The syntax of nouns and noun phrases in dated pre-Angkorian inscriptions*

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1. Introduction

1.1 Background

Any diachronic analysis of Khmer must be based on the extensive corpus of inscriptions. According to Jacob (1960: 351; 1965: 143; *1991), conventionally recognized periods in the development of Khmer are 'Old Khmer', 'Middle Khmer', and 'Modern Khmer'. The Old Khmer period includes the pre-Angkorian Khmer of the earliest inscriptions to A.D. 802 and Angkorian Khmer, attested from 802 to 1431 (the fall of Angkor). 'Middle Khmer' covers the period of transition from Old to Modern Khmer, from approximately 1431 to 1800, and marks the culmination of various complex changes in both the phonology and grammar. 'Modern Khmer' is considered to extend from about 1800 to the present. All three periods are, of course, historical fictions, or rather historical-linguistic constructs, in the sense that there were no abrupt demarcations between one stage of the language and the next.

1.2 Previous analyses of pre-Angkorian syntax

Whilst a number of scholars have contributed significantly to—and indeed laid the foundations of—the historical study of Old Khmer, there are so far no syntactic analyses of Old Khmer based on a generative framework. Jenner

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I would like to express my sincere gratitude to Professor Stanley Starosta, who is the founder of lexicase dependency grammar. He introduced me to this theory and has provided continuous support and scholarly comments on this manuscript. My warmhearted appreciation also goes to Professor Philip N. Jenner, who taught me Old Khmer, and who has supported and encouraged me to pursue a career in linguistics. I also would like to thank Gary Y. Takeuchi for his careful review and editing of the English text.

1 The Fouan period is a historical period. The inscriptions from this period are in Sanskrit; the vernacular language of Fouan is unknown.

published a series of articles on Old Khmer syntax, and we possess now a diachronic survey of Khmer function words by Jacob.  

Texts of most of the pre–Angkorian inscriptions can be found in Coëdes’ eight–volume Inscriptions du Cambodge (1937–66) or scattered throughout the Bulletin de l’Ecole Française d’Extrême–Orient [BEFEO]

1.3 PRIMARY SOURCES

The pre–Angkorian corpus can be divided into dated and undated inscriptions.  
The data used in this investigation of the syntax of nouns and noun phrases of the pre–Angkorian dated inscriptions are not drawn from the original texts, but rather from the transliterated versions found in Jenner’s (1983–84) unpublished work. Sixty–six texts have been taken from two volumes of Jenner’s work and are listed in Appendix A.

Working with data from an ancient language imposes serious limitations on the analysis. The compilation and interpretation of the texts, the primary data for the analysis, is itself a major analytical task. As Jenner put it: “The linguistic archaeologist must first consider the orthographic shape of each item; he must then translate that shape into phonological terms, analyze its morphology, determine its syntactic function, identify it with later or cognate forms, and eventually set up a hypothesis regarding its meaning” (Jenner CPAK 1981–82: iv). All this work must be done without a co–operative native–speaking consultant whose intuition can be accessed to confirm or discount a particular hypothesis.

1.4 GOALS AND OBJECTIVE OF THIS STUDY

The purpose of this study is twofold: (1) to apply lexicase dependency theory to the analysis of certain grammatical aspects of nouns and noun phrases of dated pre–Angkorian inscriptions to determine whether the grammatical properties of these inscriptions can be insightfully described and illuminated within this formal and explicit theory, and (2) to identify any areas in which the data prove to be incompatible with the claims made by the theory, thereby possibly necessitating a modification of the theory itself.  

It is to be expected that in the absence of a native–speaking consultant, a narrowly constrained universal linguistic theory will provide assistance in choosing among alternative hypotheses about the correct analysis of particular constructions. At the same time, data from a natural text from another non–Indo–European language will be helpful in developing a theory that can seriously claim to be universal.

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3 The latter was not available to me at the time of writing; Jenner’s contribution to the London Shorto Festschrift concerns Angkorian Khmer. Pou contributed a survey of some basic OKhm, constructions to this journal (1980).

4 Jenner says that “the dated inscriptions are those which contain their own internal dating” (Jenner 1982).

5 See Tesnière 1959 for a general reference on dependency grammar and Starosta 1988 for an introduction to the lexicase implementation of this theory.
1.5 Methodology

The corpus of this study is composed of the texts presented in Philip N. Jenner's unpublished work, "Textes Vieux Khmers faisant partie du Corpus des Inscriptions du pays khmer" (Tome 1.1 et 2, Tome 1.3, 1983–4). I began analyzing the texts of the earliest of the dated inscriptions, which had already been segmented into their constituent sentences by Jenner's translations of each text in French. Each example cited in this thesis is labeled with a number identifying its location in these texts. Each word in the texts was checked against Jenner's pre-Angkorian lexicon and labeled in terms of the categories made available by the lexicase theory, and an explicit lexicase dependency representation was drawn for each sentence. These representations conform to the constraints imposed by the lexicase theory. The purpose of this task was not to check on Jenner's translation of the text, but rather to investigate the structure of the sentences of the pre-Angkorian dated inscriptions within the lexicase framework. However, this study indicates places where the requirements of the theory suggested alternative translations or analyses that differ from those proposed by Jenner.

1.6 The Lexicase model

This investigation of nouns and noun phrases of pre-Angkorian dated inscriptions is formulated within the lexicase dependency grammar framework developed over the last twenty years, primarily by Stanley Starosta and was carried out in accordance with the principles and constraints of this theory.

A lexicase grammar is a grammar of words. It has no deep structure, no transformations, and no phrase structure rules. It represents the structure of a sentence solely in terms of a network of dependency relations obtaining among pairs of words in the sentence. Co-reference relationships are described in terms of coindexing words. The syntactic and semantic properties of words are characterized in terms of contextual and non-contextual features of lexical entries (Starosta [forthcoming]). This theory attempts to capture cross-linguistic generalizations, and makes a claim about human language in general.

A lexicase grammar is a set of generalizations about the internal compositions, external distributions, and lexical relationships of the words in the language (Starosta 1988: 2). The relationship among lexicase rules can be represented in terms of the flow chart in Appendix B.

The analysis presented here does not include the set of formalized rules that would be required by a complete grammar. It does, however, provide fully specified dependency representations of a broad range of example sentences relevant to a description of the nouns and noun phrases of the Old Khmer dated inscriptions. For each representation, the functional label of each binary dependency relationship is specified in terms of an indexed contextual feature in the matrix of the regent term of the relation. Such labels include case relations [CRs], case forms [CFs], predication [prdc], or finiteness [fint] of the dependents.
This study is divided into the following sections:

Section 1 — Introduction
Section 2 — Overview of Dated pre-Angkorian syntax
Section 3 — Noun phrases with a single noun and no dependents
Section 4 — Noun phrases with a single noun and one / multiple dependents
Section 5 — Multiple dependent constructions; possessive, locative, equative and prepositional phrases
Section 6 — Conclusion
Appendices
References

2. Overview of dated pre-Angkorian syntax

The focus of this analysis is on noun and noun phrase structures. Because so many examples of the constructions in the data presented here are non-sentential, and since this is an accurate reflection of the language of Old Khmer inscriptions, a brief description of the overall structure of sentence patterns of the dated pre-Angkorian inscriptions is needed to set the foundation of this work. This overall description provides a sketch of the general syntactic properties of the Old Khmer language, many of which are relevant to a description of the constructions which depend on N[oun]s in N[oun]P[hrase] structures. In this study, the term ‘Old Khmer’ [OKhm.] is used to mean ‘Old Khmer dated pre-Angkorian’.

2.1 Basic sentence patterns

A basic sentence structure has only one clause. A sentence is any phrase that has a word marked [+prdc] as its lexical head, that is, a verb, or a prdc-inflected preposition or a noun. The focus of this section is on the analysis of sentences with and without verbs. The outline of this presentation is: (1) a brief description of verbless sentences and their subcategorization, (2) verbal sentences, and (3) conjoined sentences.

2.1.1 Verbless sentences

This section examines sentences without verbs as the head of the constructions. In principle, lexicase allows two types of verbless sentence constructions: (1) the nominal predicate where the regent noun N₂ is the head of the construction, bears the feature [+prdc], and has N₁ as its nominative patient dependent; and (2) the predicate prepositional phrase where the preposition P₁ itself bears the [+prdc] feature.

The Old Khmer pre-Angkorian dated inscriptions have only one example of an independent clause with a nominal predicate NP (see example 8 of section 4.2.2.1) and no examples of prepositional predicate phrases as described above. Instead, most of the verbless sentences occur as relative clauses in NPs composed minimally of two nouns, a regent noun N₁ and a nominal dependent N₂, which is
the head of a verbless relative clause and which bears the feature [+prdc]. As is the case in relative clauses generally, the non-verbal relative clause lacks one of its NPs, in this case its subject (+Nom, PAT); this missing NP, in turn, is interpreted as coreferential with the regent N₁. The significance of this nominal predicate is that the noun N₂ is a relative clause of the NP-predicate clause pattern described in general terms above. A schematic representation of this pattern is shown below. A more detailed analysis of this nominal predicate relative clause construction can be found in section 4.4.4.

Nominal predicate in the relative clause construction.

Here [S [NP N] N₂[+prdc] ] is the form which the verbless relative clause would be expected to take if it were not functioning as an attribute of a regent N₁. The implied subject N[index] is missing and is coreferential with the regent N₁. The relative clause has the predicate N₂ as head, and N₂ is the dependent of N₁.

The following is an additional schematic example:

1. (K.54:12)

kñum 'amnoy sināhv pragat
slaves gift hermit pious
'Slaves the gift of pious hermit'
The missing but implied \( kñum \) is the nominative patient of the regent predicate noun \( āmnoy \) and is interpreted as coreferential with the regent NP \( kñum \); in turn \( kñum \) is the regent of the relative clause \( āmnoy sínáhv pragat \).

2.1.2 Verbal Sentences

A verbal sentence has as its construction head a verb that bears the [+prdc] predicate lexical feature. Due to the nature of the data, some of the verbal S types are only attested in relative clause constructions. The word order of the S constituents is subject–verb–object. The verb is subcategorized into transitive and intransitive types. Old Khmer transitive verbal sentences will be examined next.

2.1.2.1 Transitive verbal sentences

\[
\begin{array}{c}
\text{V} \\
\text{N1} \\
\text{N2} \\
\text{l2ndex} \\
\text{l+V} \\
l+\text{trns} \\
\text{l3ndex} \\
l1\text{[+AGT]} \\
l+N \\
l1\text{[+N]} \\
l\text{PAT} \\
l\text{AGT} \\
l1\text{[+Nom]} \\
l\text{Acc} \\
l3\text{[+Acc]} \\
l3\text{[+N]} \\
l3\text{[+PAT]} \\
\end{array}
\]

In the transitive clause the V [+trns] is the head of the construction. It implies an Agent subject N\(_1\) indicated by the features [1[(+N)], 1[+AGT], 1[+Nom]], and a Patient object N\(_2\) indicated by the features [3[(+N)], 3[+PAT], 3[+Acc]]. This is an example of an Old Khmer transitive clause:

2. (K.493:19)

\[\text{poñ bhā vinaya ktiñ krapī canmat} \]

Sir Bhā Vinaya owe carabao uncastrated

‘Sir Bhā Vinaya owed one uncastrated carabao’
In the lexicon dependency representation, a vertical line indicates the head of the construction, the slanted lines indicate the dependents which are written two steps below the level of the head word to its right or its left. Each constituent word is indexed to establish the dependency link to one other word. The verb ktiñ [+trns] is the head of the clause, the NP poñ bhā vinaya is to the left, and the NP krapī canmat 1 is to the right.

The grammatical functions of this tree are shown by linking the contextual features on the head of V to the index of the dependent attributes. The [1[+Nom]] and [1[+AGT]] imply that the verb ktiñ expects an [Index] dependent to be marked by the 'nominative' case form [+Nom], and interprets it as bearing an 'agent' case relation [AGT]. The [4[+PAT]] and [4[+Acc]] imply that the head word ktiñ requires its [4Index] dependent to bear an 'accusative' case form [+Acc], and interprets it as having a 'patient' case relation [PAT]. Thus the transitive verb ktiñ identifies poñ[Index] as its subject [AGT, +Nom] and krapī[4ndex] as its object [PAT, +Acc]. The subject poñ is a title [+titl] noun and has the proper [+prpr] noun bhā vinaya as its predicate [+prdc] dependent attribute. The patient object krapī is the regent of the predicate classifier [+clsf] noun canmat, and the predicate number noun 1.

The following shows that the grammatical representations of this verbal sentence are stated not in terms of layers of constituents, but in terms of pairwise dependency relations between a dominant regent ktiñ and dependent adjuncts poñ and krapī; regent poñ, adjunct bhā vinaya; regent krapī and adjunct canmat; and regent canmat and adjunct number 1.

The transitive verbs can be subcategorized in terms of whether they take locational or non–locational dependents.

2.1.2.1.1 Non–locational transitive verbal sentence

Previous examples have demonstrated where verbs act as case markers and expect [+AGT, +Nom], [+PAT, +Acc] and even [+LOC] as dependents. In this section the focus is on verbs that do not require LOC dependents.

Example 3 shows the non–locational transitive verb dar with an adverb ukk as its dependent.

3. (K79:19)

Poñ mano dār canlek ukk yugala yau 1
Sir Mano demand cloth in addition double unit 1

'Sir Mano also demanded [a certain amount of] cloth in addition, [namely] 1 yau of double [cloth].'
In this sentence, the transitive verb dār 'demand' is the head of the clause. It has poñ as its nominative agent [+Nom, AGT], canlek as its accusative patient [+Acc, PAT], ukk as its adverb, and yugala as its other accusative patient [+Acc, PAT]. This construction is interesting because the transitive verb dār has two consecutive accusative patients, in violation of the lexicase 1/Sent constraint. Usually yugala (the second accusative patient) is the predicate dependent of the word canlek (the first accusative patient), but because of the presence of the adverb, it must be analyzed as a separate constituent in this example.

2.1.2.1.2 Locational transitive verbal sentences

In Old Khmer there are some ditransitive verbs like oy : 'to give', jāhv : 'to acquire', dār : 'to demand', and jon : 'to offer', which bear the semantic features [+goal] or [+source] and obligatorily expect one of their dependents to bear the [+lctn] case form and [+LOC] case relation as complement (allowing for zero anaphora).

The tree in example 4 illustrates a locational transitive sentence where the verb oy [+goal] implies a LOC dependent.

In example 4, the transitive verb oy [+goal] implies a LOC dependent, has a coordinate NP with the conjunction dañ as its dependent attribute.

4. (K.18:3)

mratāñ bhāskarapāla oy sre dañ kñumma
Lord Bhāskarapāla give ricefield and slaves

ta6 vrañ kamratāñ 'añ śrīsankaranārāyana
to V. K. 'A. Śrīsankaranarayana

'The Lord Bhāskarapāla gave the ricefield and slaves to the V. K. 'A. Śrīsankaranarayana.'

6 Jenner interprets ta as "subordinating conjunction, normally optional." (Jenner, personal communication, February 17, 1992)
In this example the verb oy, the head of the construction, has three dependents, the nominative NP mratāṇ bhāskarapāla [+Nom, AGT], the coordinate accusative NP sre dañ kņumma, with dan as the coordinating conjunction [+Cnjc], and the locational PP ta₁ vrah, where the noun vrah bears the LOC complement to the verb oy.

2.1.2.2 Intransitive verbal sentences

In the intransitive clause construction, the V as head of the clause, requires only a patient subject [PAT, +Nom]. The intransitive verbs are subcategorized into the copula and non–copula classes.

