns a theta-role and Case rightward to an NP. Within the SVCP in (2), V1 *raise* and the NP *pig* are sisters; V1 is at the zero bar level and *pig* is to its right. Hence, the verb *raise* can assign a theme role and an object Case to the NP

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pig, as the arrow in (2) shows. The V2 *sell* is not sister of *pig,* but its V'
projection is. According with the principle of word order and theta-role
assignment, V2 theta-marks an NP leftward. Thus, *pig* receives theme roles
from both V1 and V2 and the theme role assignment of these two verbs is
satisfied.

The fact that the NP *pig* receives two theme roles is not a violation of
Baker's theory. It agrees with the Theta-Criterion, which says that an
argument is allowed to receive more than one theta-role if and only if all its
theta-roles are assigned to the same structural position.

As shown in (2)', the position of the V^0 and lower V' in the SVCP can
not be exchanged. In other words, V1 must be a bare verb and V2 must
project to one bar level. Otherwise, the theme role assignment of the verbs
cannot be satisfied.

(2)'

```
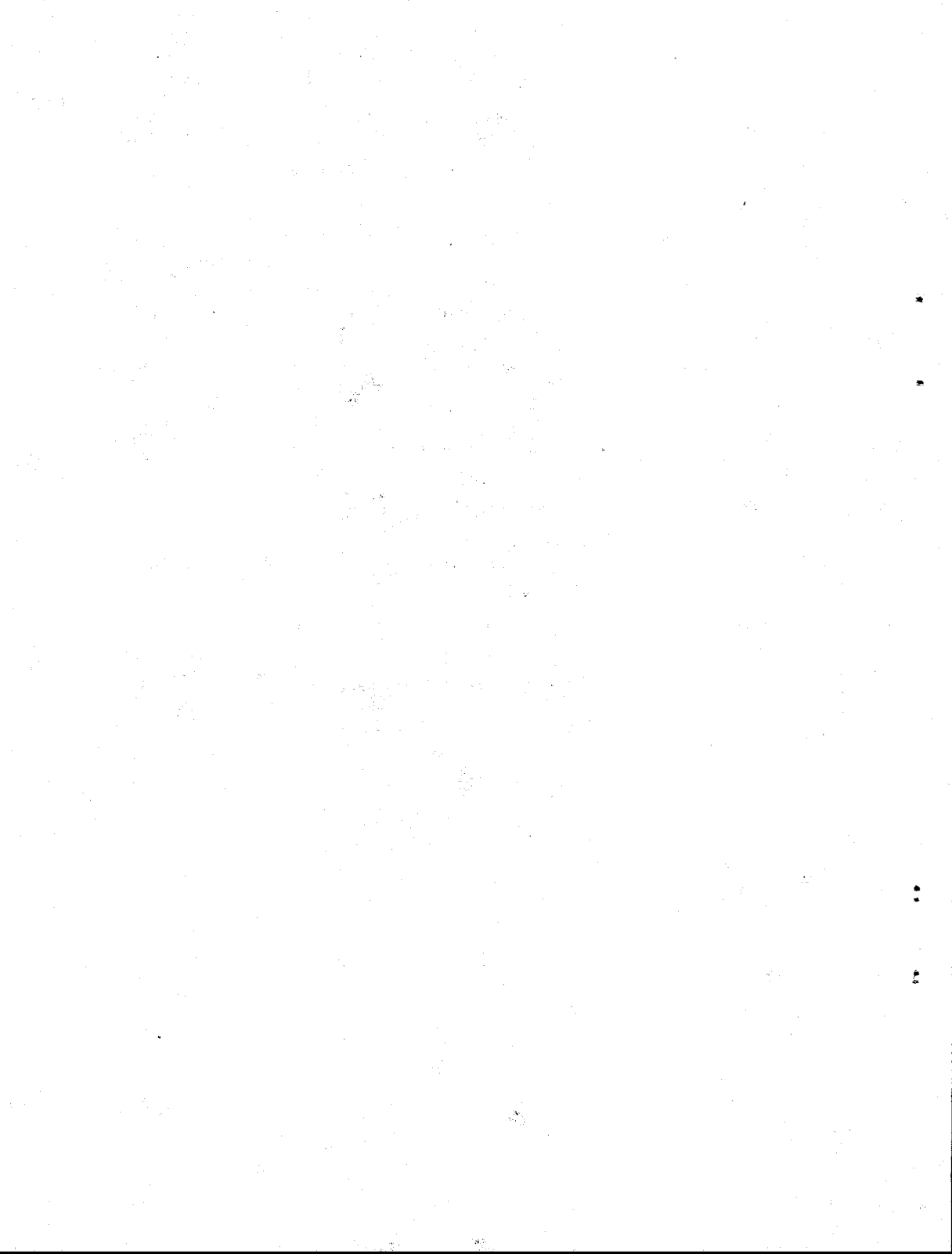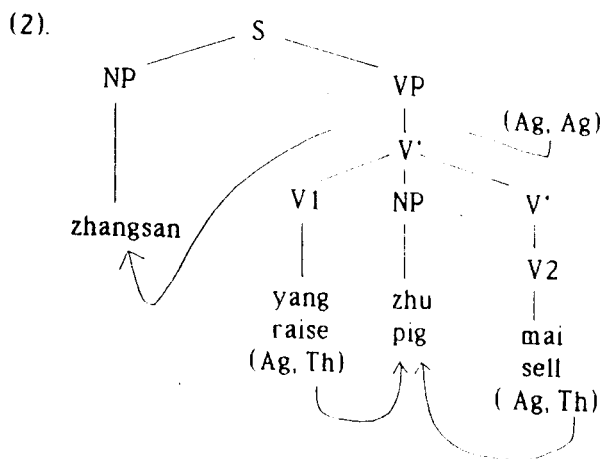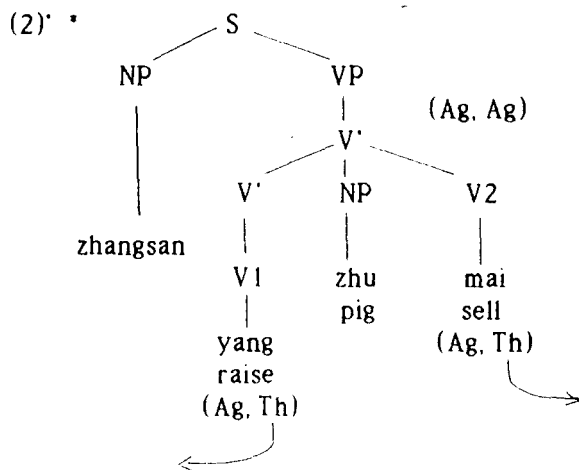                    S
        NP                VP
         |                 |        (Ag, Ag)
         |                 V'
                      V'   NP    V2
    zhangsan          |    |     |
                      V1  zhu   mai
                      |   pig   sell
                    yang       (Ag, Th)
                    raise
                   (Ag, Th)
```

In (2)', the lexical property of agent role assignment is satisfied for both
verbs. Yet, the property of theme role assignment is not satisfied for either.
According to the principle of word order as it applies to Chinese, a verb
assigns an internal theta-role and Case rightward to an NP at the X^0 level

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and theta-marks the same NP to the left at the X' level. However, on the right side of the verb *sell* and on the left side of V' *raise* there is no NP for them to Case-mark or theta-mark. The lexical properties of the two verbs are thus not satisfied in this tree diagram and the Projection Principle is violated. Furthermore, the NP *pig* cannot get a theta role and Case since it appears to the left of the verb *sell* and to the right of V' *raise*. This is a violation of the Theta Criterion and the Case Filter. This indicates that the verb before the shared object should be a bare V rather than a V' and the verb after the shared object must project to the V' level. If the positions of V^0 and V' were exchanged, the principle of word order, the Theta Criterion, Case Theory and the Projection Principle would be violated.

There are several advantages in employing Baker's theory to account for the Chinese SVCP. In the first place, it explains why there is no NP after V2 *sell* in SVCPs such as (1), which is repeated here.

(1). zhangsan yang zhu mai

    Zhangsan raise pig sell

    'Zhangsan raises pigs and sells pigs.'

Chinese is an SVO language. In non-SVCs, both *raise* and *sell* have their agent arguments to the left and their theme arguments to the right.

(3). a. <u>zhangsan</u> yang <u>zhu</u>
          (Agent)   (Theme)

        Zhangsan raise pig

        'Zhangsan raises pigs.'

    b. <u>zhangsan</u> mai <u>zhu</u>
          (Agent)   (Theme)

        Zhangsan sell pig

        'Zhangsan sells pigs.'

However, if we look at (1) carefully, we can see that after the second verb *sell*, there is no NP. In other words, the theme is missing.

We cannot assume that the NP that follows *sell* is not required since (4) shows that it is obligatory.

(4).   * zhangsan mai

zhangsan sell

Yet if we put an NP after the second verb in an SVCP like (1), the sentence (5) is ungrammatical.

(5)   * zhangsan yang zhu mai zhu

Zhangsan raise pig sell pig

How can we account for the fact that the transitive verb *sell* does not allow its object to follow it, in apparent violation of the Projection Principle?

This phenomenon obtains a good explanation in Baker's theory. The fact that there is no NP following V2 does not necessarily mean that *sell* does not have a theme argument. Rather than having its own object, *sell* simply shares the object with V1 *raise*.

Furthermore, the fact that (5) is ruled out can also obtain an explanation from Baker's theory. V2 *sell* has only one internal role to discharge. It has two choices: assign the theme role either to the shared NP, or to the NP following it.   As discussed by Baker,   object sharing in an SVCP is obligatory, so that *sell* must discharge its theme role to the shared NP *pig*. As a result, the NP after *sell* cannot get any theta role. This is a violation of the Theta-Criterion; (5) is thus ruled out.

Baker's theory also accounts for the theta-role assignment properties of both verbs. As we showed in discussing the tree structure in (2), the theme role assignment of the two verbs, i.e., *raise* and *sell*, is satisfied

(2).
```
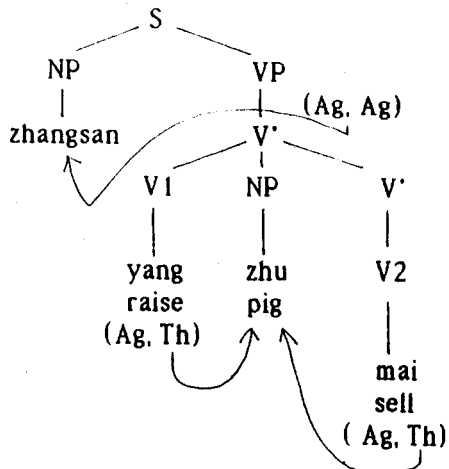                    _____ S _____
                  /                 \
               NP                    VP
               |                     |___ (Ag. Ag)
           zhangsan             ____ V· ____
              ↑                /     |       \
                \           V1      NP        V·
                  \          |       |         |
                   \       yang     zhu        V2
                    \      raise    pig         |
                     \    (Ag, Th)  ↑  ↑       mai
                      _____|          sell
                                    _____( Ag, Th)
```

Apart from a theme role, each verb also has an agent role to assign. The VP in (2) is the maximal projection of both *raise* and *sell* and it is the structural sister of the subject NP *zhangsan* In accordance with the principle of word order and the theta-role assignment, the two verbs can therefore assign agent roles to the NP *zhangsan* through the VP. In this way, the lexical properties of theta-role assignment are satisfied for both verbs and the Projection Principle is obeyed. Moreover, this gives the right interpretation for the sentence, since *zhangsan* is the person who both raised and sold the pigs.

A good theory not only tells us which sentences are good, but also tells us which sentences are bad. Another advantage of using Baker's theory to explain the Chinese SVCP is that it accounts for the fact that V2 can be a triadic verb, but V1 cannot.

2.1.2 V2 as triadic verbs

In the following sentences V1 is a dyadic verb and V2 a triadic verb.

(6). a. ta   changchang mai shu   sung   ren
          S/He   often   buy book   send   person

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'S/He often buys books and gives them to others.'

b. wo   xie-le ge   zhitiao   di-gei   ta

    I   write-Le MW   note   pass-give   s/he

   'I wrote a note and gave it to her/him.'

In (6a), apart from the external argument *s/he*, the V2 *send* has two internal arguments, i.e., *book* and *person*. The structure of (6a) can be expressed in (7).

(7).

In (7), the NP *person,* is generated inside the lower V'. In other words, *person* is only the argument of V2. In order to take this argument, V2 must project to the V' level. Since V2 and the NP *person* are sisters and since *person* is to the right of V2, V2 can assign a goal role to the NP. V2 cannot assign a theme role to *person* because the order of thematic role assignment is fixed. According to Baker (1989:540), all triadic verbs compose with their arguments one at a time in a set order, and this order of composition corresponds to hierarchical relationships at d-structure. In particular, dative verbs combine first with the goal, then with the theme, and finally with the agent. Hence, at the lowest level, V2 *send* first assigns a goal rather than a

theme role to its sister category, the NP *person* V2 is not the sister of the NP *book*, but V2's projection (i.e., the lower V') is. At the V' level, the verb assigns a theme role leftward to the shared NP *book*, which can also receive a theme role from V1 *buy*, as V1 is the sister of *book*, occurs to its left, and is at the zero bar level. Thus, the theme and goal role assignments of the two verbs are satisfied and the sentence is grammatical.

2.1.3 V1 as a triadic verb

In the Chinese SVCP, just as in the SVCP of Yoruba and Sranan (Baker 1989:522), triadic verbs cannot appear before dyadic verbs.

(8)   <u>A triadic verb occurs before a dyadic verb in SVCP.</u>

a * ta   sung ren   shu mai

    s/he send person book buy

b * wo di-gei   ta   ge   zhitiao xie-le

    I   pass-give   s/he MW note   write-LE

As shown in Baker, 1989,   a triadic verb, (for example, the verb *send* in (6a)), must project to the V' level in order to theta-mark the indirect object *person*. If it exchanges positions with the dyadic verb *buy*, then neither the verb *send* nor *buy* can theta-mark the shared NP *book*, as illustrated by the following tree structure.

(9). *

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The SVCP in (9) is the higher V' consisting of two lower V's and a shared object between them. Within the lower V' on the left side (i.e., the V' *send person*), the verb *send* can assign a goal role to the NP *person* as the NP is the sister of *send* which is at zero bar level. However, *send* cannot theta-mark the NP *book*. This is because, firstly, according to the principle of word order, *send* theta-marks an adjacent NP rightward at the zero bar level. The NP *book* is to the right of *send,* yet the verb is not adjacent to the NP. As a result, the verb cannot discharge any thematic role to *book* at the zero bar level. Secondly, the projection of *send* (i.e. the left lower V') cannot assign a theme role to the NP *book* either, since at the one bar level theta-marking is leftward and to the left of *send* within its projection, there is no NP. The theme role of the verb *send* in this sentence thus has no recipient, and the sentence is thus ungrammatical.

Thus, a conclusion can be reached that V1 in an SVCP cannot be a triadic verb.

2.2 Some apparent counterexamples

In Chinese, it appears that in some examples, V1 can be followed by two nominals, as the examples in (10) show.

(10). a.　zhangsan <u>tou</u> wo dongxi chi

　　　　 Zhangsan steal I　thing　eat

　　　　 'Zhangsan stole food from me and ate the food.'

　　 b.　zhangsan <u>qiang</u> lisi　qian　hua

　　　　 Zhangsan rob　Lisi　money spend

　　　　 'Zhangsan robbed money from Lisi and spent the money.'

The two examples in (10), although SVCPs, are different from the examples in (1) and (5) in that in the examples of (1) and (5) there is a

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single nominal between V1 and V2, while in the sentences of (10) there are two. For example, in (10a), *I* and *thing* occur between *steal* and *eat.*

In non-SVCP sentences, verbs like *steal* and *rob* usually take two nominals after them.

(11). a.   zhangsan tou-le <u>wo yi-jian yifu</u>

       Zhangsan steal   I one-MW clothes

       'Zhangsan stole a dress from me.'

    b.   zhangsan qiang <u>lisi yi-kuai shoubiao</u>

       Zhangsan rob   Lisi one-MW watch

       'Zhangsan robbed a watch from Lisi.'

The nominals immediately following these verbs are typically personal pronouns or proper names while the second nominals are ordinary nouns. This sequence looks like a triadic verb with its goal and theme arguments.

An uncontroversial triadic verb in Chinese also has two nominals following it. Like the two nominals in (11a) and (b), the first is usually a personal pronoun or proper name and the second an ordinary noun.

(12)   zhangsan gaosu <u>wo</u> <u>yi-ge mimi</u>
                    (Go.)   (Theme)

       Zhangsan tell   I one-MW secret

       'Zhangsan told me a secret.'

The two nominals following the triadic verb *tell* in (12) function as the goal and theme of the verb, respectively. The two nominals after *steal* and *rob,* however, behave differently. They do not function as two separate NPs. Rather, they function as one NP, being the theme of the verb. This indicates that verbs such as *steal* and *rob* in Chinese are dyadic. The examples in (10) are not real counterexamples.

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That *steal* is a dyadic verb with a single NP complement can be seen from the following test.

2.2.1 Passivization Test

It is known that in English and other languages, a sentence with a finite dyadic verb can be passivized by converting the direct object into the subject of the sentence and making certain other modifications, as the following examples illustrate.

(13). a. They built a house in 1989. (Active)

b. A house was built in 1989 (by them). (Passive)

In an English sentence with a finite triadic verb, both the theme and goal of the triadic verb can become subjects of sentences through passivization.

(14). a. He gave me a book.

b. <u>Goal as the subject</u>

I was given a book (by him).

c. He gave a book to me.

d. <u>Theme as the subject</u>

A book was given to me (by him).

Sentence (15) exemplifies the active voice of two Chinese sentences with dyadic verbs. In these two sentences, the NPs before the verbs are the agents and those after the verbs are the themes. In (15a), *cat* is the agent (here functioning as a subject) and *fish* is the theme (functioning as direct object).

(15). <u>Active voice</u>

a.   mao   chi-le   <u>yu</u>

cat   eat-LE   fish

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'The cat ate the fish.'

b.   ta   piping-le   <u>wo</u>

       s/he criticize-LE   I

      'S/He criticized me.'

The sentences of (15) can be passivized by preposing the themes and putting a BEI before the agents as (16) shows.

(16). <u>Passive voice</u>

a.   <u>yu</u> bei mao chi-le

      fish BEI cat eat-LE

      'The fish was eaten by the cat.'

b.   <u>wo</u> bei   ta piping-le

      I   BEI S/He criticize-LE

     'I was criticized by him/her.'

As the result of passivization, the direct object of *eat* in (15a) (i.e., *fish*) is put into the subject position in (16a). Also, the preposition BEI is added in front of the agent *cat*. The passive voice of a sentence with a dyadic verb thus has the form of Theme+BEI+Agent+Verb+Other.

Sentences with triadic verbs in Chinese, however, seem to follow different patterns from their English counterparts in passive sentences. In Chinese, *gei* 'give' and *gaosu* 'tell' are typical triadic verbs. In the active form of sentences, both verbs have two NP complements.

(17). a. ta gaosu-le   <u>wo</u> <u>yi-ge</u>   <u>mimi</u>

       s/he tell-LE   I one-MW secret

      'S/HE told me a secret.'

b.   ta gei-le   <u>wo</u>   <u>yi-jian</u>   <u>yifu</u>

       s/he give-LE I   one-MW clothes

' S/He gave me a dress.'

In (17a), *wo* 'I' is the goal and *yi-ge mimi* 'a secret' is the theme of the verb *gaosu* 'tell'. However, neither of them can be put into the subject position. It seems that sentences with triadic verbs cannot be passivized.

(18). <u>Theme as subject</u>

    a. * <u>yi-ge mimi</u>   bei   ta   gaosu-le   wo

        one-MW secret   BEI   s/he tell-LE   I

        ' One secret was told by him.'

    b. * <u>yi-jian yifu</u>   bei ta   gei-le   wo

         one-MW clothes BEI s/he give-LE I

        ' A dress was given to me by him.'

   <u>Goal as subject</u>

    c. * <u>wo</u> bei   ta gaosu-le yi-ge   mimi

        I   BEI s/he tell-LE   one-MW secret

        ' I was told a secret by him.'

    d. * <u>wo</u> bei ta   gei-le   yi-jian yifu

        I   BEI s/he give-LE one-MW clothes

        ' I was given a dress by him.'

   <u>Both goal and theme (two nominals) as subject</u>

    e. * <u>wo</u>   <u>yi-ge mimi</u> bei ta   gaosu-le

        I   one-MW secret BEI s/he tell-LE

    f. * <u>wo</u> <u>yi-jian yifu</u> bei ta   gei-le

        I   one-MW dress BEI s/he give-LE

In (18), BEI marks the agents, indicating the persons who performed the acts. In (a) and (b), the theme of the verb is realized as subject. But, the sentences are not acceptable in Chinese. Nor are those sentences with the

goals of the verbs functioning as subjects, as in (c) and (d), or sentences in which both the theme and the goal are preposed, as in (e) and (f).

Thus, a conclusion can be reached that a triadic verb in Chinese can not be passivized. In other words, neither the theme nor the goal nor the combination of both theme and goal of a triadic verb can be put into the subject position.

Using this conclusion, let's check the behavior of verbs like *steal* and *rob*, which also have two nominals following them in active sentences. We still take the sentences in (11) as our examples.

(11). a.   zhangsan tou-le   <u>wo</u>   <u>yi-jian</u>   <u>yifu</u>
           Zhangsan steal-LE   I   one-MW   clothes
           'Zhangsan stole a dress from me.'

     b.   zhangsan qiang <u>lisi</u> <u>yi-kuai</u>   <u>shoubiao</u>
           Zhangsan rob   Lisi one-MW   watch
           'Zhangsan robbed a watch from Lisi.'

(19).   <u>The passive voice of the sentences</u>

     a.   <u>wo</u>   <u>yi-jian</u>   <u>yifu</u>   bei zhangsan tou-le
           I one-MW clothes BEI Zhangsan steal-LE
           'One of my dresses was stolen by Zhangsan.'

     b.   <u>lisi</u>   <u>yi-kuai</u> <u>shoubiao</u> bei zhangsan qiang-le
           Lisi one-MW watch   BEI zhangsan rob-LE
           'One of Lisi's watches was robbed by Zhangsan.'

It turns out that the two nominals after *steal* and *rob* in (11) can be put together at the beginning of sentences (in subject position). In other words, sentences with *steal* or *rob* as their main verbs can be passivized. This indicates that the behavior of the nominals after *steal* and *rob* is different

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from the themes and goals of *gei* "give" or *gaosu* 'tell'. They do not function as two NPs, but as a single (theme) NP. This suggests that *Steal* and *rob* are not triadic verbs, but dyadic verbs.