2.1.2.2.1 Intransitive sentences with copula verbs

A copula is an intransitive verb that takes a patient subject and a predicate noun, static verb, or predicative PP as its complement (Starosta 1991). Here we are looking at the nominal predicate dependent of the copula verb gui.7

In example 5, the copula verb gui equates the patient subject neh, which is a demonstrative noun, to its human predicate object kņum vrah.

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7 Jenner interprets gi as “a weak demonstrative pronoun commonly standing before a zero copula so that its proper function became blurred by the Middle Khmer period.” (Jenner, personal communication, February 17, 1992)
5. (K.388C:7)

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neh gui kนม vrฮ
these be slaves Vrah

'These are the slaves of the Vrah.'
```

The copula verb gui [+copl] has a demonstrative noun neh [+dmns] as patient subject and a predicate NP kนม [+humn] as dependent attribute.

2.1.2.2.2 *Intransitive clauses with non–copula verbs*

The intransitive non–copula verb is examined next. The intransitive non–copula verb dança has a nominative patient pronoun ge.

6. (K.49:17)

```
ge danца
they be punished

'They shall be punished.'
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The intransitive verb dança is the head of the clause where the pronoun ge [+Nom, PAT] is its subject.

This type of construction can be further subcategorized into verbs requiring or not requiring locational nouns as dependent attributes.
2.1.2.2.2.1 *Intransitive verb with location noun as dependent*

An example of an intransitive verb with a locational noun dependent is shown in example 7.

7. (K.561:21)

```
ge  dau  'avćinarakk
    they go  'Avćinarakk
```

'They go to the 'Avćinarakk.'

This intransitive clause has the movement verb *dau* as the head, the pronoun *ge* as subject, and the locational noun *'avćinarakk* as LOC complement. The intransitive verb *dau* requires a LOC complement as dependent. Its LOC complement can be either a [+lctn] location noun, as in this case, or a relator noun as demonstrated in the following section.

2.1.2.2.2.2 *Intransitive verb with relator noun as dependent*

Example 8 shows the intransitive verb *lanlyan* 'bur' is the head of the clause. In this section the relator noun is the dependent of a verb in the sentence.

8. (K.341N:11–2)

```
ge  lanlyan  kamluñ  niraya  nu  gotra  phon
    they burn  in  Hell  with  kinsmen  all
```

'They [shall] burn in Hell together with their kinsmen.'
Here the relator noun *kaṃlūṇiḥ* is the dependent attribute of the intransitive verb *laṅlyaṇiḥ*. *Kaṃlūṇiḥ* has the localistic feature [+ntrr], which characterizes the specific kind of relationship associated between the regent verb *laṅlyaṇiḥ* 'burn' and the dependent noun *niraya* 'hell'.

2.2 Conjoined sentences

This study assumes that full sentences in Old Khmer could be conjoined by using the coordinate conjunctions *donī* or *daṇī* or *droṇi* or *dronī* [+Cnjc]. Following lexicase dependency grammar principles, the coordinate conjunction is the lexical head of the conjoined constructions, not the S or the NP. These conjunctions presumably were able to join two complete independent sentences. So far, probably because of the nature of the texts, examples of full sentences joined with a coordinate conjunction have not been found. As stated previously, the absence of such examples is an accurate reflection of the language of the inscriptions, in that most of them are in the form of NPs. Coordinate NPs with and without a conjunction are discussed in section 4.1.

2.2.1 Fulls with *donī/daṇī* gap

Example 9 illustrates a full sentence with the missing coordinate conjunction *donī/daṇī*.

9. (K.49:17)

```
ge cer 'ājña vraḥ kaṃrāṭān 'aṅi ge daṇḍa
they disobey order V. K. 'A. they be punished
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‘They [thereby] disobey the order of the V.K.‘A. [and] they shall be punished.’
Example 9 is potentially two independent sentences. The verb cer [+V, +trns] is the head of the transitive verbal sentence where ge [+Nom, AGT] is the nominative agent, and 'ajña [+Acc, PAT], is the accusative patient. The intransitive verbal sentence ge d Anda has ge [+Nom, PAT] as the nominative patient of the intransitive verb d Anda.

These sentences can be considered coordinate rather than independent sentences because both share the same subject ge, as it is this ge that does not obey the order of the V.K.'A. These two verbal sentences are analyzed here as being conjoined with the missing coordinate conjunction [doi/dan]. This is necessary because of the lexicase dependency grammar requirement that every phrase, including sentences, have a word that acts as the head of the whole construction. This is not a very intuitively satisfying analysis, but no alternative is made available by the theory at this point in time.

Before closing this section on an overview of Dated pre-Angkorian Inscriptions syntax, I would like to illustrate a complex verbal sentence from the data.

10. (K.49:13)

'ampal kñum tmur krapí sre dArnín
all slaves cattle buffaloes ricefields plantation

gui ta man ge pu cañ 'añ oy ta vrah
be of what they Elder Lord Our give to Vrah

don kñum prañÁ 'nak ta psam
and slaves to be given by people who contribute

ta gui ukkra gui tel prasiddhá
that who be also be which convey

'All [these] slaves, cattle, buffaloes, ricefields and plantations—those things which Our Elder Lords have given to the shining one—as well as the slaves presented by persons also contributing to [this pious work] are conveyed.
The copula verb gui [8ndex] is the main verb of this sentence and has 'ampal' as its subject and ta₄ man as its predicate. The noun 'ampal' is the regent of the predicate relative clauses kňum, tmur, krapı, sre, damrıň. The predicate PP ta₄ man has ta₄[9ndex] as complementizer of the relative clauses ge pu cah 'aň oy ta₁ vraḥ doň kňum pradāna 'nak ta₄ psam₄ ta₄ gui ukкра. The coordinate
conjunction don [17ndex] conjoins the verbal relative clauses ge pu caḥ ‘aṅ oy taḥ vṛah and kṛṇam pradāna ‘nak taḥ psam taṇ gui ukkra. If the verb gui [8ndex] and the gui [27ndex] are conjoined with the missing conjunction [don] then the head of the S is the missing [doṅ].

The predicate relative clauses with ‘ampal as the regent list all gifts that are involved in the transaction. The second relative clause with taṇ man as regent gives the description and information about the source of these gifts and its recipients.

3. Noun phrases with a single noun and no dependents

A noun phrase is headed by a noun. In nominal attribution, the head noun may have zero, one, or more dependent modifiers.

The purpose here is to analyze the structure of nominal attribution in noun phrases, by establishing: (1) the grammatical classification of Pre–Angkorian nouns, (2) the classification of noun dependency relationships, and (3) the multiple noun dependency relationships.

In this section noun phrases without reference to their dependent attributes will be examined. Nouns in Old Khmer, as in many other Southeast Asian languages, do not require a determiner as attributes.

Based on syntactic function and morphological criteria, eight pre–Angkorian noun classes can be distinguished.

Except for relative nouns, nouns that can occur without attributes are: pronouns, demonstrative nouns, common nouns, number nouns, classifier nouns, and proper nouns.

Noun phrase modifiers are optional in all seven types of head nouns; they also depend upon the context of the sentences. In this section, analysis focuses only on zero–attributes. Cases where attributions are allowed in the structure are analyzed in Chapters IV and V.

3.1 Pronouns

It is not clear whether pronouns constitute a syntactically definable subclass of nouns in Old Khmer pre–Angkorian language. In this thesis the term ‘pronoun’ is used as a notional label to refer to a small set of nouns used as substitutes for other nouns, whose reference is set or constant for a given discourse. They are marked by the feature [+pr mn] here.

Following the criteria of X–bar syntax, pronouns in lexicase are identified as a subset of nouns since they are lexical heads of NP. All personal pronouns such as ‘aṅ ‘I, me, my, our’, and ge ‘he, she, they’ are lexically definite, and bear the features [+N, +prmn, +dfnt]. They will be examined first.
3.1.1 ‘añ and ge as personal pronouns

The personal pronouns in Old Khmer are: ‘añ for first person and ge for third person. These pronouns have many syntactical functions based upon the dependency relationship to their regent as shown in the following examples.

In examples 1 and 2, the pronouns ‘añ and ge function as the COR ‘possessor’ to their regent nouns.

1. (K.44:8)

```
tañ  'añ  kloñ  ranko
retainer  our  Commissioner  Rice
+N  COR
```

‘our retainer the Commissioner of Rice’

2. (K.451S:3)

```
jmah  ge
names  3rd
+N  COR
```

‘their names’

In examples 3 and 4, ‘añ and ge function as the Locus LOC complement to their regents respectively.

3. (K.54:16)

```
spid dik  tañ  prâjñasen  'ay  ta₁  'añ
libation  retainer  Prâjñasen  at  to  me
+N  LOC
```

‘the libation of the retainer Prajñasen to me’

4. (K.493:23)

```
uu  man  gui  sañ  kara  ta₁  ge
with which  be  pay back  tax  to  him
+V  LOC
```

‘with which to pay back the tax to him’
In example 5, the pronoun ge functions as nominative patient to the directional verb dau.

5. (K.561:21)

ge dau 'avcinarakk
they go Avici Hell

‘they [shall] go to Avici Hell’

In summary, in the no-dependent construction, the personal pronoun 'añ or ge can be the dependent attribute of a noun, verb, or preposition. Ge or 'añ can function as the subject or Agent, object or Patient or the localistic LOC complement of a verb. Ge or 'añ can bear [+Nom] or [+Acc] case forms, or [COR], [PAT] or [LOC] case relations to its regent.

The pronouns 'añ or ge can be singular or plural and are not dependent upon the syntactic relationship to their regent, but this plurality is based upon the semantics of the regent and the context.

3.1.2 Derived pronouns

Observation indicates that the language of the pre-Angkorian period has so few true pronouns that titles and kinship terms seem to do double duty. Based upon the position of these nouns, which are attributes of the head NPs, they can be identified as derived pronouns, analyzed as carrying the features [+titl, +prnn, +dfnt]. Derived pronouns are title nouns that have no dependents and always bear the Correspondent case relation optionally allowed by their regents. The differences between a title noun and a derived pronoun are that a title can be: (1)
the regent of an equative predicate proper NP, (2) the regent of an equative predicate number NP or (3) the regent of an equative predicate title NP, while a pronoun does not occur in any of these functions.

Examples of derived pronouns are presented in this paper according to their functions in relation to their regents.

6. (K.505:13)

vā meñ kantai vā ku laň
male slave Men wife his female slave Lah

‘the male slave Men, his wife the female slave Lah’

In example 6, the first vā has the noun meñ as its dependent, and the second noun vā is a derived pronoun with no attribute. The antecedent of this derived pronoun vā is vā meñ, and both cooccur in the same phrase. The derived pronoun vā functions as COR to its regent kantai.

In example 7, the derived pronoun vraň is the attribute of the complementizer ta¿ and functions as LOC to the noun ‘amñoj, the regent of PP.

7. (K.54:14–15)

‘amñoj somakirrti ta¿ vraň ku kdk
gift Somakirrti to him female slave Kdk
+N +prnn +titl

‘the gift of Somakirrti to him (our Lord): female slave Kdk’

3.2 Demonstrative nouns neh and noň

Data indicate the demonstrative nouns neh and noň appear in two different grammatical functions. The non–predicate neh¿ or noň¿ functions as nominative patient subject [+Nom, PAT] to its regent verb; and the predicate neh¿ or noň¿ functions as a [+prdc] complement to its regent noun. This section focuses on the demonstrative nouns neh¿ or noň¿, which have no dependents.
In example 8, neh is the nominative subject [+Nom, PAT] of the copula verb gi ~ gui.

8. (K.388C:15)

neh gui 'amnoy upādhya ya
these be gift Upādhya ya

'these are the gifts of Upādhya ya'

3.3 Common nouns

The following examples show the various syntactic relationship between the common nouns (with no-attributes) and their regents.

In example 9, kantai functions as predicate to its regent noun kñum. In example 10, kñum functions as accusative patient to its regent verb oy. In example 11, pitr functions as LOC to its regent verb oy.

9. (K.18:6)

kñum kantai ku kmer 1 kon 4
slave female female slave Kmer 1 child 4
+N +prdc

'the female slaves: one female slave Kmer [and] four children'

10. (K.600:1)

poon uy oy kñum ai ta kpoñ kamratān 'añ
Sir Uy give slaves at to Kpoñ K 'A
+V +Acc
PAT

'Sir Uy gave slaves to the Kpoñ K. 'A'
11. (K.561:21)

kñum man poñ candrāṇna oy ta pitṛ
slaves whom Sir Candrāṇna give to
dead  +V LOC

'the slaves whom Sir Candrāṇna has given to the dead'

3.4 Number nouns

Number nouns can be predicate dependent attributes of countable nouns and classifier nouns. The analysis of number nouns is presented in section 4.4.4.3.

Example 12 shows the number noun ponna functions as predicate to its regent 'anak, and the common noun 'āngana functions as COR to the same regent.

12. (K.1004:8)

'anak   'āngana   ponna
people  court   four

'four people of the court'

3.5 Classifier nouns

For Old Khmer, it is an unusual pattern for a number noun to be the regent of a regular classifier noun. However, this is the way they appear in data (detail see section 4.4.4.3).

13. (K.388C:5)

tmur tap dnem
cow 10 yoke

'10 yokes of cows'
The regular classifier *dnem* [+clsf] usually has a number noun as its dependent attribute. However, in this example the number *tap* is the head of the NP and the regent of the classifier noun *dnem*. *Dnem* has no dependent.

3.6 Proper nouns

Proper nouns in Old Khmer Dated Pre-Angkorian are divided into locational nouns and non-locational nouns. Locational proper nouns consist of place names as well as temporal nouns, i.e., the days of the week and months of the year. These nouns, which are marked with the localistic location feature [+lctn] and can serve as immediate LOC complements of words requiring [+lctn] dependents are discussed in section 4.4.2 of Chapter IV.

The next section focuses only on non-locational proper nouns. Non-locational proper nouns can be subcategorized into deity or non-deity proper nouns. The non-deity proper nouns are subdivided into human or non-human proper nouns. Deity proper nouns are names of the Vrah, human proper nouns are everyone’s names, including slaves, and non-human proper nouns are names of institutions, administrations, or things.

In general, most proper nouns are predicate attributes of the regent title nouns or kinship nouns. In some cases, when the title is mentioned once at the beginning of a paragraph, the proper name is not preceded by the title for the second or third references.

Example 14 has a human proper noun *jñanaprakasa* [+prdc] as dependent of the regent title noun *poñ*.

14. (K.561:13–14)

```
satra  poñ  jñanaprakasa
oblation Sir  Jñanaprakasa
+N    +prdc
```

‘the oblation of Sir Jñanarakasa’

The category of compound nouns is defined morphologically rather than syntactically. A detailed investigation of pre-Angkorian word formation has not
been done; however nouns tentatively identified during the course of the analysis are described in this section.

Examples 15 and 16 show that the compound nouns 'nak sre and tnai vrah have different syntactic functions [COR] and [PAT], respectively, in relation to their regents nouns.

15. (K.600E:3)

\begin{align*}
jmah & \quad \text{'nak sre} \\
\text{names} & \quad \text{ricefield workers} \\
+N & \quad \text{COR}
\end{align*}

'names of the ricefield workers'

16. (K.557/600N:3)

\begin{align*}
ta_4 & \quad \text{cuḥ} \quad \text{tnai vrah} \\
\text{that which} & \quad \text{keep record days holy} \\
+V & \quad +\text{Acc} \\
+\text{PAT}
\end{align*}

'that which keeps record of the holy days'

In example 17, the title compound noun kurāk jmeñ functions as the LOC complement to its regent verb jāhv.

17. (K.943:20)

\begin{align*}
sre & \quad \text{phalada man jāhv ta} \\
\text{ricefield Phalada which [he] acquire from}
\end{align*}

kurāk jmeñ doñ poñ vidyāsakti
lieutenant governor and Sir Vidyasakti

The Phalada ricefield, which [he] acquired from the lieutenant governor and Sir Vidyasakti
Examples 1-17 show that pronouns, demonstrative nouns, common nouns, number nouns, classifier nouns, and proper nouns can all occur without attributes and have various syntactic functions: case forms (Acc, Nom, or lctn) and either case relations (AGT, PAT, LOC, COR), or predicate (prdc), based upon the dependency relationship with their regents.

4. Noun phrases with a single noun and one / multiple dependents

4.1 Introduction

In lexicase representation each phrase must have a lexical head. The lexical head of the construction is written under a vertical line, and the dependents are written below the level of the head word on a line slanted either to the right or to the left. Based on my analysis of Old Khmer as a language with no determiner or adjective, and on the structure of Old Khmer noun phrases, the slant is always to the right; that is, Old Khmer noun phrases are right-branching. This is true of other syntactic constructions as well, with the exception of subjects of verbs, which slant to the left. The grammatical functions in a lexicase representation are shown by chaining a contextual feature on the head to the index of the appropriate dependent. A classification of the dependent modifier of nouns is presented first. Next, types of relationships that can obtain between a head noun and a dependent modifier are examined and described.

4.1.1 Classification of NP–Internal dependency relationships

A noun phrase can have as its immediate dependent modifier a sentence, a prepositional phrase, or another NP. These three categories are illustrated in the following tree diagrams:

Diagram #1: NP