2.2.2 BA construction test

Another piece of evidence that verbs such as *steal* and *rob* are not triadic verbs in Chinese comes from the BA construction test.

According to Chu (1983:206), the BA construction in Chinese is a unique form in the sense that no other languages have been found to have a structure with the same functions as the BA sentence. The basic form of the BA-sentence is usually represented as: Subject+BA+NP+V+ (Complement). The NP between BA and V can be understood as the theme of V. That BA can occur with the theme complement of verbs can be proved in the following sentences with dyadic verbs. Our former examples in (15) are still used to illustrate this point.

(15). Non BA construction of sentences with dyadic verbs

    a.   mao   chi-le   yu

            cat   eat-LE fish

            'The cat ate the fish.'

    b.   ta   piping-le   wo

            s/he criticize-LE I

            'S/He criticized me.'

(20). With BA

    a.   mao ba yu chi-le

            cat   BA fish eat-LE

            'The cat ate the fish.'

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b. ta   ba   <u>wo</u>   piping-le

    s/he BA   I   criticize

    'S/He criticized me.'

(15b) is a sentence without the BA construction. *S/he* is agent and */* is the theme (or the direct object) of *piping* 'criticize'. If this sentence is changed into the BA construction, the theme is put between BA and the verb *criticize*, as (20b) indicates. The examples in (20) show that BA can occur with the theme complement of dyadic verbs.

As noted in the last section, the theme and goal of a true triadic verb cannot occur in the subject position. However, this doesn't mean that phrases with triadic verbs only appear in the format of V NP_{goal} NP_{theme}. With the help of the particle BA, a theme can be put before a goal. Compare in this regard (17) from above and (21):

(17). a.   ta   gaosu-le   <u>wo</u>   <u>yi-ge</u>   <u>mimi</u>

       s/he tell-LE   I one-MW secret

       'S/HE told me a secret.'

    b.   ta   gei-le   <u>wo</u>   <u>yi-jian</u>   <u>yifu</u>

       s/he give-LE I   one-MW   clothes

       'S/He gave me a dress.'

(21). a.   ta   ba   <u>yi-ge</u>   <u>mimi</u>   gaosu-le   wo

       s/he BA one-MW secret tell-LE   I

       'S/He told me a secret.'

    b.   ta   ba   <u>yi-jian</u>   <u>yifu</u>   gei-le   wo

       s/he BA one-MW clothes give-LE I

       'S/He gave me a dress.'

In (21a), *one secret*, the theme of the triadic verb *tell*, appears between BA and the verb. As we will see from the following example, BA does not permit goals of triadic verbs to follow it.

(22). a. * ta   ba <u>wo</u>   gaosu-le yi-ge mimi

          s/he BA   I   tell-LE   one-MW secret

   b. * ta   ba <u>wo</u> gei-le   yi-jian yifu

          s/he BA   I   give-LE one-MW   clothes

In (22), where the goals of the triadic verbs, *tell* and *give*, instead of the themes occur between BA and the verbs, the sentences are not acceptable. The examples in (20), (21) and (22) reflect one characteristic of BA, namely that it can only allow the themes of verbs, either dyadic or triadic, to follow it.

If verbs such as *steal* and *rob* were triadic, the nominals following them would function as themes and goals and the themes would be able to occur between BA and the verbs. However, an investigation reveals that BA cannot be followed by *either* of the two postverbal nominals in these examples. Compare in this regard (11) from above and (23):

(11). a.   zhangsan tou-le   <u>wo</u> <u>yi-jian</u> <u>yifu</u>

            Zhangsan steal-LE   I   one-MW clothes

           ˙Zhangsan stole a dress from me.˙

    b.   zhangsan   qian-le   <u>lisi</u> <u>yi-kuai</u> <u>shoubiao</u>

            Zhangsan   rob-LE   Lisi one-MW   watch

           ˙Zhangsan robbed a watch from Lisi.˙

(23).   <u>The second nominal occurs between BA and verbs</u>

    a. * zhangsan   ba <u>yi-jian</u> <u>yifu</u>   tou-le   wo

           Zhangsan   BA one-MW clothes steal-LE   I

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b.'   zhangsan   ba   <u>yi-kuai shoubiao</u> qiang-le   lisi

       Zhangsan   BA one-MW   watch   rob-LE   Lisi

<u>The first nominal occurs between BA and verbs</u>

c.'   zhangsan   ba   <u>wo</u> tou-le   yi-jian   yifu

       Zhangsan   BA   I   steal-LE one-MW   clothes

d.'   zhangsan   ba   <u>lisi</u>   qiang-le yi-kuai   shoubiao

       Zhangsan   BA   Lisi   rob-LE   one-kuai   watch

In (23 a) and (b), BA is immediately followed by the second nominals of the verbs in the sentences, just as it was in (20) and (21). Yet, the sentences are ungrammatical. So are the sentences with BA followed by the first nominals in (23c) and (d). However, as (24) shows, if the two nominals together follow BA, the sentences will be grammatical. This once again suggests that the two nominals make up a single NP that receives the theme role from a verb.

(24). <u>Two nominals together in BA construction</u>

    a. zhangsan   ba   <u>wo yi-jian yifu</u>   tou-le

       Zhangsan BA   I one-MW clothes steal-LE

       'Zhangsan stole one of my dresses.'

    b. zhangsan   ba   <u>lisi yi-kuai shoubiao</u> qiang-le

       Zhangsan BA   Lisi one-MW   watch   rob-LE

       'Zhangsan robbed one of Lisi's watches.'

In (24), when the two nominals function as one NP, i.e. the theme of *steal* and *rob*, the sentences are acceptable. This provides us with further evidence that *steal* and *rob* in Chinese are not triadic verbs, but dyadic verbs.

2.2.3 The relation between the two nominals after *steal* and *rob*

Chinese doesn't have separate possessive pronouns. When the relation of possession is expressed, a DE can be placed between possessors and possessees.

(25). a. wo de jiejie   zai daxuie dushou

        I DE elder-sister at university study

        'My elder sister is studying at university.'

    b. ta de gebe teng

        s/he DE arm ache

        'His/Her arm aches.'

Sometimes, the DE that expresses the possession can be omitted without affecting the meaning of the sentences.

(26). a. wo jiejie   zai daxuie dushou

        I elder sister at university study

        'My elder sister is studying at university.'

    b. ta gebe teng

        s/he arm ache

        'His/Her arms ache.'

This is just the case of the two nouns after *steal* and *rob* in (11). If a DE is put between the two nominals in (11), the acceptability and the meaning of the sentences is not affected, as the following examples show.

(27). a. zhangsan tou-le wo de yi-jian yifu

        Zhangsan steal-LE I DE one-MW clothes

        'Zhangsan stole a dress from me.'

    b. zhangsan qiang-le lisi de yi-kuai shoubiao

        Zhangsan rob-LE Lisi DE one-MW watch

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'Zhangsan robbed a watch from Lisi.'

That a DE can be placed between the two nominals following *steal* and *rob* indicates that the relation of the two nominals is that of possessor and possessee.

Crucially, DE cannot be placed between just any two nominals. For example, if it is put between the goal and theme of a triadic verb, such as *wo* 'I' and *mimi* 'secret' in the sentence *ta gaosu-le wo yi-ge mimi* 'He told me a secret.' ((17) above), the result is not grammatical.

(28). * ta   gaosu-le wo de yi-ge   mimi
       s/he tell-LE   I   DE one-MW   secret

   '* He told my secret.'

This indicates that two nominals that follow true triadic verbs do not have the same relation as those after *steal* and *rob*. The *secret* that he told in (28) does not belong to me. *Yi-ge mimi* is the thing that is transmitted by the act of telling. Therefore it is the theme of the verb *tell*. *Wo* is the person that receives the *secret* that *s/he* told, it is thus the goal of the verb *tell*.

Now let's return to the Chinese SVCP in (10).

(10) a. zhangsan tou wo dongxi chi
         Zhangsan steal wo thing   eat

         'Zhangsan stole food from me and ate the food.'

   b. zhangsan qiang lisi qian hua
       Zhangsan rob   Lisi money spend

       'Zhangsan robbed money from Lisi and spent the money.'

The analysis from Section 2.2.1 to 2.2.3 shows that *steal* as well as *rob* in (10b), is a dyadic verb rather than a triadic verb. The nominals after *steal* in (10a), i.e. *wo* and *dongxi* 'thing', can only be analyzed as one NP, the direct

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object (or the theme) of both *steal* and *eat*. The relation between the two nominals is possessor and possessee rather than the direct and indirect objects of the verb *steal*. The relation of the two nominals can be illustrated by the following tree structure.

(29).

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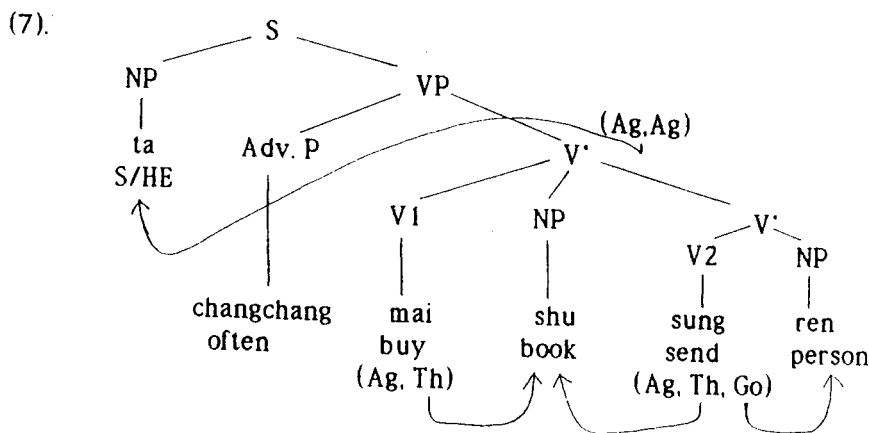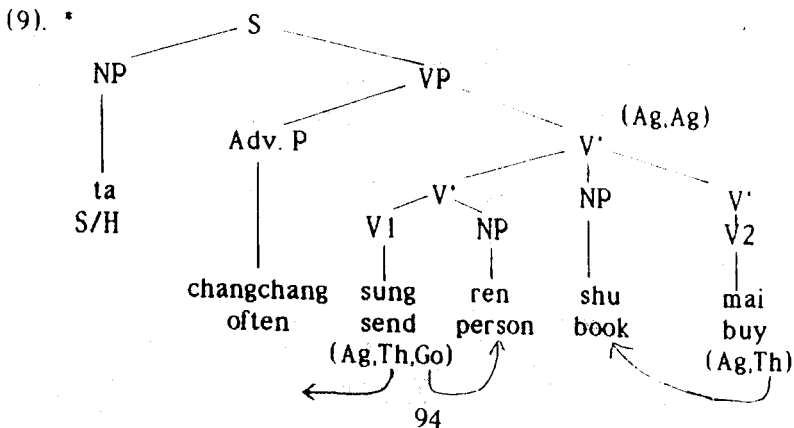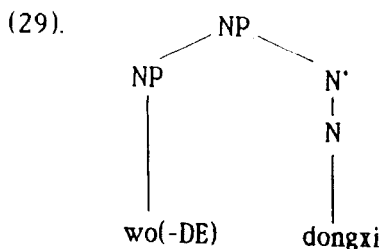            NP
          /    \
       NP        N'
        |         |
        |         N
        |         |
     wo(-DE)    dongxi
```

The claim that the two nominals after *steal* or *rob* function as one NP, the theme of the verbs, is further supported by the grammaticality of the following examples in which a DE appears between the two nouns.

(30). a. zhangsan tou wo de dongxi chi

        Zhangsan steal wo DE thing eat

        'Zhangsan stole food from me and ate the food.'

    b. zhangsan <u>qiang</u> lisi de qian hua

        Zhangsan rob Lisi DE money spend

        'Zhangsan robbed money from Lisi and spent the money.'

This indicates that examples in (10) are not real counterexamples to Baker's theory. The V1 and V2 in (10a), i.e. *steal and eat*, are both dyadic verbs just as the two verbs in example (1) above are (i.e., *zhangsan yang zhu mai* Zhangsan raises pigs and sells pigs'). We are therefore able to maintain the claim that V1 can not be a triadic verb, as first suggested in our discussion in (9).

2.3 V2 as intransitive verb

Intransitive verbs in Chinese fall into two groups: unaccusative and unergative. Both have only one theta-role to assign. An unaccusative intransitive verb assigns a theme role to a sister category NP while an unergative assigns an agent role. The theta-role assigning properties of these two kinds of verbs can be illustrated by the following structures.

(31). a. <u>Unergative</u>   b. <u>Unaccusative</u>

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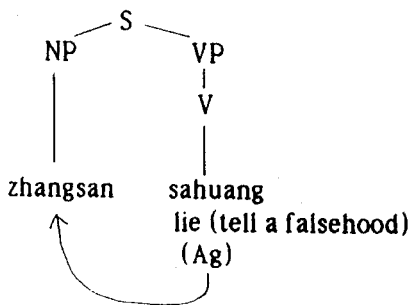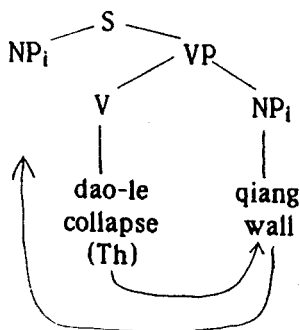        ― S ―                          ― S ―
   NP          VP                 NPᵢ         VP
   |           |                         V       NPᵢ
   |           V                         |        |
                                        dao-le   qiang
 zhangsan    sahuang                   collapse   wall
            lie (tell a falsehood)      (Th)
              (Ag)
```

(31a) is the d-structure as well as the s-structure of the Chinese sentence *zhangsan sahuang* 'Zhangsan tells lies'. The VP headed by *lie* assigns an agent role and a nominative Case to the NP *zhangsan* The Projection Principle, Theta-Criterion and Case-Filter are all satisfied in this structure. (31b) is the d-structure of *qiang dao le* 'The wall has collapsed'. According to the requirements of Theta-Theory, an internal role is assigned by a head within a VP. In (31b), the verb *collapse* assigns a theme role to its sister NP *wall* inside the VP. Yet it cannot assign Case to the NP since it is an intransitive verb. In order not to violate Case-Filter, *wall* must move to the subject position to receive a nominative Case from the VP.

2.3.1 V2 as unaccusative intransitive

In Section 2.1.1 of this Chapter, I discussed the application of Baker's theory to SVCPs consisting of two transitive verbs. However, as noted in the last chapter, a transitive verb and an unaccusative verb can also compose a SVCP. Let's see whether Baker's theory is applicable to this structure as well.

In Chinese, adjectives can be used as predicates in sentences such as the following.

(32). a. zhei ge   nuhar   zhen <u>piaolang</u>

        this MW girl   real   pretty

       ' This girl is real pretty.'

   b. ta   shuo de   bu   <u>duei</u>

        s/he   say   DE   not   correct

       ' What s/he said is not correct.'

Such adjectives are treated as intransitive verbs by Li and Thompson (1981:141), whose analysis I will accept. However, there are some differences between Chinese adjectives and intransitive action verbs. For example, adjectives can not be followed by the aspect particles LE, ZHE or GUO when they stand by themselves in the VP while other intransitive verbs can.

(33). a. <u>Adjective intransitive verb</u> co-occurs with a particle

      * zhei ge   nuhai zhen <u>piaoliang</u> le (zhe, guo)

      this MW girl   real   pretty   LE (ZHE, GUO)

   b. <u>Intransitive action verb</u> co-occurs with a particle

      zhangsan <u>sahuang</u> le

      Zhangsan lie   LE

      ' Zhangsan told a lie.'

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Piaoliang in (33a) is an adjective functioning as a predicate. When an aspect particle is added after it, the sentence becomes unacceptable. (33b) is an example of an intransitive action verb being followed by a particle, which is grammatical.

Chinese adjectives can be classified as unaccusative rather than unergative since they describe properties (i.e. sizes, shapes, etc.). As noted by Perlmutter and Postal (1984:98), such predicates are typically unaccusative in human languages.

Chinese adjectival unaccusative verbs can occur in the V2 position of the SVCP.

(34). zhangsan zuo   le jian yifu   <u>hsiao</u> san-cun

     Zhangsan make LE MW coat   small   three-inch

     'Zhangsan made a coat and it is three inches short.'

Small in (34) is an unaccusative adjectival predicate. The tree diagram for (34) is illustrated in (35).

(35).

In the above structure, *make* is a verb with two theta-roles while *small* has one theta-role. *Make* assigns a theme role to the NP *clothes* as the verb is at the zero bar level, is the sister of *clothes* and occurs to the left of the NP. In addition, through the percolation to the upper V' and VP, it assigns an agent role to the NP *zhangsan*. As for the unaccusative verb *small*, its projection, i.e., the lower V', assigns the theme role to its sister category, the NP *clothes* rather than to the NP *zhangsan* in accordance with the principle of word order. Thus, both verbs assign theme roles to the shared NP *clothes* but only V1 *make* assigns an agent role to the NP *zhangsan*.

Unaccusative intransitive verbs other than those corresponding to adjectives in English can also occur in the V2 position of the Chinese SVCP.

(36). a. tamen leiqi yi-du   qiang <u>dao</u>   le

      they build one-MW wall collapse LE

      ' They built a wall and it has collapsed.'

    b. ta   mai ping   jiou <u>sa</u>   le

      s/he buy MW   wine spill LE

      ' S/He bought a bottle of wine and it spilled.'

The underlined words in (36) are unaccusative intransitive verbs, which function as V2s in SVCPs in these sentences. The V2s have only theme roles to assign, which they discharge to the objects of V1s. For example, in (36a), it is not *they* that *collapse* but the *wall* they built. The V1 in this sentence, i.e. *build* has two theta-roles to assign: an agent role to the subject *they* and a theme role to its object *a wall*. In contrast, the V2, i.e. *collapse*, has only one theta role to assign: a theme role to *a wall*.

Like the corresponding English verb *spill, sa* 'spill' in (36b) in Chinese can be used as a transitive verb as well as an intransitive verb. When the

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action of spilling is caused by *s/he, sa* is a transitive verb, but when spilling is caused by things other than *s/he, sa* is unaccusative. As a result, (36b) can be interpreted as having either of the following two structures.