```
  NP
   |  
  N1  
   |  
    S  
```

Diagram #2: NP

```
  NP
   |  
  N1  
   |  
    PP  
```

Diagram #3: NP

```
  NP
   |  
  N1  
   |  
    NP  
```

Noun phrases with Ss as dependent attributes (diagram #1) are examined in section 4.2. Noun phrases with PPs as dependent attributes (diagram #2) are investigated in section 4.3. Noun phrases with other NPs as dependent attributes (diagram #3) are studied in section 4.4.

4.1.2 Conjoined noun phrases

Noun phrases can be conjoined by using the coordinate conjunctions doñ, dañ, dروñ or drañ, as shown in diagram #4.
4.1.2.1 Conjoined noun phrases with an overt coordinating conjunction

Example 1 shows a coordinate conjunction NP with daň as its lexical head.

1. (K.18:21)

sre daň kňum
ricefield and slaves

‘ricefields and slaves’

Example 2 illustrates two possessive noun phrases punya mratăň and kloň me conjoined with the coordinate conjunction daň as their lexical head.

2. (K.18:23)

punya mratăň daň kloň 'me
pious work lord and his mother

‘the pious work of the lord and his mother the baroness’
Example 3 exhibits two coordinate conjunctions *doṅ*. The *doṅ’s* are the regents of the conjoined title possessive noun phrases *poṅ rudrabhava, poṅ rudrantakila,* and *poṅ puspananda*.

3. (K.30:6-7)

sre 'āy travañ vo pradâna poṅ rudrabhava doṅ poṅ ricefields at Travañ Vo gift Sir Rudrabhava and Sir rudrantakila doṅ poṅ puspananda Rudrantakila and Sir Puspananda

‘ricefields at Travañ Vo the gift of Sir Rudrabhava and Sir Rudrantakila and Sir Puspananda’

Example 4 shows NP coordination within the PP exocentric construction. The coordinate conjunction *doṅ* is the lexical regent of the Locus noun *vraḥ*.

4. (k127:14)

kānum 'aṅnoy mraṭāṇ ḫsvaravindu ta vraḥ kamṛataḥ 'aṇī slaves gift Lord ḫsvaravindu to V. K. 'A.

suvarṇṇāliṅga doṅ vraḥ kamṛataḥ 'aṇī maniṣīva Suvarṇṇāliṅga and V. K. 'A Maniṣīva

‘slaves the gift of the Lord ḫsvaravindu to V. K.'A. Suvarṇṇāliṅga and V. K. 'A Maniṣīva’
In this example, the preposition ta₁ is the lexical head of the exocentric construction, and the coordinate conjunction doň is its co-lexical head. Doň, in turn, is the regent of the locational noun phrases vraḥ kāmratān 'aṇ suvaṃṇalīṅa and vraḥ kāmratān 'aṇ maniśīva.

4.1.2.2 Conjoined noun phrases with a gapped coordinating conjunction

Lexicase, as a type of dependency grammar, requires that every phrase have a lexical head. Phrases such as the one in example 5 below are apparent counterexamples to this claim, and the only way to reconcile these data with the theory is to assume that the coordinating conjunction in each case has been gapped by a performance rule. The [doň] or [dan] indicates the assumed position of the gapped conjunction. This is not a very intuitively satisfying analysis and is only adopted in this work pending supporting evidence from a parallel construction in some language with living speakers to consult, or the discovery of an improved dependency analysis for coordinate constructions.

Example 5 illustrates a coordinate predicate NP with a missing conjunction [doň].

5. (K.18:6)

kñum kantai ku kmer 1 kon 4
slave female female slave Kmer 1 child 4

'the female slaves: 1 female slave Kmer (and) 4 children'
The regent noun kñum has two dependent predicate noun phrases, the predicate NP kantai and a predicate coordinate NP ku kmer l kon 4, with a missing conjunction [doñ].

4.2 Sentences as dependents of noun phrases

Noun phrases with S as a dependent attribute are examined and analyzed here to show the syntactic dependency relationships between the regent N and the dependent S. As described in section 2.1.1 (verbless sentences), this type of dependency relationship is analyzed as a relative clause. A summary of the types of relative clause constructions found in Old Khmer follows.

Diagram #5: Relative clause

The regent noun N₁ allows a prdc-bar dependent, which means that the lexical head of this dependent constituent must bear the lexical feature [+prdc]. The prdc-bar dependent can be either a Verb–bar [+V, +prdc], which is referred to here as a verbal relative clause, or a Noun–bar [+N, +prdc], which is called a nominal relative clause.

The tree representations of direct relative clauses are shown in diagrams #6 and #7.
Diagram #6

Diagram #7

Nominal relative clause

Verbal relative clause

Both of the nominal and verbal relative clauses shown here are referred to as bare or direct relative clauses.

Section 4.2 covers only the analysis of verbal relative clauses, where a regent \( N_1 \) has \( S=[+V'] \) as its immediate dependent. Nominal relative clauses, with \([+N, \ +prdc] \) as dependent, are described in section 2.1.1, and more fully in section 4.4.4.

The indirect relative clause category includes NPs with two types of dependents: (1) an NP with the relative nouns \( man \) or \( tel \) as the head and \( S=[+V'] \) as its dependent; and (2) a prepositional phrase of the form \([P - [+V']] \) or \([P - man/\ tel [+N, \ +prdc] - [+V']] \). A general sketch of the indirect relative clause construction is represented in diagrams #8, #9 and #10.

Indirect relative clauses:

Diagram #8

Diagram #9

Diagram #10

These three types of diagrams all have a verbal \( S \) as a non-immediate dependent of \( N_1 \).

In diagram #8, the relative noun \( N_2 \) (\( man \) or \( tel \)) is the regent of a verbal relative clause \( S=[+V'] \). The \( N_2 \), in turn, is the lexical head of a nominal relative clause which has \( N_1 \) as its regent. \( N_1 \) is the head of the NP as a whole, and is
marked as coreferential with the relative noun $N_2$ by the Relative Clause Chaining Rule (RCCR). $N_2$, in turn, is marked as coreferential with a missing NP in the domain of $S= [+V']$ by the same rule.

In diagram #9, the complementizer preposition $ta_4$ or $nu$ is the regent of $S= [+V']$. The preposition $ta_4$ or $nu$ plus $S= [+V']$ form an exocentric construction, with $ta_4$ or $nu$ as lexical head and $V_1$ as secondary lexical head.

Diagram #10 is a composite structure with the complementizer preposition $ta_4$ or $nu$ introducing an indirect relative clause construction headed by the relative noun $man$ or $tel$, which is the regent of $S= [+V']$. The prepositional phrase composed of $ta_4$ or $nu$ plus $S= [+V']$ also forms an exocentric construction with $ta_4$ or $nu$ as the lexical head and the relative noun $man$ or $tel$ as secondary lexical head. $Man$ or $tel$ is the regent of the $S= [+V']$. Examples of these constructions are presented in the following two sections.

4.2.1 Direct verbal relative clauses

(6. (K.561:34)

**ge dih pamre ta vrah sin**

they perform service to vrah at present

**gui kañjrap ta man varta na vrah kammratāñ ’añ**

be prisoners of war who dwell place V. K. ’A

Śṛi kailāśēśvara

Śṛi Kailāśēśvara

‘They who perform service to the shining one [Śri Khandaliṅga] at present are prisoners of war who dwell [at the sanctuary of] the shining one Our High Lord Śri Kailāśēśvara.’
The copula verb gui has ge as Patient subject and kaŋrap as predicate noun. The Patient subject ge, in turn, is the head of a verbal relative clause ge diḥ pamre ta vraḥ siṅ. The transitive verb diḥ has pamre as its direct object and a missing subject interpreted as coreferential with ge. In a formalized analysis, this type of coreference relationship would be shown by the Relative Clause Chaining Rule (RCCR). In this investigation, however the [ ] in the tree diagram is used instead as a convenient way of indicating the position of the missing NP. It is not part of a formal lexicałe representation and is not an empty category in the Chomskyan sense. The arrows are used to point out the coreference relationship between a word and an implied word within the constructions.

7 (K.451N:10)

sattra camreṅ ta gi tñai vraḥ

oblation to be made which be days holy

‘the oblation to be made on the holy days’

\[\text{In example 7, the noun sattra is the regent of the relative clause camreṅ ta gi tñai vraḥ. The coreference between sattra and the missing subject of the verb camreṅ would shown by RCCR.}\]

4.2.2 Indirect verbal relative clauses

As shown in diagrams #8, #9 and #10, the indirect relative clause construction is subcategorized into three types based on the dependency relationships between the regent N₁ and dependent S, outlined as: (1) relative nouns as regents of S, (2) prepositions as regents of S, and (3) prepositions and relative nouns as (indirect and direct) regents of S.
4.2.2.1 Relative nouns as regents of s

The dependency relationship between the regent man and tel and its dependent attribute S is briefly examined in this section. A detailed analysis of the relative nouns man and tel is provided in section 4.4.4.5.3.

In example 8, man is coreferential both with the head noun NP and with the missing object of the verbal relative clause, which thereby establishes a link of coreferentiality between the head noun and the missing argument of the verb.

8. (K.561:27-28)

kňum man poň candraňna oy tạ pitṛ
slave whom Sir Candranāna give to dead

‘sloves whom Sir Candranāna gave to the Dead’

9. (K.79:10)

dmār gui poň śveta sru man dār siň tloň 10
claimant be Sir Śveta paddy which demanded also tloň 10

‘The claimant is Sir Śveta. Paddy which [he] also demanded: 10 tloň.’
Example 9 presents a free [+N, +prdc] sentence with tloň as the head of the sentence. The relative noun man is interpreted as its missing object of the lower clause and, in addition, man is coreferential with its antecedent in the higher clause.

4.2.2.2 Preposition $ta_4$ as regent of $S=[+V]$'

As discussed under diagram #9, section 4.2, the PP $[ta_4 +V]$ is in an exocentric construction with $ta_4 [+P, +xtns]$ as the lexical head and $[+V]$ as the secondary lexical head. $Ta_4$ functions as the complementizer of $S$, as shown example 10.

10. (K.127:20)

ge $ta$ tve vipta$gi$
y they who commit vandalism are

saptapitā
fathers and forefathers to the seventh generation

saptamatā
mothers and grandmothers to the seventh generation

pañcamaharau ravanarakāh patañti
Five Great Raurava Hells fall

'They who commit vandalism on these premises, [their] fathers and mothers to the seventh generation [shall] fall into the Five Great Rauva Hells.'
In example 11, ge is the regent of the preposition $ta_4 [+xtns]$. The preposition $ta_4 [+xtns]$ functions as the complementizer of its regent ge and also acts a regent of the verbs vom and dap respectively.

11 (K.154A:16)

<table>
<thead>
<tr>
<th>ge</th>
<th>ta</th>
<th>vom</th>
<th>oy</th>
<th>gi</th>
<th>ge</th>
<th>ta</th>
<th>dap</th>
</tr>
</thead>
<tbody>
<tr>
<td>they</td>
<td>who</td>
<td>do not give be</td>
<td>they</td>
<td>who</td>
<td>practice sorcery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$+N$</td>
<td>$+P$</td>
<td>$+V$</td>
<td>$+N$</td>
<td>$+P$</td>
<td>$+V$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$+xtns$</td>
<td>$+fint$</td>
<td>$+xtns$</td>
<td>$+fint$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

'They who do not give are they who practice sorcery.'

4.2.2.3 Preposition and noun as regents of $S=[+V]'$

There are three combinations of a preposition plus a relative noun, $ta\ man$, $ta\ tel$ (see diagram #10, section 4.2, and detailed analysis in section 4.3.1.3.3), and $nu\ man$, which function as the (indirect and direct) regents of a verbal relative clause.

In example 12, the preposition $ta_4$ commands the relative noun man which, in turn, bears the lexical feature $[+prdc]$ required by the regent NP. Man functions as the missing object the lower clause $S=[+V]'$.

12. (K.561:30)

| kñūm | ta | man | mṛatān | jānavin | oy | ta | vrah |
| slave | that whom | Lord | Jānavin | give to | Vrah |

'slaves whom Lord Jānavin has bestowed upon the Vrah'
In example 13, the preposition $ta_4$ commands the relative noun $tel$. Tel [+prdc] functions as the missing subject of the lower clause $S=[+V]$. 

13. (K.341N:3-4)

\[
\text{gi} \quad \text{ta} \quad \text{tel} \quad \text{prativaddha} \quad \text{ai} \quad \text{vra}_h \quad \text{kam}_m\text{rate}_n \quad \text{a}_n
\]

are that who devoted to $V$. K. our

‘those who are ever devoted to the shining one Our High Lord’

In example 14, the preposition $nu$ is the regent of the relative noun $man$. Man is interpreted as a missing oblique dependent in the verbal relative clause.
14. (K.493:19-23)

\[\text{gui ge na’k vra’h kanmeh dår canlek yugala be they folk Vra’h younger demand cloth double length} \]
\[\text{ta gui ukk yau 4 nu}^8 \text{ man gui sañ kara ta ge which be extra yau 4 with which be pay back tax to him} \]

‘The folk of the younger Vra’h have demanded an extra 4 yau of double-length cloth, with which [he] pays a fee to them.’

\[\text{nu index} \]
\[\text{1+P man} \]
\[\text{1+sorc l2ndex} \]
\[\text{12[+N]} \]
\[\text{1+N guí} \]
\[\text{1+rltv l3ndex san} \]
\[\text{1MNS l+V} \]
\[\text{l3((+++V)) l+copl} \]
\[\text{13[+fint]} \]
\[\text{l3[+prdc]} \]
\[\text{l+prdc} \]

4.3 Prepositional phrases as dependents of nouns

In the classification of noun phrase NP constructions with one dependent modifier, there are prepositional phrases, sentences and noun phrases as the immediate dependent attributes of nouns. This portion of the investigation analyzes the prepositional phrase PP as the dependent attribute of N. According to the lexicase definition, a preposition is a word that enters into a binary exocentric construction with an NP, another PP, or an S (Starosta 1988:195). In the Old Khmer pre-Angkorian Dated Inscriptions, there are three types of structures in which an NP has a prepositional phrase PP as its immediate dependent sister. These are illustrated in the three diagrams below:

---

^8 Jenner interprets nu as an adverb or conjunction used to introduce a new paragraph, or as a locational preposition. (Jenner 1983)
Diagram #11

In diagram #11, the \( N_1 \) is the head of the NP and the regent of the prepositional phrase PP (the regent of \( P_1 \), but not of \( N_2 \)). It cap-commands the preposition \( P_1 \) and commands the \( N_2 \) within the prepositional phrase. \( N_2 \) bears the case relation required by the \( N_1 \), the head of the NP, and \( P_1 \) functions as a case marker signaling the presence of the case relation \( CR_i \) on \( N_2 \).

Diagram #12

In the structural diagram #12, the \( N_1 \) is the head of the NP and the regent of the PP constituent. It cap-commands the preposition \( P_1 \) and commands the preposition \( P_2 \). \( P_1 \) cap-commands the \( P_2 \) and \( N_2 \). \( P_2 \) is the dependent of \( P_1 \) and the regent of \( N_2 \). Therefore in this structure, a preposition can have (1) another preposition as dependent attribute or (2) a nominal dependent attribute. A preposition cannot assign a case relation to its nominal dependent, so \( N_2 \) must have its case relation assigned by the \( N_1 \).
Diagram #13

In the structural diagram #13, the N₁ is the head of the NP and the regent of the PP constituent. The preposition P₁ cap-commands the secondary lexical head verb V₁, and V₁ is commanded by the N₁.

The following portion of the analysis will describe the dependency relations between a dominant word, the regent N₁, and its dependent word P₁, and other constituents which depend on N₁ and P₁. First, the dependency relationship between the regent of a prepositional phrase and its attribute is examined.

4.3.1 Prepositional phrases with NP co-heads as attributes

4.3.1.1 ai as a locational preposition

The preposition ai will be examined in sections 4.4.2 (locational noun phrases) and section 4.4.3 (relator noun phrases). The preposition ai is subcategorized into ai₁ and ai₂ based on its distributional and syntactic functions.

In this section, the focus is on the structure of noun phrases in exocentric construction with the locational preposition ai₁, and on the dependency relationship between the regent P and the dependent N₂, as shown in diagram #11. Structures containing ai₂ will be covered in section 4.3.2.2.

In example 15, the preposition ai₁ [+lctn, +trmn] is the regent of N₂ camrai [+lctn]. N₂ functions as a Locus [LOC] adjunct to N₁, the head of the NP.
15. (K.600E:2)

sre ai₁ caṃrai
ricefield at Caṃrai

'the ricefield at Caṃrai'

4.3.1.2 'anvi as a preposition

In example 16, the preposition 'anvi [+sorc] has the locational noun kāla as dependent. The noun kāla bears the LOC case relation required by the regent of the phrase.9

16. (K.444A:9-10)

'anmnoy tāh 'añ kloŋ raŋko
gift Retainer our Commissioner Husked Rice
+N
don poñ varāhasena ai ta vrah kaṃratañ 'añ
and Sir Varāhasena at to V. K. 'A.

'amvi kāla vrah kaṃratañ 'añ śrī rauravarma
from time V. K. 'A. Śrī Rauravarma
+P LOC

'The gift of Our Retainer the Commissioner of Husked Rice and Sir Varāhasena to the V. K. 'A. from the [life] time of the V. K. 'A. Śrī Rauravarma.'

---

9 Time adjuncts have been treated as a type of Locus in lexicase analyses, but this analysis has not yet been investigated and justified in detail.
4.3.1.3 *ta* as preposition

The following section examines the preposition *ta* functioning as a locational preposition marking the destination of something or someone. Before examining this portion, the different distributions and functions of the word *ta* in Old Khmer Dated Inscriptions are discussed.

The analysis of *ta* in this investigation remains unsatisfying in several respects and needs further study. According to Jenner (1981), scholars have not yet reached a consensus as to what wordclass the mysterious word *ta* belongs, due to its multiple functions (in both Old Khmer and Modern Khmer). Jenner (1981: 90) proposes to call *ta* a ligature,\(^\text{10}\) by analogy with the ligature element which has been described in Western Austronesian languages such as Tagalog.

This descriptive analysis investigates the functions of *ta* in a dependency relationship to its regent and attribute and assigns a wordclass that best fits the criteria of lexicase theory, which is in some cases different from the conclusions reached by previous scholars working outside of any formal and explicit framework. Based upon this analysis, *ta* is a preposition and has four different syntactic functions. The distributional categories and functions of each of the prepositions *ta_1*, *ta_2*, *ta_3*, and *ta_4* are illustrated in the following section.

4.3.1.3.1 Preposition *ta_1* with [LOC] as a dependent attribute

The preposition *ta_1* with [+lctn, -trmn] as lexical features can be found (1) as the lexical head of an exocentric construction, or (2) as the secondary lexical head of an exocentric construction cap-commanded by the preposition *ai_2*.

The construction of preposition *ta_1* with [LOC] as a dependent attribute is shown in diagram #14.

Diagram #14

\[\text{Diagram:} \]

\[\text{N_1} \]
\[\text{l1ndex} \quad \text{l1ndex} \quad \text{ta}_1 \]
\[\text{+N} \quad \text{+N} \]
\[\text{i+goal} \quad \text{i+goal} \quad \text{trmn} \quad \text{trmn} \]
\[\text{i2([+P])} \quad \text{i2([+P])} \quad \text{i3([+LOC])} \quad \text{i3([+LOC])} \]
\[\text{N_2} \quad \text{N_2} \quad \text{N_2} \quad \text{N_2} \]

\[\text{Diagram:} \]

\[\text{Diagram:} \]

\[\text{Diagram:} \]

---

\(^{10}\) Jenner defines *ta* as ligature and defines its function as "subordinating conjunction serving to conjoin words and phrases as well as clauses."
In diagram #14, the noun \( N_1 \) has an inherent goal [+goal] meaning, and expects its adjacent constituent to bear the non-terminus [-trmn] lexical feature. \( N_1 \) cap-commands \( ta_1 \) and commands \( N_2 \). \( N_2 \) is the 'co-lexical head’ or co-head of this PP exocentric construction. \( N_2 \) is not a locational noun [+N, +lctn], which is why it must co-occur with a [P, +lctn] \( ta_1 \) to satisfy \( N_1 \)'s requirements and be interpreted as bearing the LOC case relation expected by \( N_1 \), the regent of the PP.

In example 17, \( ta_1 \) has \( vrah \), a non-locational noun, as an adjunct. This noun functions as LOC case relation dependent of its regent NP \( kñum\).

17. (K.54:12)

\[
\begin{array}{cccccccc}
kñum & 'amnoy & kurāk & hvār & ta & vrah \\
\text{slave} & \text{gift} & \text{governor} & \text{Hvār} & \text{to} & \text{Vrah} \\
+\text{N} & +\text{lctn} & -\text{lctn} & -\text{trmn} & \text{LOC} \\
\end{array}
\]

'slave the gift of Governor Hvār to the Vrah'

The preposition \( ta_2 \) is the attribute of the regent noun \( N_1 \) and also is the lexical head of a double exocentric construction where the preposition \( ai_1 \) is its co-head. Therefore the discussion of the syntactical relationship between the head and the dependency attribute of \( ta_2 \) is postponed until section 4.3.2.1.

4.3.1.3.2 Preposition \( ta_3 \) with [COR] as dependent attribute

The NP structure containing the preposition \( ta_3 \) with a [COR] noun as dependent attribute is called the ‘indirect possessive NP’ and is examined in more detail in the discussion on indirect possession (section 4.4.4.4).

Diagram #15