(37). a. <u>Spill as transitive</u>   b. <u>Spill as unaccusative</u>

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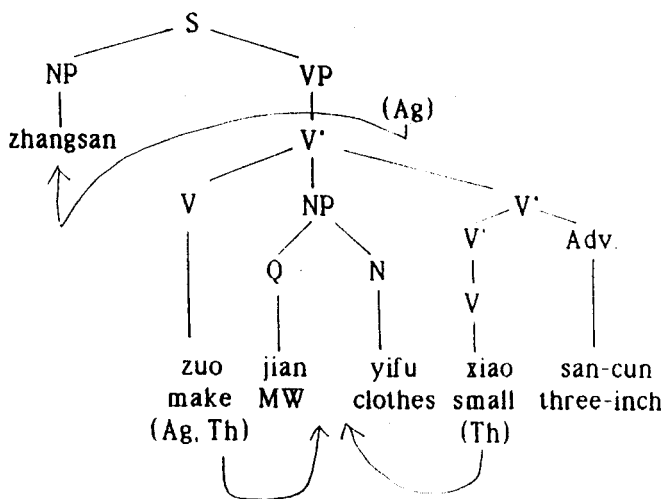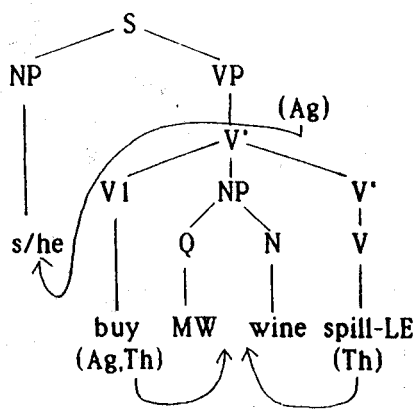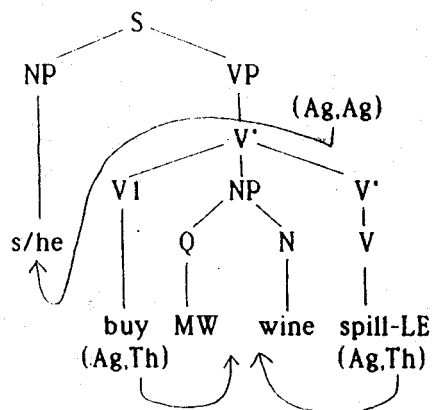              S                                    S
           /     \                              /     \
         NP       VP                          NP       VP
          |        | (Ag,Ag)                   |        | (Ag)
          |        V'                           |        V'
          |     /  |  \                         |     /  |  \
         V1   NP    V'                         V1   NP    V'
        s/he  / \   |                         s/he  / \   |
             Q   N  V                              Q   N  V
             |   |  |                              |   |  |
           buy  MW wine spill-LE                 buy  MW wine spill-LE
          (Ag,Th)     (Ag,Th)                   (Ag,Th)      (Th)
```

In (37a), both verbs discharge their agent role to the NP *s/he* as the NP is the doer or the causer of the two actions. Crucially, in (37b), the verb *spill* does not discharge any agent role, as *s/he* is not the causer of the event of the wine spilling.

The Chinese SVCPs in this section differ from those in Section 2.1.1 of this chapter, in that the V2s in this section are intransitive verbs and have only one theta-role to assign. When V1 and V2 are both transitive verbs as the examples illustrated in the earlier section, they assign theme roles to their shared objects and agent roles to their shared subjects. In contrast, as (34) and (36) show, when V1 is a transitive verb and V2 is an intransitive verb they each assign a theme role to the NP between them, but V2 can not assign an agent role to the subject of V1. V2's inability to assign an agent role to the subject of V1 and its ability to assign a theme role to the object of

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the first verb is determined by the lexical properties of V2 and is a requirement of Baker's theory which says that V1 and V2 must have a shared theme. As noted in this section before, the unaccusative intransitive verbs in Chinese SVCPs meet this requirement.

2.3.2 V2 unergative

Unlike unaccusatives, unergative intransitive verbs do not have the ability to assign a θ-role to the objects of V1. This is reflected in the ungrammaticality of the following sentences.

(38). *   wo   da   zhangsan   sahuang

       I   beat   Zhangsan   lie

      ' I beat Zhangsan for his telling falsehood.'

Lie in (38) is an unergative. The tree structure of (38) can be illustrated as the following.

(39). *

In this structure, V2 *lie*, being an unergative verb and having only an agent role to discharge, fails to assign a theme role to the the shared NP *zhangsan* As noted in   Baker (1989),   the Projection Principle requires that both heads in an SVCP assign theme roles to the shared NP. As the requirement is

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not satisfied in (39), the sentence is ungrammatical. The unacceptability of the sentence suggests that when V1 is a transitive verb, an unergative intransitive verb is not suitable to occur in the V2 position of the Chinese SVCP.

However, it seems that some unergative verbs in Chinese can be found in the V2 position of certain V1 NP V2 patterns, just as unaccusative intransitive verbs can.

(40). a. yisheng quan wo <u>tangxia</u>

doctor   advise I   lie down

'The doctor advised me to lie down.'

b. ta   jiao wo kuaidian <u>likai</u>

s/he urge I   soon   leave

'S/He urged me to leave at once.'

(41). a. laoshi   quan wo buyao <u>dajia</u>

teacher advise I do not fight

'The teacher advised me not to fight.'

b. mama jiao wo zaodian <u>sheijiao</u>

mother urge I   earlier   sleep

'My mother asked me to go to bed early.'

The underlined Vs in (40) are unaccusative intransitive verbs and those in (41) unergative intransitive verbs. These examples appear to show that unaccusative intransitive verbs and unergative intransitive verbs can occur in the same structural position.

Yet, by looking carefully, we can see that the structure of (40) and (41) is different from that of an SVCP. The difference lies mainly in the function

of V1. In an SVCP sentence, V1 has only an NP complement. If V2 is omitted, the sentence is still complete.

(1).   zhangsan   yang   zhu   mai

           Zhangsan   raise   pig   sell

           ' Zhangsan raises pigs and sells pigs.'

(34).   zhangsan zuo   le   jian yifu   <u>hsiao</u> san-cun

           Zhangsan make LE   MW coat   small   three-inch

           ' Zhangsan made a coat which is three inches short.'

   <u>V2 omitted</u>

(1)'.   zhangsan yang   zhu

         Zhangsan raise pig

        ' Zhangsan raises pigs.'

(34)'. zhangsan zuo   le   jian yifu

         Zhangsan make LE   MW coat

        ' Zhangsan made a coat.'

(1) is an SVCP. In (1)', where the V2 (*sell*) of (1) is omitted, the sentence is still acceptable. This suggests that the verb *yang* 'raise' only requires one complement (i.e. *zhu* 'pig'). The verb *sell* is not a complement of V1: it is the second head of an SVCP.

In contrast, if the V2s in (40) and (41) are deleted without any context the sentences are not acceptable.

(40). a. yisheng quan   wo   tangxia

           doctor   advise   I   lie down

          ' The doctor advises me to lie down.'

(41). b. mama cuei   wo   zaodian   shueijiao   .

          mother urge   I   earlier   sleep

'My mother urged me to go to bed earlier.'

<u>V2 omitted</u>

(40a)' ? yisheng quan wo ... [1]

    doctor advise I

    'The doctor advised me...'

(41b)' ? mama cuei wo...

    mother urge I

    'My mother urged me...'

The two sentences in (40a)' and (41b)' are not complete. Questions that immediately arise will be:

(40a)'' yisheng quan ni zuo shenme?

    doctor advise you do what

    'What did the doctor advise you to do?'

(41b)'' mama cuei ni gan shenme?

    mother urge you do what?

    'What did Mum urge you to do?'

This suggests that the V1s in these sentences are different from the V1s in the Chinese SVCPs. Though (40) and (41) contain the sequence V1 NP V2, they are not true SVCPs. The two verbs in SVCPs are joint heads of a V' construction while in the structure of (40) and (41), V2 is a constituent of the lower S which is a complement of V1 (refer to (42) below for(40)). In other words, V1 in (40) or (41) is subcategorized as having two complements: a NP and a S, while in an SVCP, V1 is not allowed to have more than one complement, as shown before. In fact, (40) and (41) are pivotal

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[1] ? in front of a sentence means that it is 'marginal' - i.e. of doubtful well-formedness, hence unidiomatic and unnatural.

sentences. (Chao 1968:124-125). The tree structure of (40) is illustrated in (42).

(42).

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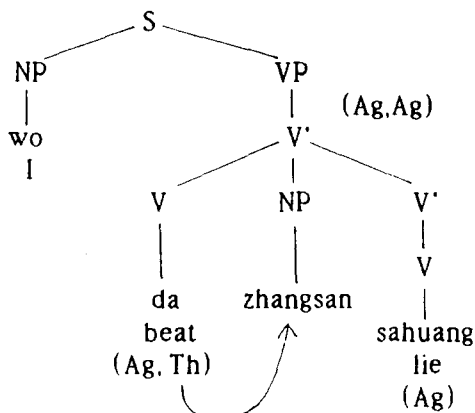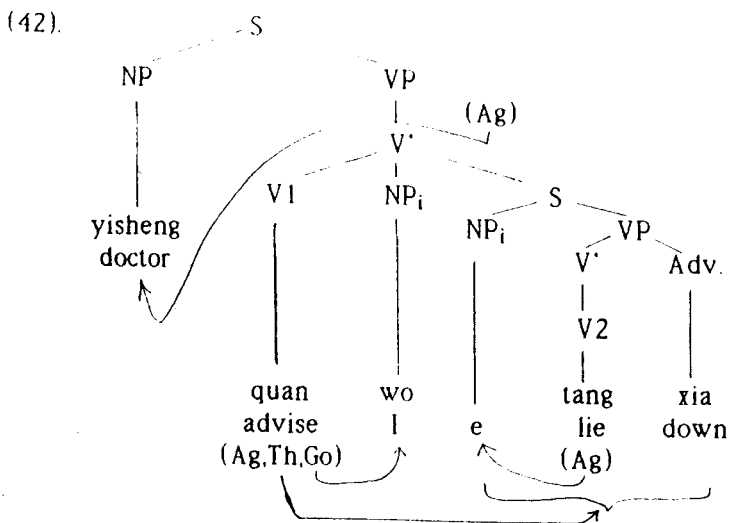                        _ S
        NP                      VP
         |                       |
         |                       |      (Ag)
         |                       V˙  ⌐
         |                       |
         |            V1      NPᵢ         S
         |             |        |      ⌐         ⌐
      yisheng          |        |    NPᵢ        VP
      doctor           |        |     |       V˙    Adv.
         ⌐             |        |     |        |
                       |        |     |        V2
                       |        |     |        |
                     quan      wo     e       tang    xia
                     advise     I             lie     down
                    (Ag,Th,Go)                       (Ag)
```

Given this structure, it is clear that *advise* is a verb which requires two internal arguments: one is the theme, the other is the goal. If the theme is missing without context, the sentence would sound incomplete.

Thus, one conclusion can be reached in this section: only unaccusative intransitive verbs can occur in the V2 position of the Chinese SVCPs when V1 is a transitive verb. This is exactly what Baker's theory predicts.

2.4 V1 as intransitive verb

2.4.1 V1 as unaccusative

As shown in Section 2.3.1 of this chapter, an unaccusative verb assigns a theme role to its subject, which appears in the object position at d-structure. When the V1 position of an SVCP is occupied by an unaccusative verb, the V2 should also be able to assign a theme role to that verb's internal argument. As already explained, verbs that are able to assign theme roles are either transitive or unaccusative.

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However, when V1 is an unaccusative and V2 a transitive verb, the resulting structure is not acceptable.

(43). * tamen   dao   yi-du   quang   leiqi   le

    they   fall one-MW wall   build   LE

In this sentence, *collapse* is an unaccusative verb and *build* is a transitive verb. The sentence's structure would be like the following:

(44). *

As illustrated in (44), both *collapse* and *build* assign theme roles to the shared NP *one wall* and the external argument features percolate only from the verb *build* The structure is consistent with the Projection Principle, the Theta Criterion and the principle of word order. But it does not meet the Case requirement. In Chinese a verb assigns Case as well as a theta-role rightward. However, the V2 *build* can not assign Case to the NP *one wall*, as it appears to the right of the NP. The verb *collapse* is in a position to assign Case to the NP, but as an unaccusative intransitive verb, it has no Case to assign. The NP in this structure thus can not get Case, in violation of the Case Filter. The sentence is hence ungrammatical.

When both V1 and V2 are unaccusative in an SVCP, Case is not a problem.

(45). a. ta qiang si le

s/he choke die LE

'S/He choked and died.'

b. lian dung hung le

face freeze red   LE

'The face becomes red because of cold.'

In the above examples, each SVCP is composed of two unaccusatives (the underlined words). The structure of (45a) is illustrated in (46).

(46). a. D-structure   b. S-structure

(46a) is the d-structure of *ta qiang si le* 'S/He choked then s/he died.'. In accordance with the principle of word order, both *choke* and *die* can assign their theme role to the NP *s/he* But if it remains in its d-structure position, the NP *s/he* cannot get Case, in violation of the Case Filter. In order to receive Case, the NP must move to a position which receives Case, is empty and does not receive an additional thematic role. The subject position is exactly the place that is needed. The shared object moves to the subject

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position and receives nominative Case from the VP. This is what we see in (46b).

Finally, suppose the V2 were unergative. As shown in the following example, when V1 is unaccusative, the sentence is not grammatical.

(47). a. * ta   qiang   zhengzha   le

       s/he choke   struggle   LE

   b. D-structure

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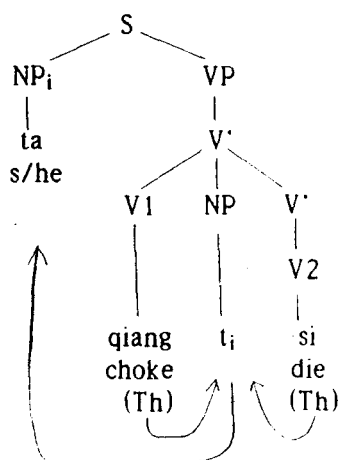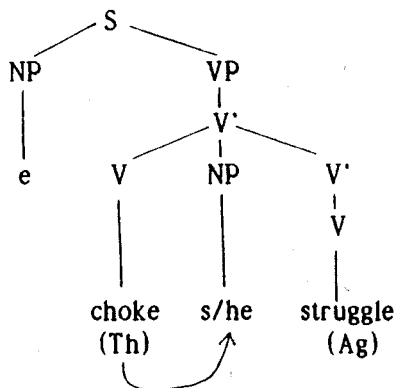                    S
             NP            VP
                           |
             |             V'
                           |
             e      V     NP      V'
                    |      |       |
                    |      |       V
                    |      |       |
                  choke   s/he   struggle
                   (Th)    ↑      (Ag)
                     \_____/
```

Following Baker (1989), object sharing is obligatory in SVCPs in that both Vs must theta-mark the intervening NP. In (47b), V1 *choke* assigns a theme role to the shared NP *s/he* but V2 *struggle*, cannot theta-mark *s/he* since the agent role must be assigned to an NP outside VP. The sentence is therefore ruled out.

In this chapter, we have investigated from various angles how Baker's theory accounts for the Chinese SVCP. In the next chapter, we will look into the BA construction and the coordination pattern of [v' V' V']. I will claim that Baker's theory can be extended to account for BA construction and I will show how coordination differs from the SVCPs which we have discussed in this chapter.

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THE APPLICATION OF BAKER'S THEORY

(PART II)

3.1 BA construction in Chinese

Baker's theory can not only account for the Chinese SVCP but also, in my opinion, be extended to the BA construction in Chinese. (In this thesis, 'BA construction' refers to the most generally used and discussed BA pattern of Subject+BA+direct object+verb+others. There are also other types of less widely used BA patterns which will not be discussed in this thesis.)

To remind the reader of the BA construction, example (15a) from Chapter 2 is repeated here.

(1). Non-BA construction

    a. mao chi-le yu

      cat eat-LE fish

     ' The cat has eaten the fish.'

    b. BA construction

      mao ba yu chi-le

      cat BA fish eat-LE

     ' The cat has eaten the fish.'

The BA construction is a very unique form in Chinese language. Helen T. Lin (1981:240) offers the following account for 'BA'.

> This construction is also called the 'disposal' construction because of the use of the morpheme ' BA'. 'BA' may be used as a verb meaning 'to handle' or as a measure word for chairs. It can

also be used as a functive verb meaning 'to hold' or 'to guard': the sentence object, then, stands in front of the main verb so that the object of the sentence is the same as the object of the coverb....This construction is often used when the speaker wishes to emphasize a certain object.

As mentioned by Lin, BA is traditionally regarded as a 'coverb' in Chinese. Chu (1983:71) defines 'coverb' as a term used to designate a class of words with a function intermediate between verbs and prepositions.

3.1.1 The common properties of coverbs that BA has

In terms of syntactic behavior, BA (as well as other coverbs) is considered to be verbal, because it may occur in the V-not-V question pattern, which is an important property of verbs.

The V-not-V question is a structure in which the predicate (excluding any preverbal adverb) is repeated with a negative word between the identical parts. As noted by Chu (1983:184), the first verbal element must be repeated twice in such a question while the other parts of the predicate may be optionally deleted. In the following examples, the words in parentheses indicates the optional deletion of the element(s) enclosed. (Only examples of verbs and BA are presented)

(2). a. ni chi (fan) mie chi fan ?

      you eat (meal) not eat meal

      'Have you had your meal?'

   b. zhangsan kan (dianying) bu kan dianying ?

      Zhangsan see (movie) not see movie

      'Is Zhangsan going to see the movie or not?'

   c. mao ba (yu chi le) mie ba yu chi le ?

      cat BA (fish eat LE) not BA fish eat LE

'Has the cat eaten the fish?'

d. ni ba (shu huan wo) bu ba shu huan wo ?

you BA (book return I) not BA book return I

'Will you return my book or not?'

(2a) and (b) contain two verbs in the V-not-V question form while (c-d) contain BA in the V-not-V form. In this V-not-V question test, BA behaves like a verb.

On the other hand, BA and other coverbs cannot be regarded as pure verbs. A pure verb in Chinese can function as a predicate in a sentence independently.

(3). a. shuie hua le

snow melt LE

'The snow has melted.'

b. wo chi fan le

I eat meal LE

'I have eaten my meal.'

BA and other coverbs, however, can not appear in a sentence as a main verb.

(4). * mao ba yu

cat BA fish

Because BA as well as other coverbs cannot appear with an object independently, some Chinese linguists (Chu:1983, Li and Thompson:1981, etc.) think that those elements have some properties of a preposition, though they admit that in Chinese there is no category corresponding precisely to the English preposition.

3.1.2 The difference between BA and other coverbs

BA phrases are different from other coverbs in that the NP after BA is the theme of the verb while the NP after other coverbs is an oblique which is considered by Chinese grammarians (Li and Thompson:1981) to be 'adverbial'. To make things clear, let's compare the BA phrase (BA and its theme) and two other coverb phrases in the following sentences. (Notice that *go* in (5a) and *come* in (5b) function as particles of purpose. As such, they occur at the end of the sentence with neutral tone.)

(1).   mao <u>ba yu</u> chi le

          cat   BA fish eat LE

          'The cat eat the fish.'

(5).   a. wo <u>ti mama</u> sung xin   qu

          I   for Mother sent letter go

          'I am going to send a letter for my mother.'

     b. wo <u>cong beijing</u> mai huei yi-liang qiche lai

          I   from Beijing buy back one-MW car   come

          'I bought a car from Beijing.'

In the above underlined phrases, all the NPs are objects of the coverbs, but their thematic roles are different. The NP *fish* in (1) is the theme of the verb *eat*, while the NP *Mother* in (5a) is the beneficiary of the verb *send* and the NP *Beijing* in (5b) is the source of the compound verb *buy back*. Furthermore, the oblique coverb phrases in (5a) and (b) can be omitted from the sentences while BA with its object in (1) can not be deleted without a context.

(6).   a. * mao chi le

          cat eat LE

b. wo sung xin qu

   I send letter go

   'I am going to send a letter.'

c. wo mai huei yi-liang qiche

   I buy back one-MW car

   'I bought a car.'

The sentence with the omitted BA and its object in (6a) is ungrammatical without a context while sentences with the omission of other coverbs and their objects in (b-c) are grammatical. This suggests that BA behaves differently from other coverbs. It seems that BA and the NP following it do not function as a modifier, which, as the following English example shows, does not affect the grammaticality of sentences if it is omitted.

(7). a. He reads the Bible for his aunt at night.

   b. The adverbials in (a) are omitted

   He reads the Bible.

Another interesting difference between BA and other coverbs can be found in the 'after-thought supplement', which refers to sentence fragments that are incidentally added to a sentence after its completion and thus appear in post-sentential position. Following are coverb phrases functioning as 'after-thought supplement.'

(8). a. wo sung xin qu----- ti mama

   I send letter go for mother

   'I am going to send a letter---for my mother.'

   b. wo mai huei yi-liang qiche---- cong beijing

   I buy back one-MW car from Beijing

   'I bought a car---from Beijing.'

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The part before the dots is what a speaker originally says. Then, perhaps to make the information more concrete, he adds some details. In the above examples, the after-thought supplements are both coverb phrases and the sentences are acceptable. If, however, BA appears in the same situation, the sentence will be unacceptable.

(9).   <u>BA and its object in (1) function as after-thought supplement</u>

* mao   chi   le----- ba   yu

    cat   eat LE   BA fish

Still another difference between BA and other coverbs is that BA does not allow the theme of the main verb to follow the verb.

(10). a.   mao chi-le   yu

      cat   eat-LE fish

      ˙The cat has eaten the fish.˙

    b. <u>Complement can not follow the verb in a BA construction</u>

     * mao <u>ba yu</u> chi-le   yu

       cat   BA fish eat-LE fish

    c. <u>Complement can follow the verb in a sentence with coverb other</u>

       <u>than BA</u>

       mao <u>zai di   shong</u> chi yu

       cat   at floor on   eat fish

       ˙The cat is eating fish on the floor.˙

Chinese is a SVO language. Thus, the order of *Cat eat fish* (i.e. with the theme *fish* following the verb *eat*) in non-BA construction is the normal sequence. However, with the presence of the BA in (10b), the sentence is not acceptable. In other words, the BA construction prohibits the theme from following the verb. On the contrary, when a coverb phrase other than BA is

inserted between the subject and the verb phrase, the sentence is grammatical, as (10c) shows. Moreover, the ungrammaticality of (11) gives us further evidence that main verbs in sentences with other coverb phrases, if transitive, not only allow but demand that their objects follow them.

(11). a.* mao _zai di shong_ chi

        cat   at floor on   eat

        'The cat is eating on the floor.'

    b. * wo   ti mama   sung

        I   for mother send

    c. * wo cong beijing mai huei

        I   from Beijing buy back

The unacceptability of (11) follows from subcategorization. The verb _eat,_ _send_ and the compound verb _buy back_ are subcategorized for a theme complement. When there is none, the sentences are unacceptable.

Based on the findings above, it is clear that BA manifests different behavior from common coverbs. But what is it? How do we explain the fact that no theme follows the main verb in BA construction and that the theme precedes the verb and follows BA instead?

5.1.3 BA, a defective verb

Although the BA construction is a much-discussed topic among Chinese linguists, a satisfactory explanation to the question has not yet come out. However, Travis (1987:127) made an advance in claiming that BA is in fact a theta-role assigner. This explains why BA can take a theme as its object. But she ignores the fact that the theta-role assignment properties of the main verb are not satisfied. For example, in the sentence _cat BA fish_ _eat,_ BA can assign a theme role to the NP _fish_ rightward as it is a theme

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role assigner and the direction of theta-role assignment in Chinese is to the right. But *eat* can not discharge its theme role since it occurs to the right of *fish* Thus, although *eat* is a dyadic verb and has two theta roles to assign (including an agent role to the NP *cat*), we don't know to what it assigns its theme role.

I would like to assume that BA is a verb. Yet it is not a pure verb, but a defective verb. This assumption is based on the properties of BA.

BA is claimed to be a verb on the basis of the following facts. First, BA reveals part of its verbal nature in the syntactic process outlined earlier in Section 3.1.1 (i.e. V-not-V pattern). Second, BA always has an NP as its object; that is to say, BA is an objective Case assigner. Third and most important, what distinguishes BA from other coverbs is that, as pointed out by Travis, BA is a theme role assigner. A theme in Chinese is always connected with a verb, the object of a transitive verb or the subject of an unaccusative verb.

However, from the point of view of X′ theory, BA cannot be regarded as a pure verb. As discussed earlier, a BA phrase (i.e. BA+its theme) fails to stand by itself as an independent predicate in a sentence. As a matter of fact, BA can only project to the first V′ level. It can never project to the VP level as other verbs do. It is in this sense that I claim BA is a defective verb.

In my opinion, BA should not be connected with the category of preposition. If so, the BA construction will be a violation of ′chain Case assignment′ and ′local binding requirement′. Let's take (1) *cat BA fish eat LE* as our example.

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(12).

In this example, the BA phrase is treated as a modifier, as are other coverbs appearing between subjects and main verbs. The NP *fish* moves out of its original position (i.e. the sister of *eat*) into the object position of BA, leaving behind, in the position out of which it moves, a 'trace' which is coindexed with the moved constituent (Radford 1981:194). The verb *eat* assigns a theme role to the trace of *fish* and BA assigns objective Case to *fish*. The verb *eat* assigns an agent role to the NP *cat* through VP and VP assigns a nominative case to the NP *cat*. Accordingly, the two referring NPs, *cat* and *fish*, can get theta-roles. The structure conforms to the Theta-Criterion, but, it is a violation of the 'chain Case assignment' and the 'local binding requirement'.

(13). Chain Case Assignment

Case can only appear on the head of a chain. (Chomsky 1986b:139).

According to Chomsky, a chain is the s-structure reflection of the 'history of movement' (1986b:95). For example, in (12), the chain consisting of the NP *fish* and the empty NP *e*, indicating the surface and deep structure positions of *fish*. The head of a chain for an NP is the surface structure position of the NP. As stated in (13), this is the only position in a chain to

which Case can be assigned. A chain with two Cases is as bad as having none at all.

In the tree structure of (12) above, the chain of the NP *fish* has two Case-marked positions: *fish* receives an objective Case from BA and the trace of *fish* from the verb *eat* This is a violation of the chain Case assignment.

Another problem with (12) is that it violates the 'local binding requirement', outlined in (14).

(14). Local Binding Requirement (Adapted from Chomsky 1986b:181)

α locally binds β, if

α and β form a link of a chain, and α c-commands and is co-indexed with β

A link of a chain refers to a pair of successive elements in a chain. In (12), the chain (*fish* and *e*) is also a link of a chain. In accord with the 'local binding requirement', *fish* should be co-indexed with and c-command *e* However, although the NP *fish* and the NP *e* in (12) are co-indexed, *fish* does not c-command *e* as one of its maximal projections (i.e. PP) does not dominate *e* Thus, the 'local binding requirement' is violated, providing further evidence that BA should not be considered a preposition.

In summary, BA is a verb (A theme role assigner and an objective Case assigner). It is a defective verb (Being not able to project to VP).

3.1.4 The extension of Baker's theory to BA constructions

In my opinion, Baker's theory of SVCP provides a way of accounting for the BA construction which has some characteristics that connect it with SVCPs in Chinese. First, the BA construction (that is to say, the defective verb BA, the theme and the verb) must be regarded as one unit. None of them can

be separated from others. For instance, the predicate of the sentence *mao BA yu chi le* 'The cat ate the fish.' should be regarded as a whole unit. Neither head can be omitted.

(15). a. * mao ba yu

          cat BA fish

     b. * mao chi le

          cat eat LE

Second, as discussed in Section 3.1.2, BA prohibits a theme from following the verb. As a result, BA and the verb share the theme between them. The above characteristics of BA raise the possibility of employing Baker's theory in explaining BA construction. Thus, BA may occur in the V1 position of the Chinese SVCP as transitive verbs do since both BA and transitive verbs are theme role assigners.

Following Baker's theory, the sentence *the cat ate the fish* can be expressed by the following tree structure.

(16).

In this structure, the coverb BA assigns a theme-role and an objective case to the NP *fish* rightward. The main verb *eat*, projected to the V' level, assigns a theme role to the NP *fish* leftward. Since BA is a defective verb in the sense outlined above, it can only project to the first V'. As a result, it is not able to assign an agent role to a subject. Thus, only the verb *eat* assigns an agent role to the NP *cat* through the VP. The agent role assignment is consistent with the meaning of the sentence, as *eat* is the only action that *cat* does. Accordingly, the theta-role assignment properties of both BA and the pure verb are satisfied in this structure.

BA can only precede the main verb. Thus, sentences like (17) are impossible as true BA constructions.

(17). a. * mao chi yu ba le

        cat eat fish BA LE

    b. * wo dapo huaping ba le

        I broke vase BA LE

To explain why BA must always precede the main verb, let's compare the structure of (17a) and (16) which will be repeated below.

(16). <u>BA precedes verb</u>   (17a) <u>Verb precedes BA</u>

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When BA precedes the verb *eat* as (16) shows, the sentence is acceptable while when BA and the verb exchange positions, the sentence becomes unacceptable, as (17a)' shows. This indicates that the elements in the BA construction have a fixed order, which results from the characteristics of BA that we discussed earlier.

(18). Characteristics of BA

      a. can assign objective Case to the NP following it

      b. can assign a theme role to the NP following it

      c. can only project to the first V' level together with its theme

(18) reveals that BA functions as a defective verb. It is defective, because together with its theme, it can only project to the first V' level, which turns out to be both its maximal projection and its only projection. It is like a (transitive) verb, because within its projection, it discharges objective Case and a theme role to an NP rightward. Comparing (16) with (17a)', it is not difficult to see why (16) is acceptable while (17a)' is not acceptable. In (16), the projection of BA is the first V' (i.e. the higher V'), inside which BA assigns objective Case and a theme role to the NP *fish* On the other hand, in (17a)' where the projection of BA is also the first V' above it (i.e. the lower V'), it cannot project to the higher V' which is beyond the first V' level. (17a)' is thus unacceptable.

     Baker's theory offers a good account for why BA should precede the main verb. Since BA together with its theme only projects to the first V', it can only occur in the form of a bare verb (i.e. V^0) in a sentence. In accordance with the principle of word order, a bare verb must appear to the left of its theme in an SVCP since the direction of theta-role assignment for a

bare verb in Chinese is rightward. BA has no other choice; it must stay in the position of V1. Thus, BA must always precede the main verb.

The fact that BA must always precede the main verb allows the analysis to be extended to the following example, in which the main verb is triadic.

(19). a. zhangsan   ba   yi-ge   pingguo   gei   le   wo

        Zhangsan   BA one-MW apple   give LE   I

        ' Zhangsan gave me an apple.)

b.

/ in this structure is not the shared argument; rather it is only the argument of the verb *give*. *Give* can also assign a theme role to *apple*, as the lower V' is the sister of *apple* and *apple* occurs to the left of *give*. For its part, BA theta-marks and Case marks the NP *apple* rightward. The agent role of the NP *zhangsan* is received from the verb *give* through the VP. The lexical properties of *give* and BA are satisfied and the three NPs in the sentence receive the appropriate Cases and theta roles.

As indicated in Section 2.2.2, BA only permits the theme of a verb to follow it. It does not allow the goal of a verb to appear after it. If the goal instead of the theme appears immediately after BA in (19), the sentence, would not be acceptable.

(20). a. * zhangsan ba wo gei-le   yi-ge   pingguo

       Zhangsan BA   I   give-LE one-MW apple

    ' * Zhangsan gave me to an apple.'

b.

In this structure, the NP *I* receives theme roles from both BA and the verb *give* while the NP *apple* receives a goal role from the verb *give.* There is no violation of a syntactic principle, but the meaning of the sentence is not acceptable as it means ' Zhangsan gave me to an apple.'

    In summary, the following characteristics of the BA construction shared with SVCPs create the possibility of using Baker's theory to account for BA construction in Chinese: (i) BA and the main verb always share the same theme, thus BA, the theme and the verb compose of one whole unit; (ii)

BA does not allow the main verb to have the theme following it; (iii) the main verb in BA construction can be either dyadic or triadic; (iv) the order of BA and the main verb is not reversible.

3.2 Coordination and SVCP

As noted in the last chapter, the salient characteristic of the SVCP is that a single VP can license more than one verb, creating the possibility of serial verb constructions. Following is an SVCP in which the VP has two heads: V1 *raise* and V2 *sell*

(21). a. zhangsan yang zhu mai

　　　Zhangsan raise pig sell

　　　'Zhangsan raises pigs and sells pigs.'

b.