```
``
In diagram #15, the noun $N_1$ is the regent of the PP possessive prepositional phrase. It cap-orders the preposition $ta_3$, the lexical head, and commands $N_2$, the co-head of this exocentric construction. The lexical head $ta_3$ requires a nominal dependent attribute $N_2$. $N_2$ functions as the possessor of $N_1$, the regent of the PP, and accordingly bears the Correspondent [COR] case relation required by it.

Example 18 shows the preposition $ta_3$ as the head of the exocentric construction, where $mrata\ddot{n}$ is its dependent and bears the Correspondent case relation expected by 'nak, the regent of the PP.

18. (K.689A:17)

\`nak $ta_3$ mrata\ddot{n} 'a\u1d27 guru le tmo 1 ka\u1d28vala
people of Lord our Guru Le Tmo 1 ka\u1d28vala
+N +P COR
-trmn -Nom

'the people of Our Lord: one Guru Le Tmo [and] Kam\u1d15\u0121\u0101la'  

The presence of the preposition $ta_3$ is necessary in this phrase. Without $ta_3$, this phrase becomes 'nak $mrata\ddot{n}$ 'a\u1d27 guru le tmo 1 ka\u1d28vala, and would be interpreted as 'the people who are Our Lord', where $mrata\ddot{n}$ functions as predicate attribute to the regent noun 'nak.

4.3.1.3.3 Preposition $ta_4$ with [+prdc] noun as dependent attribute

The preposition $ta_4$ bears the feature [+xtns] 'extension', a feature that marks words that take [+prdc] complements. The noun $N_1$ is the regent of the prepositional phrase $ta_4$ $N_2$, where the preposition $ta_4$ [+xtns] is the lexical head of this exocentric construction and expects a predicate (verbal or nominal) as dependent. The predicate dependent can be either (1) a regular noun (see diagram #16), (2) the relative noun man or tel (also discussed in section 4.4.4.5), or (3) a verbal relative clause S (discussed in section 4.3.3).

Diagram #16

```
N_1                    L
|                       |
(1index) | (ta_4) |
+N        |        |
(2(+P))   | (2index) |
(2(xtns)) | (+P)    |
(3(+prdc))| (+xtns)| (3index)
         | (+N)   |
         | (+prdc) |
         | (+xnt) |
         | -dfnt |
```
Old Khmer noun phrases

$Ta_4$ is the lexical head of an exocentric construction, where its lexical co-head can be a common noun bearing the [+prdc] lexical feature. This predicative prepositional phrase functions as an adjunct of the head $N_1$ of the NP. Additional discussion of a NP with a predicate dependent attribute can be found in sections 4.2 and 4.4.4.

In the analysis of diagram #16, $ta_4$ with a predicate dependent is an indefinite ‘descriptive’ predicate, stating a property of the head rather than equating one entity with another independently registered one.

In example 19, $ta_4$ [+xtnts] is the complementizer for the regent noun $kñum$, and its nominal dependent $si$ functions as [+prdc] to $kñum$, the regent of the PP. Example 20 shows $ta_4$ as the lexical head of the relative noun $man$.

19. (K.109N:12)

```
  kñum  ta_4  si
  slaves (who are) male
  +N +P +N
  +xtnts +prdc
```

‘the male slaves’

20. (K.561:28)

```
kñum  ta_4  man poñ jana-prakaśa oy ta vrah
    slaves that whom Sir Janapra-kāśa give to Vrah
  +N +P +rltv
  +xtnts +prdc
```

‘the slaves whom Sir Janapra-kāśa has given to the Vrah’

In the PP exocentric construction, the prepositions encountered so far are: $ai$, ‘amvi, and $ta$. The preposition $ai$ cap-commands a location noun or a relator noun, and these nouns function as LOC adjuncts to the noun regent. Prepositions $ta_1$, $ta_3$ and $ta_4$ cap-command a locational or a common noun, or the relative noun $man$ or $tel$, and, in turn, these nouns function as LOC or COR or predicate adjuncts to the nominal head of the NP.

4.3.2 Noun phrases with double preposition phrases as attributes

Up to this point the analysis has focused on a NP with one immediate prepositional phrase dependent. The following analysis examines the NP that has a double prepositional phrase as an adjunct.

Below are the combinations of $P_1$ and $P_2$ which have been found in the data.
4.3.2.1 \textit{ta}_2 \textit{ai}_1 \textit{in double exocentric constructions}

Diagram #17

\begin{center}
\begin{tabular}{c|c|c|c}
N_1 & | & |
\hline
1\text{index} & | & |
\hline
1+N & | & \textit{ta}_2 & |
\hline
1+humn & | & 2\text{index} & |
\hline
2(\text{+P}) & | & 1+P & | \textit{ai}_1 & |
\hline
2([-\text{trmn}\}) & | & -\text{trmn} & | 3\text{index} & |
\hline
4(\text{+LOC}) & | & 3(+P) & | 1+P & | N_2 & |
\hline
& | & 3(+\text{trmn}) & | 1+\text{ctn} & | 4\text{index} & |
& | & 1+\text{trmn} & | 1+N & |
& | & 4(+N) & | 1+prpr & |
& | & 4(+\text{ctn}) & | 1-humn & |
& | & 1+\text{ctn} & |
& | & \text{LOC} & |
\end{tabular}
\end{center}

In diagram #17, the preposition \textit{ta}_2 adds an additional semantic component of space or territorial information to the location noun \textit{N}_2. However, it also has several other grammatical functions, as shown in the following examples.

In example 21, the non-terminus component of \textit{ta}_2 adds a semantic ‘vicinity’ or ‘territorial’ or ‘space’ meaning to \textit{ai}_1 \textit{cnar} ‘at Cnar’.

21. (K.44A:8)

\begin{itemize}
\item Šrī utpanneśvara \textit{ta}_2 \textit{ai}_1 \textit{cnar}
\item Šrī Utpanneśvara of at Cnar
\item +N +P +P +\text{ctn} -\text{trmn} +\text{trmn} \text{LOC}
\end{itemize}

‘Šrī Utpanneśvara of (the place) Cnar (see diagram #17)’

Justification for using the combination \textit{ta}_2 \textit{ai}_1:

1. Consider the hypothetical phrase Šrī utpanneśvara \textit{ta} \textit{cnar} without the preposition \textit{ai}_1. In the absence of \textit{ai}_1, there is ambiguity, because the phrase can be interpreted in two ways: (a) Šrī utpanneśvara \textit{ta}_3 \textit{cnar} ‘Šrī Utpanneśvara of Cnar’, and (b) Šrī utpanneśvara \textit{ta}_4 \textit{cnar} ‘Šrī Utpanneśvara (who is) Cnar’. But when \textit{ta}_2 cooccurred in this sequence with \textit{ai}_1, the \textit{ai}_1 clarifies the construction, and the preposition \textit{ta}_2 adds a semantic ‘area or space’ meaning to the attribute \textit{ai}_1 \textit{cnar}.

2. On the other hand, suppose that \textit{ta}_2 is omitted. In this case, the hypothetical phrase is Šrī utpanneśvara \textit{ai} \textit{cnar}. This phrase should mean ‘Šrī Utpanneśvara at Cnar’, but observations indicate that sequences of animate [+anmt]
or human [+humn] nouns never take ai plus a locational noun as an immediate dependent attribute. This hypothetical phrase is apparently ungrammatical, thus the presence of ta₂ is required to act as a buffer to link the animate or human head noun of the NP to a locational PP.

In example 22, ta₂, dependent of a human noun, functions as a buffer to avoid an ungrammatical collocation. In example 23, ta₂, a dependent of a non-animate noun, adds a territorial meaning to ai₁ somyapura.

22. (K.904B:19)

jmah ge kñum tañ ta₂ ai₁ puran ta tel
name they slave goodwives to at Puran that whom
+N +P +P +lctn
+humn -trmn +trmn LOC

oy ta vrah
give to Vraḥ

‘names of the slaves of the goodwives of Puran, whom [they] give to the Vraḥ’

23. (K.904B:15-6)

sruk vrah phōn ta₂ ai₁ somyapura
villages Vraḥ plr. to at Somyapura
+N +P +P +lctn
-anmt -trmn +trmn LOC

‘the Vraḥ’s villages in Somyapura’

In conclusion, the sequential cooccurrence of the prepositions ta₂ ai₁ may function: (1) to avoid the ambiguity of using ta₂ alone; (2) to use ta₂ as a buffer to avoid the ungrammatical combination of an animate or human noun followed immediately by the preposition ai₁ plus a locational noun; or (3) to provide additional semantic information in terms of ‘space’, which would not be present in a phrase headed by ai₁ alone.