```
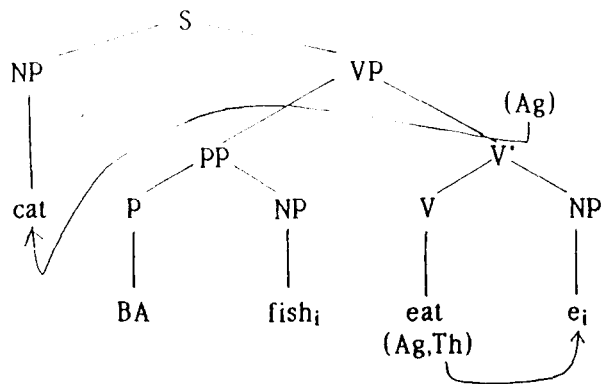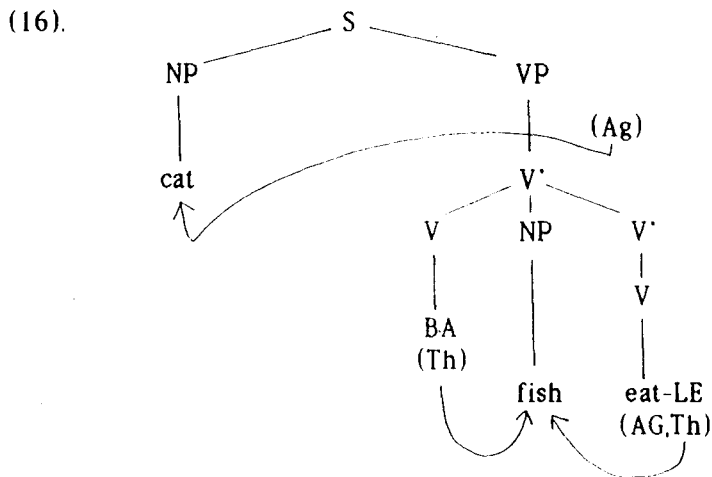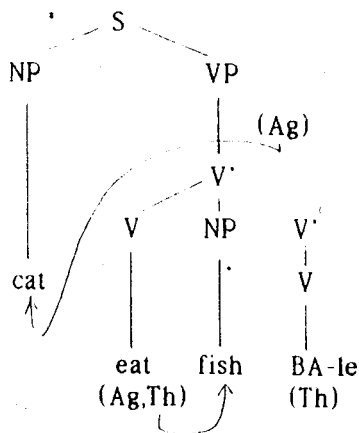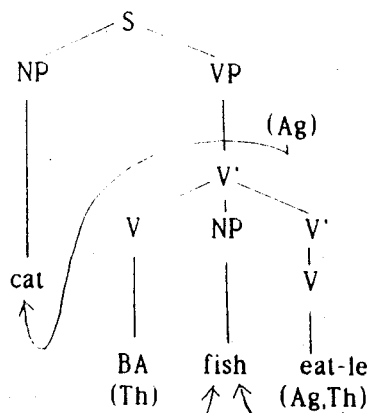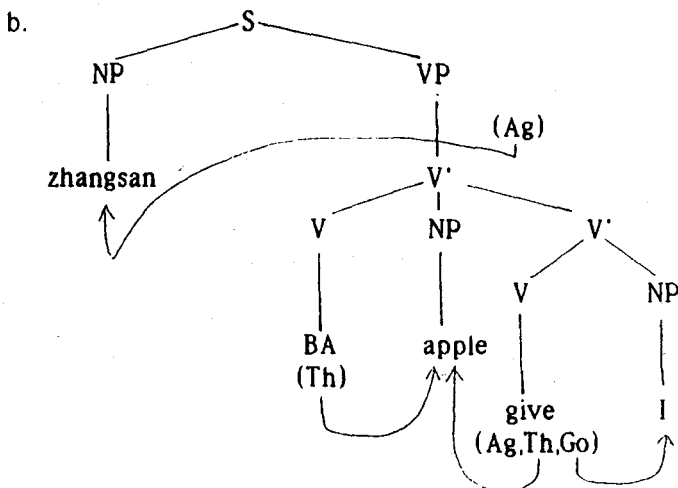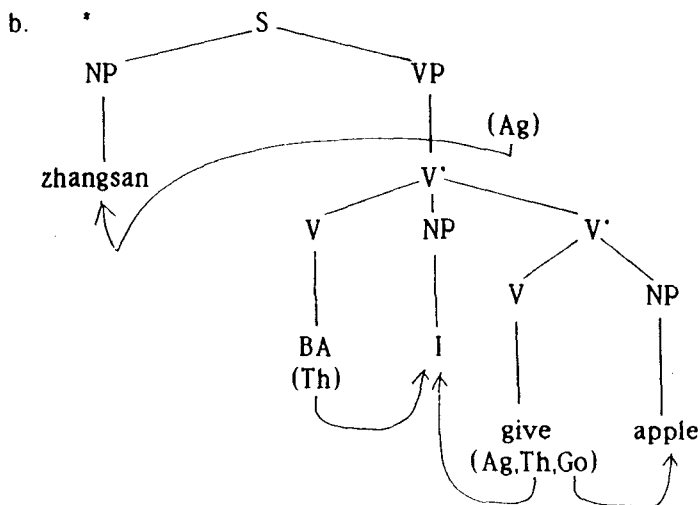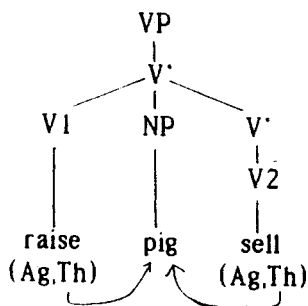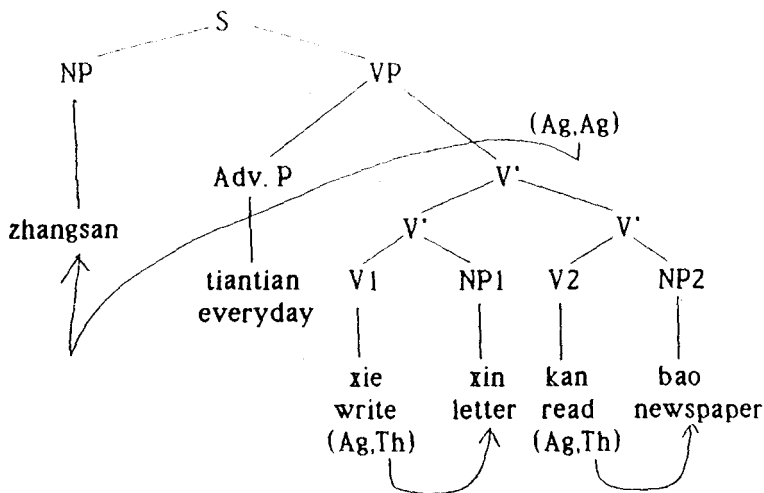                    VP
                    |
                  _V˙_
                   |
          V1     NP     V˙
          |      |      |
          |      |      V2
          |      |      |
        raise   pig    sell
        (Ag,Th)  ↗ ↖  (Ag,Th)
          └─────┘
```

However, according to Baker(1989:519), coordinations can also have a double-headed V˙ structure. (22a), which involves V˙ coordination, is represented in the tree structure in (22b).

(22). a. zhangsan tiantian xie xin kan bao

　　　Zhangsan everyday write letter read newspaper

　　　'Zhangsan writes letters and reads newspapers everyday.'

b.