Now we focus on the sequence ai₂ ta₁, where the regent N₁ is an animate or human noun and the dependent N₂ is non-locational.
4.3.2.2 \( a_i^2 t_1 \) in double excentric constructions

Diagram #18

\[
\begin{align*}
N_1 & \quad | \quad | \\
|index & \quad | \quad | \\
|+N & \quad a_i^2 & \quad | \\
|--anmt & \quad |2ndex & \quad | \\
|lor & \quad |+P & \quad ta_1 & \quad | \\
|+humn & \quad |+trmn & \quad |3ndex & \quad | \\
|goal & \quad |+lctn & \quad |+P & \quad N_2 \\
|2([-+P]) & \quad |3[+P] & \quad |+lctn & \quad |4ndex & \quad | \\
|2([-+trmn]) & \quad |3[lctn] & \quad |+trmn & \quad |+N & \quad | \\
|4([-+LOC]) & \quad |3[-trmn] & \quad |4[N] & \quad |LOC & \quad |
\end{align*}
\]

The assumed \( a_i^2 \sim 'ay_2 \) in this analysis differs from \( a_i \) (section 4.3.1.1) in distribution: it takes a PP rather than an NP as its co-head. In diagram #18, the animate noun \( N_1 \) requires its adjacent constituent to bear the terminus [+trmn] feature. It does not require its other dependent prepositional attributes to carry the goal [+goal] feature, because the word \( N_1 \) itself has an inherent goal meaning. In \( a_i^2[2ndex] \), the \([3[+P], 3[+lctn], 3[-trmn]]\) tell us that \( a_i^2 \) requires its dependent preposition to bear the lexical features [+lctn, -trmn]. In \( ta_1[3ndex] \), the \([4[+N]]\) implies that \( ta_1 \) requires an obligatory nominal dependent attribute, which functions as a LOC adjunct of \( N_1 \), regent of the PP.

The presence of the preposition \( ta_1 \) is here only to satisfy the \([?lctn] \) and \([?-trmn]\) features of \( a_i^2 \) when \( N_2 \) is \([-lctn]\).

Within this sequence \( N_1 \sim a_i^2 \sim ta_1 \sim N_2 \), the preposition \( ta_1 \) is followed by non-locational nouns which are divine, human, non-human, or relator nouns as shown in these examples.

24. (K.503:3)

\begin{align*}
'\text{amanay } Tān & \quad 'aṅ & \quad a_i^2 & \quad ta_1 & \quad vraḥ & \quad Śrī & \quad candakatayayini \\
\text{gift} & \quad \text{Tān} & \quad \text{our} & \quad \text{at} & \quad \text{to} & \quad \text{Vraḥ} & \quad \text{Śrī} & \quad \text{Candakatayayini} \\
|+N & \quad |+P & \quad |+lctn & \quad |-lctn & \quad | \\
|--anmt & \quad |+trmn & \quad |-trmn & \quad |\text{LOC} & \quad |
\end{align*}

‘the gift of our Tān to the Vraḥ Śrī Candakatayayini’

Justification for my analysis of the sequential cooccurrence of \( a_i^2 \) and \( ta_1 \) is as follows.

1. Without the preposition \( a_i^2 \), the hypothetical phrase ‘\( a\text{yanv } Tān \sim 'aṅ \sim ta \sim vraḥ \sim Śrī \sim candakatayayini \) could be interpreted in several ways:
(a) ‘amnoy tañ ‘añ ta₁ vrah śrī candakatayini, ‘the gift of our Tañ to the Vrah Śrī Candakatayini’;

(b) ‘amnoy tañ ‘añ ta₃ vrah śrī candakatayini, ‘the gift of our Tañ of the Vrah Śrī Candakatayini’;

(c) ‘amnoy tañ ‘añ ta₄ vrah śrī candakatayini, ‘the gift of our Tañ which is the Vrah Śrī Candakatayini’.

Sentence (b) is ungrammatical because it has two COR dependents of the same N, violating the One per Sent constraint, and sentence (c) is impossible for pragmatic reasons. Therefore, the presence of the locational preposition ai₂ will help to clarify this construction.

2. Without preposition ta₁, the hypothetical phrase ‘amnoy tañ ‘añ ai vrah śrī candakatayini is ungrammatical because the preposition ai requires a location noun as a dependent attribute, but the noun vrah [-lctn] does not satisfy this requirement.

Thus preposition ai₂ needs ta₁ for its [+lctn, -trmn] requirement; and the preposition ta₁ needs ai₂ to rule out interpretations (b) and (c).

As shown here, this preposition ta₁ can be the regent of an animate noun (example 25), or non-animate noun (example 26), or even a relator noun (example 27).

25. (K.54:14)

‘amnoy candrodaya ‘añy₂ ta₁ vrah
gift Candrodaya at to Vrah
+N +P +lctn +anmt
- anmt +trmn -trmn LOC

‘the gift of Candrodaya to the Vrah (see diagram #18)’

26. (K.904B:18)

karom ai₂ ta₁ dnel śarvapura
set of ricefields at to granaries Śarvapura
+N +P +lctn -anmt
- anmt +trmn -trmn LOC

‘the set of the ricefields at the granaries of Śarvapura’

27. (K.341N:8)

‘amplal gana pradana ‘añy₂ ta₁ nā vrah
total multitude gift at to place V.
+P +lctn +rltr
+trmn -trmn LOC

kaṃmraten ‘añ śrīśivapāda [list of gifts]
K. Our Śrīśivapāda [list of gifts]
'adhina 'āy ta ge paṃṇvas 'cas
be under jurisdiction of at of them senior cenobites

‘All of the multitude of gifts [made] to sanctuary of the Shining One Our High Lord Śrī Śivapāda [list of gifts] [they] are under the control of the senior cenobites’

4.3.2.3 *amvi₂ ta₁ in double exocentric constructions

As shown in example 28, the preposition ta₁ also is the dependent of the preposition *amvi [+sorc].

28. (K.910:11)

sre 'amvi ta₁ poñ vinayakirtti ai tem canlon
ricefield from to Poñ Vinayakirtti at Tem Canloan
+P +lctn +anmt
+sorc +trmn LOC

mṛtatāṁ duvau mās 2 ai sruk sanre
Lord Duvau mās 2 at village ricefield

‘the ricefields from Poñ Vinayakirtti [one] at the tree Canlon of the Lord Duvau: 2 mās, [another] at the village’ [x units].

4.3.3 Prepositional phrases with a verbal sentence and the preposition as ta₄ co-head

As mentioned in connection with diagram #9, section 4.2, and discussed under diagram #13, section 4.3, the preposition ta₄ [+xtns] is the regent of V₁.

In example 29, ta₄ +V is in coordinate conjunction with a missing doni. The first ta₄ is the regent of the intransitive verb pos, the second ta₄ is the regent of a copula verb gi.

29. (K.44B:9-10)

paṃños ta₄ pos ta₄ gi noḥ vnam
cenobites that enter orders that be [on] that hill

vraḥ kamṛtatāṁ 'aṅ
V. K. 'A.

cenobites that who enter orders [and] that who are on that hill [Sanctuary] of the V. K. 'A.'
In conclusion, the preposition $ta_4$ is used as a 'complementizer', the marker for a subordinate clause. This subordinate clause can be a verbal or nominal clause.

### 4.4 Noun phrases as dependents of nouns

#### 4.4.1 Possessive nouns as dependents of nouns

A possessive noun phrase is marked with the feature non-nominative [-Nom]. It must have a nominal regent and is interpreted as bearing the case relation Correspondent allowed or required by its regent. Based on the Old Khmer Dated Inscriptions, there are two types of possessive noun phrases: direct and indirect. The indirect possessive NP is examined in section 4.4.4.4. The direct possessive NP is illustrated in diagram #19.

**Diagram #19**

```
<table>
<thead>
<tr>
<th>N_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>N_2</td>
</tr>
<tr>
<td>N_2</td>
</tr>
<tr>
<td>N_1</td>
</tr>
<tr>
<td>N_2</td>
</tr>
<tr>
<td>N_2</td>
</tr>
<tr>
<td>N_1</td>
</tr>
</tbody>
</table>
```

‘N_1 corresponding to N_2’

The tree in diagram #19 shows the direct possessive relationship between the head N_1 and its immediate dependent sister, N_2. The head of the construction N_1 can be any noun that is not a pronoun [-prnn]. The feature [2([-COR])] indicates that the dependent word with the feature [2ndex] bears the case relation Correspondent to N_1. Note that the parentheses () refer to an optional Correspondent
noun. The [2([-Nom])] signifies that the dependent N₂ must be a non-nominative noun.

The dependent N₂ is marked with the non-nominative [-Nom] because if it were [+Nom], there would be no linking and the structure would not be generated. Although N₂ is already identified as bearing the case relationship Correspondent by virtue of the feature [2([+COR])] marked on the regent, this feature Correspondent [COR] feature will be redundantly marked on the N₂ in this investigation for ease of readability.

4.4.1.1 Direct possessive noun phrases

In the direct possessive noun phrase structure, the nominal that bears the Correspondent case relation can be: (1) a pronoun, (2) a derived pronoun or (3) a non-pronoun. The examples of direct possessor noun constructions are grouped according to the semantic features of the regent and dependent nouns. These groupings have no syntactic implications since all the examples are syntactically equivalent. Also the word ‘possession’ is used in a loose sense of ‘corresponding to’ rather than in the strict sense of ‘ownership of property’.

As shown in example 30, the pronoun ‘aņ’ functions as COR to its regent noun tān, and the common noun raňko functions as COR to its regent kloň.

30. (K.44:8-9)

\[
\begin{array}{cccc}
\text{tān} & \text{'aņ} & \text{kloň} & \text{raňko} \\
\text{Retainer} & \text{our} & \text{Commissioner} & \text{Husked Rice} \\
\text{+prnn} & \text{-prnn} & \text{COR} & \text{COR} \\
\end{array}
\]

‘our Retainer the Commissioner of Husked Rice’

Example 31 shows the second ku as a derived pronoun that functions as COR to regent noun kon.
31. (K.561:39)

\[ \text{ku} \quad \text{drahay} \quad 1 \quad \text{kon} \quad \text{ku} \quad \text{ku} \quad \text{krahvan} \quad 1 \]
\[ \text{female slave} \quad \text{Drahay} \quad 1 \quad \text{child} \quad \text{her} \quad \text{female slave} \quad \text{Krahavan} \quad 1 \]
\[ +N \quad +\text{prnn} \quad +\text{titl} \quad \text{COR} \]

'one female slave Drahay, her child, one female slave Krahvan'

As exhibited in examples 32 and 33, the compound noun 'nak sre' and the proper noun mahanukrtavilhyata, respectively, both function as COR to their regent nouns.

32. (K.600E:6)

\[ \text{jmah} \quad '\text{nak sre} \quad \text{name} \quad \text{person} \quad \text{ricefield} \quad +N \quad \text{COR} \]

'names of the ricefield workers'

33. (K.765:7)

\[ '\text{amn} \quad \text{mahanukrtavikhyata} \quad \text{ta} \quad \text{vrah} \quad \text{gift} \quad \text{mahanukrtavikhyata} \quad \text{to} \quad \text{Vrah} \quad +N \quad +\text{prpr} \quad \text{COR} \]

'the gift of Mahanukrtavikhyata to the Vrah'

Example 34 shows the 'co-lexical head' of a locational exocentric construction PP as the regent of a possessive title noun ku.

34. (K.561: 19)

\[ '\text{amvi} \quad \text{travan} \quad \text{ku} \quad \text{ka} \quad \text{ka} \quad \text{canna} \quad \text{from} \quad \text{pond} \quad \text{female slave} \quad \text{Ka} \quad \text{canna} \]

'from the pond of the female slave Kañcanna'
The NP travañ is the regent of the possessive NP ku kañcanna. The phrase can be interpreted only in this way, unless we want to say 'the pond which is Ku kañcanna.', by marking ku kañcanna as a place name.

In conclusion, in the direct possessive NP the possessive nouns can be any pronoun, title noun, personal proper noun, compound noun or common noun.

4.4.2 Locational nouns as dependents of nouns

Locational nouns are nouns marked with the localistic location feature [+lctn]. They are similar to relator nouns in that they are marked for the localistic case form feature [+lctn], and so can serve as LOC complements of words requiring [+lctn] dependents. They differ from relator nouns in that they need not occur as a mediator between a head noun or verb and a dependent non-localational noun.

There are three types of constructions where the locational nouns can be found in Old Khmer Dated Inscriptions:

(1). \( N_1 - a_{ij} - N_2 \) (see diagram #11, section 4.3) where preposition \( a_{ij} \) is the lexical head and \( N_2 [+lctn, LOC] \) is its co-head. The regent noun \( N_1 \) cap-commands the preposition P and commands the noun \( N_2 \).

(2). \( N_1 - ta_2 - a_{ij} - N_2 \) (see diagram #17, section 4.3.2.1) where \( N_1 \) is the regent of a double exocentric construction, where \( N_1 \) cap-commands \( ta_2 \) and optionally requires \( ta_2 \) to bear the [-trmn] terminus feature, also commands \( a_{ij} \) and \( N_2 [LOC] \). The justification of the combination \( ta_2 a_{ij} \) has been discussed in section 4.3.2.1 (\( ta_2 a_{ij} \) in double exocentric constructions). The structural pattern \( N_1 - a_{ij} - ta_2 - N_2 [-lctn] \) is not further mentioned in this section because \( N_2 \) is not a location noun. However the cooccurrence of \( a_{ij} ta_2 \) is discussed in section
4.3.2.2 \((ai_1 \ ta_2\) in double exocentric constructions).

(3). \(N_1 \rightarrow N_2\) (see following diagram #20)

Diagram #20

\[
\begin{array}{c}
N_1 \\
| \\
| \text{l1ndex} \\
| \text{+N} \\
| \text{l2([+lctn])} \\
| \text{l2ndex} \\
| \text{+N} \\
| \text{+prpr} \\
| \text{+lctn} \\
| \text{LOC} \\
\end{array}
\]

In diagram #20, \(N_1\) is the regent of \(N_2\), a locational proper noun \([+prpr, +lctn]\) which is the immediately adjacent dependent of \(N_1\). \(N_2\) can serve as the Locus of \(N_1\), which implies that the non-nominative \(N_2\) bears the Locative case relation.

4.4.2.1 Prepositions as the lexical regents of locational nouns

In some languages there are ways to test for locational nouns. For instance in Thai, occurrence after the verb \(y\ddot{u}\) serves as a test for locational nouns (Savetamalya 1989:201). In English the test is the absence of a determiner before a common singular count noun; e.g., ‘she went to the school_1’ \([+N, -lctn]\) versus ‘she went to school_2’ \([+N, +lctn, +dfnt, -[+Det]]\) (Starosta 1988:201). In Old Khmer the nouns that occur as dependent attributes of a preposition which requires dependents with the lexical feature \([+lctn]\) are analyzed as locational nouns, and may serve as LOC complements of regent words requiring \([+lctn]\) dependents.

In old Khmer dated inscriptions, only a limited number of (notionally locational) nouns appear as direct dependents of the locational preposition \(ai_j\). Other nouns only occur there with an intervening \(ta_j\) (or relator noun) to carry the required \([+lctn]\) feature. The \([+lctn]\) analysis, then, is an attempt to explain this distribution.

All proper nouns are divided into locational \([+lctn]\) and non-locational \([-lctn]\) subcategories. Proper locational nouns \([+lctn]\) marked \([-humn]\) refer to the names of places, institutions or countries. Proper non-locational nouns marked human \([+humn]\) refer to the names of people and \([+humn, +divn]\) nouns are for deities. This first portion of the analysis focuses on the PP where the preposition P is the lexical head of the exocentric construction, and the locational noun is the secondary lexical head and bears the Locus [LOC] case relation required by the regent of the PP.
Examples 35 and 36 show that $ai_j$ [+P, +lctn] requires its immediate dependent
proper nouns kantok and $tăn$ to bear the [+lctn] feature, and those proper place
names such as Kantok or $tăn$ are lexically marked for this feature [+lctn].

35. (K.600)

\[
\begin{array}{c|c|c}
\text{sre} & ai_j & \text{kantok} \\
\text{ricefield} & \text{at} & \text{Kantok} \\
\text{+P} & \text{+lctn} & \\
\text{+lctn} & \text{LOC} & \\
\end{array}
\]

‘the ricefield at Kantok’

36. (K:9:30)

\[
\begin{array}{c|c|c|c}
\text{'amnoy} & \text{sugan} & ai_j & tăn \\
\text{gift} & \text{Sugan} & \text{at} & \text{Tăn} \\
\text{+P} & \text{+lctn} & \\
\text{+lctn} & \text{LOC} & \\
\end{array}
\]

‘the gift of Sugan at Tăn’

According to its definition, a location noun is a noun that is marked with the
localistic location feature [+lctn] and can serve as LOC complement of the word
requiring a [+lctn] dependent.

4.4.2.2 Locational nouns in double exocentric constructions after $ta_2 ai_j$

The explanation of the sequential cooccurrence $ta_2 ai_j$ is discussed in section
4.3.2.1. $Ta_2$ is used in the N$_1$ - $ta_2 ai_j$ - N$_2$ [+lctn] construction for the following
reasons: (1) to avoid the ambiguity which would result from using $ta_2$ alone; (2) as
a buffer to avoid the ungrammatical combination of an animate or human noun
followed immediately by the preposition $ai_j$ plus a locational noun; or (3) to
provide additional semantic information in terms of ‘space’ that would not be
present in a phrase headed by $ai_j$ alone. In addition N$_1$ can be an animate, non-
animate, or human noun, and N$_2$ is a locational noun [+lctn], and the sequence of
$ta_2 ai_j$ is neeesary for the construction.

4.4.2.3 Locational proper noun functioning as cor to its regent noun

Example 37 shows how prañ kandal, a proper noun adjacent to the regent
noun sre [-anmt], has various possible grammatical functions.

37. (K.79:24)

\[
\begin{array}{c|c|c|c|c}
\text{sre} & \text{prañ} & \text{kandal} & \text{tloñ} & 1 \\
\text{ricefield} & \text{Central} & \text{Tower} & \text{tloñ} & \text{one} \\
\text{+prpr} & \text{COR} & \\
\end{array}
\]

‘the ricefield of the Central Tower, one tloñ, or Pran Kandal ricefield: one
tloñ, or the ricefield [in the vicinity] of the Central Tower, one tloñ’
Without context, this type of phrase can be interpreted with these three possible analyses, where the dependent attribute proper locational noun prañ kandal performs different syntactic functions: COR, predicate [+prdc] or LOC to its regent sre. A final decision as to the best fit between prañ kandal [+prpr, -humn, COR] and the adjacent constituents depends upon the context.

In example 38, the proper locational nouns vikramapura and rajagrapha function as COR to title nouns kurun and kloñ respectively.

38. (K38:11)

mratān kuruñ vikramapura pre mrātañ kloñ rājagrapha
Lord prince Vikramapura order Lord chief Rājagrapha
+lctn +V
COR

‘the Lord, the prince of Vikramapura has ordered the Lord chief of Rājagrapha’

4.4.2.4 Temporal nouns

Temporal nouns are locational nouns marked with a specific localistic time [+time] feature that cannot be provided by their regent or dependent.

39. (K.44A:6)

pañcami ket kārttika
fifth fortnight of the waxing moon Kārttika

‘the fifth (lunar) day of the fortnight of the waxing moon of Kārttika’

\[ \text{pañcami} \]  \[ \text{ket} \]  \[ \text{kārttika} \]
\[ \text{lN} \]  \[ \text{ket} \]
\[ \text{+mbr} \]  \[ \text{l2N} \]  \[ \text{kārttika} \]
\[ \text{l2([-Nom])} \]  \[ \text{l+N} \]  \[ \text{kārttiika} \]
\[ \text{l2([+COR])} \]  \[ \text{l+lctn} \]
\[ \text{+time} \]
\[ \text{l+drtn} \]
\[ \text{l-Nom} \]
\[ \text{lCOR} \]

The temporal noun ket has the localistic feature [+lctn, +time]. It is the dependent possessive attribute of the regent number noun pañcami, and functions as COR case relation rather than LOC to its regent.
4.4.2.5 Cardinal direction nouns

Example 40 lists all four cardinal directions: pūrva ‘East’, dakśina ‘South’, paścima ‘West’, and uttara ‘North’. They are locational nouns marking principal cardinal [+cdnl] points.

40. (K341N:1-3)

\[ 'ājña vrah kamṛataṁ 'aṁ parigrapha bhūmi ta order V. K. 'A. to take possession of lands to
vrah kamṛatena 'aṁ śṛiśivapāda pūrva vaṁ hareṁ dakśina
V. K. 'A. Śṛiśivapāda East Vaṁ Hareṁ South +cdnl +lctn +cdnl COR
lantau paścima tmo vrk uttara taraṇ tañnot.
Lantau West Tmo Vṛk North Taraṇ Tañnot +lctn +cdnl +lctn +cdnl +lctn COR COR COR

'The order of the V. K. 'A. taking [certain] lands unto the V. K. 'A. Śṛiśivapāda, the East of Vaṁ Hareṁ, South of Lantau, West of Tmo Vṛk, North of Taraṇ Tañnot'

In this example, ‘East’ pūrva is the head of the NP and regent of the dependent Correspondent proper locational noun vaṁ hareṁ.

According to this study, locational nouns in old Khmer dated inscriptions need not always bear the Locus case relation. When they occur in syntactic positions other than as the attribute of ai₁, they can bear whatever case relation is required by the regent. However, the section on cardinal and temporal locational noun phrases needs further study.

4.4.3 Relator nouns as dependents of nouns

Relator nouns are marked with the localistic feature [+rltr] and provide other localistic features and/or other semantic information required by their regents (possibly) not available on a particular dependent. Relator nouns typically designate some aspect of the dependent that is associated with the regent, which can be a noun, a verb or a preposition.

In old Khmer dated inscriptions there are three types of constructions where relator nouns can be found as: (1) attributes of a noun, (2) a preposition or (3) a verb. They are illustrated in the following diagrams:
Diagram #21

\[
\begin{array}{c}
N_1 \\
| +index \\
| +N \\
| +or -humn \\
| 2([+N]) \\
| 2([+lctn]) \\
| 2([+LOC]) \\
\end{array}
\]

\[
\begin{array}{c}
N_2 \\
| +N \\
| 2ndex \\
| 1+N \\
| 1+rltr \\
| 1+lctn \\
| LOC \\
| 3[-Nom] \\
| 3[+COR] \\
\end{array}
\]

\[
\begin{array}{c}
N_3 \\
| 1 Nom \\
| 1-COR \\
\end{array}
\]

‘N_1 at the N_2 of N_3’

In diagram #21, the regent noun N_1 can be either [+humn] or [-humn]. The [2([-lctn])] denotes that one kind of dependent N_2 must bear the localistic feature [+lctn], and [2([-LOC])] interprets the N_2 as bearing the LOC case relation. In addition, as a relator noun, N_2 supplies other semantic and localistic features allowed and/or required by the regent noun N_1. The [3[-Nom]] and [3[+COR]] features of N_2 tell us that this noun requires a nominal attribute N_3, which is marked as bearing the case relation Correspondent [COR] and the non-nominative case form feature [-Nom].

In addition to being the attribute of an NP, a relator noun can also be the attribute of a preposition. A preposition is the ‘lexical head’ of the prepositional phrase and the regent of the relator noun N_2. The noun N_2 is the ‘secondary lexical head’, the lexical head of a phrase which is the co-head in an exocentric construction.

Diagram #22

\[
\begin{array}{c}
N_1 \\
| +index \\
| +N \\
| 2([+P]) \\
| 3([-LOC]) \\
\end{array}
\]

\[
\begin{array}{c}
P \\
| 2ndex \\
| +P \\
\end{array}
\]

\[
\begin{array}{c}
N_2 \\
| 3[-N] \\
| 3[+N] \\
| 3[+lctn] \\
\end{array}
\]

\[
\begin{array}{c}
N_3 \\
| 4[-Nom] \\
\end{array}
\]

\[
\begin{array}{c}
| 4-COR \\
\end{array}
\]
In diagram #22, the NP node which dominates the relator noun $N_2 [+\text{rltr}, \text{LOC}]$ is the co-head of the exocentric PP construction, where the preposition $P$ is the lexical head. Thus the preposition $P$ cap-commands $N_2$, while the regent noun $N_1$ cap-commands the preposition $P$ and commands the relator noun $N_2$. The [3 [+N]] and [3[+lctn]] in the matrix of the preposition indicates that it must have a noun as its exocentric dependent and that the noun must be a location noun that bears the LOC case relation. The [4[+COR]] means that the relator noun $N_2$ must have a dependent 'possessor' which is interpreted as bearing the Correspondent case relation, and that $N_3$ is its possessor. The relator noun is a dependent of $V$ and its projection is the daughter of $S$.

Diagram #23

\[
\begin{array}{c}
V \\
| +V \\
| +N \\
\left| \begin{array}{c}
L2[+\text{LOC}] \\
\left| \begin{array}{c}
L2\text{index} \\
+\text{N} \\
\left| \begin{array}{c}
L3\text{index} \\
+\text{N} \\
L\text{LOC} \\
\left| \begin{array}{c}
L\text{-Nom} \\
L3[-\text{Nom}] \\
+\text{COR} \\
\end{array} \\
\end{array} \\
\end{array} \\
\end{array} \\
\end{array}
\]
\]

In diagram #23, the relator noun $N_2$ is a dependent attribute of a verb, not an NP. $V$ is the regent of $N_2$, and in turn $N_2$ is the regent of the possessor noun $N_3$.

4.4.3.1 Nouns as regents of relator nouns

Relator nouns in old Khmer dated inscriptions are: $\text{kamluñ [+ntrr]}$, $\text{karom [+undr]}$, $\text{krau [+nttr, +bynd]}$, and $\text{ñín [+prxt]}$. The following examples illustrate the syntactic relationship between these relator nouns and their regents.

41. (K.493:26)

\[
\begin{array}{cccc}
\text{sre} & \text{kamluñ} & \text{tnal} \\
\text{ricefield} & \text{inside} & \text{road} \\
+\text{rltr} & \text{COR} \\
\text{LOC} & \\
\end{array}
\]

‘the ricefield inside of the elevated road’
In example 41, the relator noun *kamolu* [rltr] is placed between its regent *sre* [-humn] and its attribute *tnal* [COR]. *Kamolu*, besides bearing localistic information [+lctn] to characterize the relation between its regent *sre* and its dependent *tnal*, also adds the semantic information ‘interior’ [+ntrr] about the particular location of the elevated road *tnal* relevant to the regent *sre*. *Kamolu* is, in turn, the regent of the possessive noun *tnal* [COR].

42. (K.22:31)

\[
\begin{array}{cccc}
\text{sre} & \text{karoṃ} & \text{kyel} & \text{vrah} & \text{vinaya} \\
\text{ricefield} & \text{below} & \text{bend} & \text{Vrah} & \text{Vinaya} \\
\text{+rltr} & \text{COR} \\
\text{LOC} \\
\end{array}
\]

‘the ricefield below the bend of Vrah Vinaya’

In example 42, *sre* [-humn] is the regent of the relator noun dependent attribute *karoṃ* [rltr, LOC, lctn]. This relator noun means ‘under’, as indicated by its localistic feature [+undr], and is the regent of the dependent possessive attribute *kyel* [COR]. The gloss for this phrase is ‘the ricefield below the bend [in the river at the sanctuary of] Vrah Vinaya’, literally, ‘the ricefield at the under-area of the bend of the river of the sanctuary which is Vinaya’.
43. (K.18:4)

sre krau dnal
ricefield beyond barrier
+rltr COR
LOC

'the ricefield beyond the barrier'

In example 43, the relator noun *krau* provides the localistic features [+ntrr, +bynd] 'interior and beyond' and adds semantic information that neither its regent nor its dependent could. *Krau* is also the regent of the possessive noun *dnal*, which bears the Correspondent case relation, and links *dnal* to its regent *sre*.

4.4.3.2 Relator nouns with prepositional regents

The preceding explained the relationship between a relator noun and its regent where the regent is a noun. The focus on relator nouns as the 'co-lexical head' of a PP exocentric construction is follows.

4.4.3.2.1 Relator nouns as dependents of prepositions

In this construction, a preposition is the lexical head of the prepositional phrase and the regent of the noun *N₂*. The noun *N₂* is the co-lexical head of an exocentric construction.

44. (K.505:15)

damṛṇī 'āy₁ niṅ vihār
plantation at side temple

'the plantation at the side of the temple'
In example 44, *daṃriṅ* is the regent of the locative prepositional phrase 'āyān *nim vihār.* The preposition 'āyān is the lexical head of an exocentric construction, with the relator noun *nim* as its co-head. The relator noun *nim* also marks the proximity [+prxt] of the plantation in relation to the location of the temple. Notice that the relator noun *nim* is found between the preposition 'āyān and the non-locational noun *vihār.*

4.4.3.3 Relator nouns as dependent of verbs

In this section the relator noun is the dependent of a verb in a sentence.

45. (K.341N:11-2)

\[
\text{ge laṅlyañ kamluṅ niraya nu gotra phoṅ}
\]

they burn in Hell with kinsmen all

‘they [shall] burn in Hell together with their kinsmen’

Here the relator noun *kamluṅ* is the dependent attribute of the intransitive verb *laṅlyañ.* *Kamluṅ* has the localistic feature [+ntrr], which characterizes the specific kind of relationship association between the regent verb *laṅlyañ* ‘burn’ and the dependent noun *niraya* ‘hell’.

4.4.4 Equative clause constructions

In this portion, the focus is on noun phrases with one dependent attribute. Grammatical relationships between the head noun and its attribute are examined, including characteristics of equational attributes and their relationships with other sister dependents.

An equative clause construction has a noun or NP as topic or subject regent and is followed by a noun or NP as complement. It can be either marked or unmarked by a copula verb: *gui ~ gi,* or *ja* as in Modern Khmer. The marked equative clause construction is discussed briefly in section 4.2.
Unmarked equational clauses are verbless clauses where the regent noun $N_1$ bears the [+prdc] lexical feature and has a complement nominative patient $N_2$ as subject.

Diagram #24

```
NP=S
   /\         |
  /  \        |
 N_1    l2ndex  l
  /\        |
 N_2    l+N     l
  /\        |
 l1ndex  l+prdc l
  /\        |
 l+N     l1[+Nom] l
  /\        |
 l+Nom   l1[+PAT] l
  /\         |
 lPAT     |
```

'noun $N_1$ predicated of noun $N_2$'

Technically, three types of relative clause structures are found in Old Khmer Dated Inscriptions, where $N_1$ is being modified by an attribute $S$ (see diagrams below). In the first type, called the verbal relative clause (see section 4.2), the dependent $S$ has a verb [+V] as the head of the construction. In the second type, called the nominal equative relative clause, the dependent construction is an NP whose head $N_2$ bears the lexical feature [+prdc] predicate. The construction in the third type is an NP whose head is the noun $man$ or $tel$ bearing the lexical feature [+rltv] relative. This final construction is called an indirect verbal relative clause (see section 4.4.4.5).