```
                        S
         NP                    VP
                                        (Ag,Ag)
                 Adv. P              V'
zhangsan            V'        V'
         tiantian   V1   NP1   V2   NP2
         everyday
                    xie   xin  kan   bao
                   write letter read newspaper
                   (Ag,Th)       (Ag,Th)
```

As shown in (22b), the two lower V's, i.e., *write letter* and *read newspaper,* have the same syntactic status. Each verb has its own theme, and both V1 and V2 can assign an agent role to the subject *zhangsan.* Thus, the theta role assignment properties of the two verbs are satisfied and the Projection Principle, Theta-Criterion and Case Filter are obeyed. Notice that V2 in (22b) is not able to theta-mark the NP1 *letter* (i.e. the object of V1) because NP1 is not the sister of V2 or any of its projections.

Although the VPs in both coordinations and SVCPs license more than one head, they are structurally different. In an SVCP, a higher V' immediately dominates both a V^0 and a lower V' as illustrated in (21b) while in a coordination, a higher V' immediately dominates two lower V's as shown in (22b). Second, in an SVCP, the two verbs have a shared theme whereas in a coordination, the two verbs have a shared agent but not a shared theme. In other words, the asymmetry between the theme NP and the agent NP shows different patterns in these two constructions. In an

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SVCP. the theme of V1 must be theta-marked by V2, but the agent need not be theta-marked by both verbs, as example (21a) in this chapter and (36a) in Chapter 2 show. These examples are repeated in (23).

(23). a. zhangsan yang zhu mai

   Zhangsan raise pig sell

   'Zhangsan raises pigs and sells pigs.'

  b. tamen leiqi yi-du qiang dao le

   they build one-MW wall collapse LE

   'They built a wall and it has collapsed.'

(23a) is an SVCP with two dyadic verbs while (b) is an SVCP with a dyadic V1 plus an unaccusative V2. In (a) both the theme *zhu* and the agent *zhangsan* are theta-marked by the two verbs (*raise* and *sell*) while in (b) the theme *wall* is theta-marked by the two verbs (*build* and *collapse*), but the agent *they* is only theta-marked by the verb *build* As stated by Baker, object sharing rather than subject sharing is obligatory for SVCPs.

In contrast, in a coordination, the theme of V1 must not be theta-marked by V2, but the agent must be theta-marked by both verbs. As mentioned in the last paragraph, *letter* in (22b) cannot be theta-marked by V2 *read* while *zhangsan* must receive an agent role from both V1 *write* and V2 *read*

The difference in structure induces detectable differences between coordination and SVCPs. First of all, the two constructions feel different to native speakers. The coordination pattern tends to be perceived as a sequence of distinct events, whereas the SVCP is perceived as a single event. Furthermore, comma intonation may precede the V2 of a coordination, but not the V2 of an SVCP. (# marks an intonation break.)

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(24).   a. Coordination

zhangsan tiantian   xie   xin #   kan   bao

Zhangsan everyday write letter   read newspaper

'Zhangsan writes letters and reads newspapers everyday.'

b. SVCP

* zhangsan   yang zhu #   mai

Zhangsan   raise pig   sell

Moreover, as   Baker   points out,   an overt conjunction can occur in a
coordination not an SVCP.

(25). a.   zhangsan tiantian bushi xie   xin jioushi kan bao

Zhangsan everyday either write letter or   read newspaper

'Zhangsan either writes letters or reads newspapers everyday.'

b. * zhangsan bushi yang zhu jioushi mai

Zhangsan either raise pig   or   sell

Most important, coordinations are different from SVCPs with respect
to various syntactic processes. Being a shared theme, the NP between the
two verbs in an SVCP can be questioned while a theme in a coordination
cannot.

(26). a. The theme of an SVCP is questioned

zhangsan yang shenme mai?

Zhangsan raise what   sell

'What does Zhangsan raise and sell?'

b. The 1st theme of a coordination is questioned

* zhangsan tiantian xie shenme kan   bao?

Zhangsan everyday write what   read newspaper

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c. <u>The second theme of a coordination is questioned</u>

    ' zhangsan tiantian xie xin kan <u>shenme</u>?

     Zhangsan everyday write letter read what

Sentence (26a) shows that the theme can be questioned in an SVCP where the two verbs and their shared theme are considered as one constituent of a higher V'. On the other hand, a theme can not be questioned in a coordination. Questioning one of them is in violation of the Coordination Structure Constraint.

(27). Coordination Structure Constraint

    (Adapted from van Riemsdijk & Williams 1986:20)

    A conjunct of a coordinate structure cannot be questioned.

In the specific case of the NPs in coordinate verb categories, I would like revise (27) as (28).

(28). Coordination Structure Constraint

    If one conjunct of a coordinate structure is questioned, all other

    conjuncts must also be questioned.

In fact, in parallel coordinate verb categories where both verbs have NP objects, the sentence is grammatical if all these NPs are questioned.

(29).   zhangsan tiantian xie <u>shenme</u> kan <u>shenme</u>?

      Zhangsan everyday write what   read what

      What does Zhangsan read and write everyday?'

    Another syntactic process which can be used to test the difference between an SVCP and a coordination is reversal. As stated in Chao(1968), two verbs in a coordination can be reversed to give a grammatical result.

(30). a. <u>The reversal of the two verbs and their following element in (22a)</u>

       zhangsan tiantian kan bao xie xin

       Zhangsan everyday read newspaper write letter

       ˙Zhangsan reads newspapers and writes letter.˙

On the contrary, when the two verbs in an SVCP are reversed, the resulting sentence in (30b) is ungrammatical.

(30). b. <u>The reversal of the two verbs in (21a)</u>

      * zhangsan mai zhu yang

      Zhangsan sell pig raise

    The third type of syntactic process that distinguishes a coordination from an SVCP is relativization. The object NP in an SVCP can be relativized.

(31). a. <u>An SVCP with V2 as a dyadic verb</u>

       zhangsan yang zhu mai

       Zhangsan raise pig sell

      ˙Zhangsan raises pigs and sells pigs.˙

   b. <u>The relativization of the theme in (a)</u>

     ? zhangsan yang ta mai de nar zhong chu[1]

      Zhangsan raise he sell DE that MW pig

      'Zhangsan raises that kind of pig he sells.˙

(32). a. <u>An SVCP with V2 as a triadic verb</u>

       zhangsan chang mai shu sung ren

       Zhangsan often buy book send person

      ˙Zhangsan often buys books and sends them to others.˙

---

[1] . Notice that a resumptive word *it* is inserted to replace the relativised NP

b. The relativization of the theme in (a)

zhangsan chang mai ta sung ren   de nar ben shu

Zhangsan often buy he   send person DE that MW book

'Zhangsan often buys that kind of book he sends to others.'

In contrast, an NP between the two verbs of a coordination definitely cannot be relativized.

(33).   The relativization of the NP between the two verbs in (22a)

* Zhangsan tiantian xie ta kan   bao   de nar feng xin

Zhangsan everyday write he read newspaper DE that MW letter

'* The letter that Zhangsan writes and reads newspaper everyday.'

In this section, we have examined the structural differences between the SVCP and coordination. We have provided syntactic tests such as relativization, reversal and question-formation to show the difference between the two constructions. Based on these findings, it can be concluded, as Baker predicted, that coordination and SVCP coexist in serializing languages, yet are different constructions.

CONCLUSION

The study has investigated the *serial verb constructions proper* (SVCPs) in Chinese. The SVCP, with two verbs sharing one theme, has a syntactic structure significantly different from that of all comparable constructions, including coordination, embedded clauses, pivotal construction, and so on.

The unusual syntactic structure receives a good explanation in Mark C. Baker's (1989) theory of SVCPs. Baker extends X' theory and produces a double-headed construction, creating both the possibility and the obligation of two verbs theta-marking the same internal argument, in accordance with the Projection Principle.

Within the framework of Baker's SVCP theory, various types of Chinese SVCPs have been investigated in this thesis, including the combination of two transitive verbs, a transitive verb and an intransitive, and two intransitives. The investigation demonstrates that when V1 is dyadic, V2 can be dyadic, triadic or unaccusative. A triadic verb is not allowed to appear in the V1 position and an unaccusative can appear in the V1 position only when V2 is also an unaccusative. Otherwise, the Theta-Criterion or the Case Filter will be violated.

The BA construction, a perennial topic in Chinese grammar, also receives an explanation in Baker's theory. BA, which I would like to consider as a defective verb, assigns an objective Case and a theme role to the NP following it, yet fails to project beyond the first V' level. Thus, BA always occurs in the pattern BA+Theme+Verb, which behaves as one whole unit. It

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does not allow the theme to follow the verb, but requires the verb to share the theme with it. All these properties of BA follow from Baker's theory together with the assumption that BA is a defective verb in the sense outlined above.

Finally, in Chapter 3 of this thesis, a variety of syntactic tests (reversal, relativization, etc.) were used to provide convincing evidence that the SVCP in Chinese has a different structure from coordination.

An interesting fact that is discussed in Chapter 2 of this thesis is that the two verb heads in the Chinese SVCP are not reversible. In the following sentences, *a* is an SVCP while *b* is a sentence with reversed verb heads. Even though both heads are dyadic verbs and there is no pragmatic reason to rule out the reversed order, the (b) sentences are still unacceptable.

(1). a.   wo   jie   shu   kan

          I borrow book read

          I borrow books and read them.

     b. The reversal of V1 and V2 in (a)

        * wo   kan   shu   jie

           I   read book borrow

(2). a.   wo   mai   shu   zhong

          I buy tree   plant

          I buy trees and plant them.

     b. The reversal of V1 and V2 in (a)

        * wo   zhong   shu   mai

           I   plant tree buy

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(3).   a.   wo   mai   yang   wei

I   buy   goat   feed

' I buy a goat and feed it.'

b. The reversal of V1 and V2 in (a)

* wo   wei   yang   mai

I   feed   goat   buy

This fact is only superficially covered in this thesis and the underlying reason needs deeper investigation.

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