Verbal relative clause:

Diagram #25a

```
N_1
   /\       |
  /  \      |
 l1ndex  l  S=[+V]
  /\      |
 l+N     l  V_1
  /\      |
 l2([+fint]) l  l2ndex l  l2([+prdc]) l  l2([+V]) l
  /\      |
 l+V     l+prdc l+fint
  /\      |
 Nom l1[+Nom] l  PAT l1[+PAT] l
```

Diagram #25b

```
N_1
   /\       |
  /  \      |
 l1ndex  l  S=V=[+prdc]
  /\      |
 l+N     l  V_1
  /\      |
 l2([+fint]) l  l2ndex l  l2([+prdc]) l  l2([+V]) l
  /\      |
 l+V     l+prdc l+fint
  /\      |
 l1[+Nom] l  l1[+PAT] l
```

In this verbal relative clause construction (diagram #25a), the $N_1$ does not have to bear any case form or case relation. However, $N_1$ is coreferential with the implied subject of $S$. For the convenience of the reader, this implied subject is indicated as $\triangle$, and the next structure (diagram #25b) is an abbreviation of this configuration.
Nominal equative predicate clause:

Diagram #26a

Diagram #26b

A verbless sentence (diagram #26a) with a nominal predicate is simultaneously a sentence in that its lexical head is marked [+prdc], and an NP in that its lexical head is [+N]. When a verbless sentence functions as a relative clause on a higher noun, the subject is omitted and is interpreted as coreferential with the regent N₁, following the normal relative clause pattern (see section 4.2.1). Again, the next structure (diagram #26b) may be used as an abbreviation for this configuration.

Diagram #27: Indirect verbal relative clause

In diagram #27, the relative N₂ [+rltv, +prdc] is the word man or tel, which is found between the head noun of the NP whose head is N₁ [+Nom, PAT] and a following verbal relative clause (see section 4.2.2).

4.4.4.1 Nominal equative predicate clauses

In this section, the syntactic features of only the nominal equative predicate clause are outlined. The regent N₁ of a nominal equative predicate clause can be either a demonstrative noun neh or nol, common noun, number noun, proper noun
or a title noun. The predicative dependent N₂ can be a common noun, personal proper noun, non-personal proper noun, number, classifier, or even a relator noun.

46. (K.18:30-10)

\[
\text{gi } \text{neh } \text{kñum } \text{dañ } \text{sre } '\text{amnoy } \text{kloñ } \text{ta } \text{vrañ }
\]

are these slaves and ricefield gift his to Vrañ

'These are the slaves and ricefields (which are) his gift to the Vrañ.'

The entire sentence is an intransitive impersonal copula verb construction (see section 2.2 for details); however here I analyze the word *neh* [+dmns, +prdc] as the head noun of a NP with two dependent predicate NP attributes of its own: (1) the coordinate predicate NP *kñum dañ sre* and (2) the predicate NP *'amnoy kloñ ta vrañ*. The predicate demonstrative pronoun *neh* 'these' is equated to *kñum* 'slaves' and *sre* 'ricefields', and to the *'amnoy* 'gifts', because the slaves and the ricefields are the gifts.

In example 47, *noñ* [+dmns, +prdc] is the regent of the predicate location noun *kāla* [+time, +prdc].

47. (K.154B:7)

\[
\text{gi } \text{noñ } \text{kāla } \text{mṛatañ } \text{bhavāditya}
\]

is that (life)time Lord Bhavāditya

+V +prdc +time +prdc

'That is (during) the (life) time of the Lord Bhavāditya'
In example 48, the common noun kñum [+humn] is the regent of the predicate common noun ‘amñoy [-humn, +prdc].

48. (K.600N:2)

\[
\begin{array}{cccc}
\text{kñum} & \text{‘amñoy} & \text{jam} & \text{‘añ} \\
\text{slave} & \text{gift} & \text{Jam} & \text{‘Añ} \\
+\text{humn} & -\text{anmt} & +\text{prdc} & \\
\end{array}
\]

‘the slaves the gift of Jam ‘añ’

Example 49 illustrates an NP with a title regent and a proper nominative equative predicate NP adjunct.

49. (K.79:7)

\[
\begin{array}{cccc}
\text{mratñ} & \text{Iñanapavitra} \\
\text{lord} & \text{Iñanapavitra} \\
+\text{titl} & +\text{prpr} & +\text{prdc} & \\
\end{array}
\]

‘Lord (who is called) Iñanapavitra’

A detailed analysis of the equative noun phrases with various classifications of nouns is shown in: (1) classifier constructions (section 4.4.4.2); (2) number noun phrases (section 4.4.4.3); (3) indirect possessive noun phrases (section 4.4.4.4); and (4) indirect verbal relative clauses (section 4.4.4.5).

4.4.4.2 Classifier constructions

A classifier construction has a classifier [+N,+clsf] as its head and may or may not include a dependent sister.\(^{11}\) There are four types of classifier constructions: (1) the classifier functions as the head of a free NP; (2) the classifier functions as the regent of a prepositional phrase; (3) the classifier functions as the attribute of a noun; and (4) the classifier functions as the attribute of a verb. These are illustrated in the four diagrams (#28 to #31) below.

---

\(^{11}\) This structure is totally different from classifiers in Modern Khmer. In Modern Khmer the classifier is placed after the regent noun and may have no dependents.
Diagram #28

\[
\begin{array}{c}
N_1 \\
/1 \text{index} / \\
/1+N / N_2 \\
/1+\text{clsf} / l2\text{index} \\
l2([+\text{clsf}]) / l+N \\
l2([+\text{prdc}]) / l+\text{nmbr} \\
l+\text{prdc} \\
\end{array}
\]

In diagram #28, the \([2([+\text{prdc}])\) and \([2([+\text{nmbr}])\) indicate that the contextual features of the classifier are linked to an external constituent and refer to an adjunct, and that the regent that bears these contextual features expects the dependent to bear the features predicate [+prdc] and number [+nmbr] as lexical features. \(N_2\) is a number noun, which is the predicate attribute of the classifier regent \(N_1\).

A number is not the only possible attribute of a classifier noun. A prepositional phrase can also be the attribute of a classifier, as illustrated in diagram #29.

Diagram #29

\[
\begin{array}{c}
N_1 \\
/1 \text{index} / \\
/1+N / N_2 \\
/1-\text{clsf} / l2\text{index} \\
/1-N / l3\text{index} \\
/1+\text{clsf} / l4\text{index} \\
/1+\text{prdc} / l4+\text{V} \\
/3([+\text{P}]) / l5+[fint] \\
/3([+\text{xtns}]) / l5+[\text{pl]} \\
l4([+\text{prdc}]) / l5+[\text{pl}]
\end{array}
\]

In diagram #29, \(N_2\) is a classifier noun. Its contextual features \([3([+\text{P}])\), \([3([+\text{xtns}])\), and \([4([+\text{prdc}])\) imply that \(N_2\) (1) expects its dependent attribute to be a preposition [+P] which has the extension feature [+xtns] and (2) expects its other dependent attribute to bear the feature [+prdc].

The prepositional phrase \(ta_4\) gui \(N_3\) is the attribute of the classifier \(N_2\). The classifier \(N_2\) is the regent of the PP exocentric construction where \(ta_4\) is the lexical head, \(gui\) is the secondary lexical head, and \(N_2\) commands the number \(N_3\). The
preposition $ta_4$ requires a dependent finite verb. The verb $gui$ is the dependent of the classifier noun and in turn is the regent of the predicate number $N_3$.

In addition to being regent of a number NP and a PP, a classifier may be a predicate dependent attribute of a noun and a verb. Diagram #30 shows a classifier noun as dependent of a noun and diagram #31 illustrates a classifier noun as a dependent attribute of a verb.

Diagram #30

```
[ | ]
| N1
|  l1nde
|  l+N
|  l2([+clsf])
|  l2([+prdc])
|   l2n
e
|   l+N
|   l+clsf
|   l+prdc
|   l1[+Nom]
|   l1[+PAT]
```

In diagram #30, the contextual features $[2([+clsf])]$ and $[2([+prdc])]$ illustrate that the regent $N_1$ expects the adjunct dependent attribute to be a classifier, and that the classifier $N_2$ is the predicate optionally anticipated by the regent. That is, $N_2$ is a type of noun-headed relative clause. In matrix two, $[1[+Nom]]$ and $[1[+PAT]]$ cannot be indexed by linking directly to the regent. Instead these features obtain their index from the regent noun via the Relative Clause Chaining Rule. Thus a classifier as a nominal predicate implies a Patient subject coreferential with its regent noun.

Diagram #31

```
[ | ]
| verb
|  l1nde
|  l+V
|  l2([+clsf])
|  l2([+prdc])
|   l2nde
|   l+N
|   l+clsf
|   l+prdc
|   l1[+nmbr]
|   l1[+prdc]
```

In diagram #31, the contextual features $[2([+clsf])]$ and $[2([+prdc])]$ imply that the verb has an adjunct which bears the lexical features $[+clsf]$ and $[+prdc]$. The $[?([+nmbr])]$ and $[?([+prdc])]$ features of $N_2$ mean that $N_2$ optionally expresses a number and a predicate as dependent attributes. Since this classifier is a direct
dependent of a verb, we can conclude that classifiers are nouns rather than adjectives or a separate part of speech.

4.4.4.2.1 Classifiers as regents of number noun phrases

Classifier noun phrases have classifier nouns as heads and are followed by predicate number nouns.

Classifiers are used to represent measurements or amounts for a wide range of items: (1) measurement of land area: \( tlo\), \( tvahn\), \( je\), \( mas\), \( ma\), and \( sanre\); (2) measurement of cloth: \( yau\) and \( vlah\); (3) capacity or measurement of rice or grains: \( je\), \( tlon\) and \( lih\); (4) serving of set, suit, series or food: \( vnak\); (5) yokes or teams of draught animals: \( dnem\); (6) counting trees or plants: \( tem\) and \( tnem\); and (7) measurement of metal: \( tanln\).

In the following sections, the focus is on the classification of classifier constructions in terms of the syntactic dependency relationships between the regent classifier and its number noun dependent.

4.4.4.2.1.1 Non-conjoined classifiers

50. (K.451N:10-1)

\[
\begin{align*}
\text{ra\(\)ko} & \quad \text{je}\quad \text{kanlah} \\
\text{husked rice} & \quad \text{je}\quad \text{one and half} \\
+N & \\
+c\text{lslf} & \\
+prdc & \\
\end{align*}
\]

‘one and a half je of husked rice’

The noun ra\(\)ko ‘husked rice’ is the regent of the classifier je. The classifier NP je is the regent of the attribute noun kanlah. This word occupies the number noun slot. It is obvious that kanlah is a number and functions as the dependent predicate attribute of the classifier regent noun je.
51. (K.154B:3)

\[
\begin{align*}
\text{samlo} & \quad \text{vnak} & 1 \\
\text{curry} & \quad \text{clsf.} \text{(for service)} & 1 \\
+ N & \quad + \text{clsf} \\
& \quad + \text{prdc}
\end{align*}
\]

'one serving of curry'

The word *samlo* is used with the classifier *vnak* when counting. *Vnak* is the predicate attribute of the noun *samlo* and in turn is the regent of the number noun *l*.

*D nem*, a unit used to count pairs of draught animals, is the predicate dependent attribute to its regent noun *tmur*.

52. (K.134:29)

\[
\begin{align*}
\text{tmur} & \quad \text{dnem} & 9 \\
\text{cow} & \quad \text{pair} & 9 \\
+ N & \quad + \text{clsf} \\
& \quad + \text{prdc}
\end{align*}
\]

'9 pairs of cows'

Classifiers for trees and plants [+anmt, +tree] are *tnem*, or *tem*. The word for tree or plant may be ambiguous in isolation, referring either to the tree itself or to its fruit. The use of the classifier *tem* or *tnem* resolves this ambiguity of meaning. The following are examples of these words.

53. (K.582:7)

\[
\begin{align*}
\text{toñ} & \quad \text{tnem} & 10 & \text{slä} & \text{tnem} & \text{sata} & 1 \\
\text{coconut palm} & \quad \text{clsf.} & 10 & \text{areca palm} & \text{clsf.} & 100 & 1 \\
+ N & \quad + \text{clsf} & + N & \quad + \text{clsf} & + \text{prdc} & + \text{prdc}
\end{align*}
\]

'10 coconut palms [and] 100 areca palms'
54. (K726A:7-8)

\begin{align*}
& \text{prak } \text{tamliñ} 10 \\
& \text{silver } \text{tamliñ} 10 \\
& +N \quad +\text{clsf} \\
& \quad +\text{prdc}
\end{align*}

'10 tamliñ of silver'

The word \textit{tamliñ} is still used in modern Khmer as a classifier for quantifying metal such as silver or gold. In this example, the noun \textit{prak} 'silver' is the regent of the classifier word \textit{tamliñ}, which in turn is the regent of the predicate number 10.

4.4.4.2.1.2 \textit{Conjoined classifiers}

When two or more classifier noun phrases are dependents of a regent noun, together they form a coordinate classifier NP with a missing conjunction [\textit{doñ}] or [\textit{dari}]. Then the regent noun becomes the regent of a missing conjunction, not the classifier NP directly.

55. (K.79:8)

\begin{align*}
& \text{canlek yugala yau 2 vlah 1} \\
& \text{double-cloth yau 2 vlah 1} \\
& \quad +\text{clsf} \quad +\text{clsf} \\
& \quad +\text{prdc} \quad +\text{prdc}
\end{align*}

'2 yau [and] 1 vlah of double-cloth'

The coordinate classifier noun phrases \textit{yau 2} and \textit{vlañ 1} are the dependent predicative attributes of the regent noun \textit{canlek yugala}. The classifiers are interpreted as coordinated by a missing conjunction [\textit{doñ}]. Each has its own dependent predicate number attribute.

In examples 56, 57 and 58, the classifiers \textit{tlon, mäs; je, lih;} and \textit{tloñ, je} are coordinated under the assumed missing conjunction [\textit{don}] respectively.
56. (K.563:6)

sre tloŋ 10 mās 2
riceland tloŋ 10 mace 2
+N +clsf +clsf
+prdc +prdc

'10 tloŋ [and] 2 mace of riceland'

57. (K.124:12)

śunthī je 3 lih 9
ginger je 3 lih 9
+N +clsf +clsf
+prdc +prdc

'3 je [and] 9 lih of ginger'

58. (K.79:16)

sru tloŋ 3 je 2
unhusked rice tloŋ 3 je 2

'3 tloŋ [and] 2 je of unhusked rice'

4.4.4.2.2 Classifiers as regents of prepositional phrases

4.4.4.2.2.1 Prepositional phrase ta₄ gui

In the earlier portion of this section, classifier noun phrases were shown as regents of number noun phrases. Syntactically, a classifier regent expects its dependent attribute to bear the lexical features [+nmbr, +prdc]. In addition to the nominal predicate as dependent attribute, a classifier regent may have the PP ta₄ gui as dependent attribute with ta₄ [+xtns] as its complementizer. A detailed analysis of this PP is discussed in section 4.3.

59. (K.54:16)

damṛṇī slā tem ta₄ gui 100
plantation areca clsf. that which be 100

toŋ tem 60
coconut tree 60

'the plantation of areca palm, which are 100 trees [and] 60 coconut trees'
In example 59, the PP $ta_4 gui$ 100 is the attribute of the classifier noun $tem$. The classifier $tem$ is the regent of the PP exocentric construction where $ta_4$ is the lexical head, $gui$ is the secondary lexical head, and $tem$ commands the number noun 100. The classifier $tem$ expects its attributes to bear the lexical features preposition [+P], extension [+xtns], and predicate [+prdc]. The preposition $ta_4$ requires a finite verb attribute. The verb $gui$ is the regent of the predicate number noun 100.

4.4.4.2.2.2 Prepositional phrase ’ay$_2 ta_4 gui$

The PP ’ay$_2 ta_4 gui$ is a double exocentric construction where the locational preposition ’ay$_2$ is the lexical head and the preposition $ta_4$ is the co-lexical head and the regent of the copula verb $gui$. A more detailed analysis of this construction is given in section 4.3.

60. (K.54:7)

damrīñ nirvāṇa ton tem ’ay$_2 ta_4 gui$ 100
plantation Nirvāṇa coconut clsf. at that be 100

‘Nirvāṇa plantation, 100 coconut palms thereon’
In example 60, the classifier \textit{tem} is the regent of the PP 'āy₂ \textit{ta₄} gui 100. This is a double exocentric construction in which the locational preposition 'āy₂ is the lexical head, and \textit{ta₄} is its secondary lexical head.

4.4.4.2.3 Classifiers as dependents of noun phrases

Nouns can be divided into two subclasses on the basis of the way in which they are counted: mass nouns [+N, +mass] and non-mass nouns, or 'count nouns' [+N, -mass]. In section 4.4.4.2.1, those classifier noun phrases are used to assist seven or eight general groups of nouns when they are measured or counted. The group of nouns including nouns such as riceland, animals, grain, cloth, food or metal, and trees or plants take classifiers as dependent attributes. There are only a few specific nouns that can be counted without classifiers; however, some classifiers are optional when counted.

Classifier noun phrases are not necessarily the sole adjunct of a noun; they can also precede or follow other co-dependents.

In Modern Khmer, cows, buffalo and some other animals are counted by heads with an optional classifier. In pre-Angkorian language there are so far no data on counting animals by 'head'. When animals are counted as a 'yoke' or as a 'team', then the classifiers \textit{dnem} do cooccur with the head nouns. Therefore, all nouns referring to live animals have number nouns as immediate attributes when counted individually.

Example 61 shows that when a noun requires a classifier as dependent, that noun can no longer link directly to the number noun as dependent. Rather, the classifier takes precedence over the number noun.
61. (K:582:6)

\[
\begin{array}{cccc}
\text{tmur} & \text{bhai} & \text{krapi} & \text{dnem} \\
\text{bull} & 27 & \text{carabao} & \text{pair} \\
\hline
\end{array}
\]

'27 bulls [and] one pair of carabao'

The noun \textit{tmur} is the regent of the number noun \textit{bhai-7}. But the noun \textit{krapi} requires a classifier \textit{dnem} as dependent when counted in terms of a pair; in turn, \textit{dnem} is the regent of the predicate number \textit{1}.

4.4.4.2.4 Classifiers as dependents of verbs

As mentioned at the beginning of the classification section 4.4.4.2, classifiers can be lexical heads of dependent attributes of nouns and verbs. Example 62 presents good evidence for treating classifiers as nouns, since it would make no sense for classifiers to function as dependents of verbs if they were in fact members of a separate nominal word class.

Example 62 shows two classifiers, one as an attribute of a verb and the other as an attribute of a noun.

62. (K.505:15)

\[
\begin{array}{cccc}
\text{damrín} & \text{tay} & \text{ñin} & \text{vihár} & \text{slâ} & \text{ta} & \text{gui} & \text{tnem} \\
\text{plantation} & \text{at} & \text{side} & \text{temple} & \text{areca} & \text{that which be clsf.} \\
\hline
100-20-3 & \text{toñ} & \text{tnem} & 100-20 \\
123 & \text{coconut} & \text{clsf.} & 120 \\
\hline
\end{array}
\]

'the plantation at the side of the temple: 123 areca palms [and] 120 coconut palms'
In this example, the *slā *ta *gui *tnem 100-20-3 is in coordination with *toñ *tnem 100-20, with a missing conjunction [*doñ*. The classifier *tnem* in the first phrase is the predicate nominal dependent of the copula verb *gui* and the regent of the predicate number 100-20-3. The second classifier *tnem* is the predicate attribute of the regent noun *toñ* and the regent of the number 100-20. Notice that except for the *ta* _gui_, the coordinated elements [*slā *ta *gui [*tnem 100-20-3]*] and [*toñ [*tnem 100-20]*] are identical in form and function, so that the simplest assumption is that they are identical in structure as well; that is, both conjuncts are [+N, +prdc].

In conclusion, classifiers are dependents of copula verbs, which means that they are predicate nouns.

4.4.4.3 Number noun phrases

Number words are analyzed as adjectives in the grammars of many languages. However this analysis of Old Khmer proposes an analysis of numbers as nouns that have specific lexical features [+N, +nmbr]. This analysis is based upon the following observations: (1) the Old Khmer language does not otherwise have adjectives as a clearly definable syntactic wordclass; and (2) it is natural in Old Khmer to have nouns modifying other nouns. A number word can either be (a) an equational predicate dependent of another NP; or (b) the [+prdc] head of a free NP, as shown by its ability to occur as the direct non-subject dependent of a copula verb, a position which in the usual lexicase analysis selects a non-verb [+prdc].

Example 63 shows a number word as a clause-level predicate noun.

63. (K.134:17)

```
pinda gi 20-8
total be 28

'the total are 28'
```
The copula verb gi has pinda as the Nominative Patient subject and 20-8 as predicate complement. Since 20-8 occupies the predicate complement position, it is assumed that 20-8 is a predicate noun. In this data only the predicate noun, the verb, and the predicative verbal clause can follow the copula verb gi. Since a number is a predicate and a dependent of a copula verb gui ~ gi, this implies that it functions as the nominal head of a free NP structure.

Noun phrases with just one immediate attribute are examined in this chapter. In this section, first the distribution of the number NP is examined, and second the types of relationships that obtain between the regent and the dependent attribute are analyzed and described.

A number noun can be (1) a dependent of the head noun of an NP (diagram #32), (2) the attribute of an intransitive copula verb gui ~ gi in an exocentric construction (diagram #33), or the regent of another NP (diagram #34).

Diagram #32

In diagram #32, the word N₁ has [2([+nmbr])] and [2([+prdc])] as contextual features. These features indicate that N₁ expects its dependent attribute N₂ to bear [+nmbr] and [+prdc] as lexical features. The number N₂ functions as a predicate complement to its regent N₁.

A number noun can also appear as the dependent of a copula verb gui ~ gi. The verb gui ~ gi is in an exocentric construction with the preposition ta₄, as illustrated in diagram #33.
Diagram #33

In diagram #33, $N_1$ is the regent of the PP $ta_d$ gui which forms an exocentric construction. The word $N_1$ has these contextual features $[2([-P])]$, $2([-xtns])$, and $[3([-copl]), 3([-prdc])]$, which imply that $N_1$ expects its dependent [2ndex] to be a preposition $ta_d [+xtns]$, and its [3ndex] to be a copula verb gui ~ gi. It also means that the following S is a relative clause with $ta_d$ as the complementizer. In gui[3ndex] the contextual features $[4([-N]), 4([-nmbr]), 4[-prdc])$ imply that it requires its dependent to be a predicate noun.

In addition to being an attribute, a number noun can be the head of a free NP and the regent of another noun, as shown in diagram #34.

Diagram #34

In this diagram, the regent $N_1$ is a number and has a predicate $N_2$ as its dependent attribute.

This study now examines these three types of constructions: (1) number nouns as dependent attributes of other nouns; (2) number nouns as dependent attributes of the copula verb gui; and (3) number nouns as the regents of certain types of nouns.
4.4.4.3.1 *Number nouns as dependents of nouns*

This portion of the paper focuses on number nouns as attributes of other nouns.

For the purpose of organizing the data, the examples are arranged based on the semantic and grammatical properties of the regent classifier noun (example 64), common nouns (examples 65 to 68), or proper nouns (example 69). It should be kept in mind that attribute number nouns always function as predicates to their regents.

64. (K.79:14)

\[
\begin{array}{llllll}
\text{sré} & \text{'amnoy} & \text{poñ} & \text{syam} & \text{je} & \text{2} \\
\text{ricefield} & \text{gift} & \text{Sir} & \text{Syam} & \text{je} & \text{2} \\
 & & & & +N & +nmbr \\
 & & & & +clsf & +prdc \\
\end{array}
\]

‘ricefield the gift of Sir Syam: 2 je’

65. (K.607:18)

\[
\begin{array}{llllll}
\text{sré} & \text{'āy} & \text{jeñ} & \text{vnam} & \text{5} \\
\text{ricefield} & \text{at} & \text{Jeñ} & \text{Vnam} & \text{5} \\
 & & & & +N & +nmbr \\
 & & & & -anmt & +prdc \\
\end{array}
\]

‘5 ricefields at Jen Vnam’

66. (K.582:6)

\[
\begin{array}{lll}
\text{tmur} & \text{bhai 1-7} \\
\text{cow} & 20 + 7 \\
 & +N & +nmbr \\
 & +anmt & +prdc \\
\end{array}
\]

‘27 cows’

The number *bhai 1-7* is the predicate attribute of the regent *tmur*. Notice the way this is written and the conventional interpretation of the data, where *bhai 1-7* means 20, multiplying by 1, plus 7.

67. (K.451S:11)

\[
\begin{array}{llllll}
\text{sarvapinda} & \text{savālarvrddha} & \text{gi} & \text{tānam} & \text{40-10-8} \\
\text{total items} & \text{total young and old} & \text{be} & \text{slaves} & \text{58} \\
 & & & +N & +nmbr \\
 & & & +humn & +prdc \\
\end{array}
\]

‘the total including young and old are 58 slaves’
68. (K.600E:1)

tmĭn vina kañjañ lăhv 4
player vina kañjañ lăhv 4

'four players of vina, kañjañ and lăhv'

69. (K.600E:4)

jmañ ge rañ carumati 1 priyasenā 1
name dancer Carumati 1 Priyasenā 1
+N +nmbr +N +nmbr
+prpr +prdc +prpr +prdc

'names of the dancers: one Carumati, one Priyasena'

Number nouns function as equative predicate attributes their regents. Possible nominal regents of number nouns are common nouns, mass nouns, proper nouns, and classifiers.

4.4.4.3.2 Number nouns as dependents of the verb gui

As mentioned at the beginning of section 4.4.4.3.1, in addition to being the dependent of other nouns, number nouns may be a dependent of the copula verb gui – gi with (1) gui as the main verb of the clause (see example 88) or (2) gui as co-head of ta₄ in a prepositional exocentric construction.

In example 70, the number 100-20-3 is the predicate dependent of the copula verb gui.

70. (K.9:30)

'amnoy sugan ai tnañ tpal 1 slă tem
gift Sugan at Tnañ grove 1 areca clsf.

ta gui 100-20-3
which be 123

'the gift of Sugan at Tnañ, 1 grove in which are 123 areca palms'
4.4.4.3.3 *Number nouns as dependents of preposition* $ta_4$

In this section, the preposition $ta_4$ is the regent of the number noun. As mentioned in section 4.3, the preposition $ta_4$ acts as a complementizer that cooccurs with two types of dependents: nominal predicate noun phrases with [+N, +prdc] heads, and verbal clauses with [+V, +fint] heads.

Example 71 illustrates the occurrence of $ta_4$ functioning as regent of a number noun.

71. (K.90:8-10)

```
  nivandha  ge  ta  gui  utsava  ta_4  pon  hvat
  purveyance  they  of which  be  utsava  of which  4  times
   +P       +P
  +xtns    +xtns

  ta  gui  cnam  ta_4  moy
  of which  be  year  of  one
   +P       +P
  +nmbr    +nmbr
  +prdc    +prdc

'their purveyance which is Utsava of 4 times a year'
```

4.4.4.3.4 *Numbers as regent nouns*

Number nouns can be subcategorized into ordinal numbers and cardinal numbers. The nouns that mark the calendar day may be called ordinal numbers: they are always the lexical heads of their NPs.

Jacob (1965:152) noticed that when the numeral is written as words (not in figures), the word-order of the numeral and the coefficient is switched.

72. (K.138:1)

```
moy  roc
1  waning moon

'the first day of the waning moon'
```

```
/\    /
 |   |
 moy
|   | 1
l+Index  |  | l
l=N  |  | roc
|  | l+nmbr
l2([+COR])  |  | l2Index
|  | l+N
|  | 2([+Acc])
|  | l-clsf
|  | l-prdc
|  | l-COR
|  | l+Acc
```
In Modern Khmer moy roc means 'the first day of the waning moon', and thai tii moy roc means 'the day (which) is the first day of the waning moon'. In example 97, the Old Khmer moy roc is the same as in Modern Khmer. The number moy functions as an ordinal number that is equivalent to the English 'the first'. Moy is the regent of the word roc.

Most of the examples in the data have the number to the right of the classifier. The dependent of the classifier can be either a number NP or a PP. However, there are some data in this study that show that when a classifier noun functions as a dependent of a number noun, the classifier noun does not have a number noun as its dependent.

73. (K.154A:5)

raňko pi lih
husked rice 3 lih

'3 lih of husked rice'

Typically, the classifier noun is followed by the number. But in example 97, the classifier lih follows the number '3' pi. Three possible analyses for this example are explored here:

1. The noun raňko is the regent of pi lih where the classifier lih is the regent of the dependent number noun pi. This analysis is not correct because it violates both the general restriction against left branching and the specific properties of classifiers established in section 4.4.4.2.

2. The noun raňko is the regent of two separate predicate noun phrases: (1) the predicate NP pi and (2) the predicate NP lih. This analysis shows a number counting a mass noun with no intervening classifier, which is not interpretable. Thus this interpretation is not likely to be correct either.

3. The noun raňko is the regent of the predicate attribute pi, and pi, in turn, is the regent of the predicate attribute noun lih. This type of right-branching sequential nominal attribution is normal in our data. As seen in section 4.4.4.2, a classifier may be the predicate attribute of a noun, thus the noun pi can be the regent of the noun lih. This analysis is preferable because, although the mass noun regent
is counted directly, the 'units' are identified as mass units; i.e., 'husked rice which is three units which are \( \text{lih} \).

74. (K.388C:5)

\[
\begin{align*}
\text{tmur} & \text{ tap } \text{dnem} \\
\text{cow} & \text{ 10 } \text{yoke}
\end{align*}
\]

'10 yokes of cows'

\[
\begin{align*}
\text{tmur} & \\
\text{11n} & \text{index} \\
\text{l+N} & \text{tap} \\
\text{l-nmbr} & \text{l2n} \text{index} \\
\text{l-humn} & \text{l+N} \text{dnem} \\
\text{l2([+nmbr])} & \text{l-prn} \text{n} \text{l2n} \text{index} \\
\text{l2([+prdc])} & \text{l+n} \text{mbr} \text{l+N} \\
& \text{+prdc} \\
& \text{l-prn} \\
& \text{l3([+clsf])} \\
& \text{l+clsf} \\
& \text{l3([+prdc])} \text{l+prdc}
\end{align*}
\]

In example 74, the word for number 'ten' is spelled out as \text{tap} and followed by the classifier \text{dnem}.

The number \text{tap} is the predicate attribute of the regent noun 'cows' \text{tmur}. The predicate noun \text{tmur} is the regent of the classifier noun \text{dnem}.

In examples 75 and 76, the words \text{thai} and \text{hvat} are classifiers of days and time respectively. Since the classifier is counted by the regent, it does not need to be counted again by a dependent.

75. (K.904A:21)

\[
\begin{align*}
\text{Kpoñ} & \text{ kamratañ } \text{añ} \text{ śrisenamukhavijayā} \text{ oy} \\
\text{Sir} & \text{ K.} \text{ 'A} \text{ śrisenamukhavijayā} \text{ give} \\
\text{rañko} & \text{ je} \text{ kanlahha} \text{ moy} \text{ thai} \\
\text{rice} & \text{ je} \text{ one-half} \text{ one} \text{ day} \\
& \text{+N} \text{ +clsf} \\
& \text{+nmbr} \text{ +prdc}
\end{align*}
\]

'Sir K. 'A. Śrisenāmukhavijayā gave one-half je of rice every or each day'
76. (K.904A:29)

moy  hvat  
one  time  
+N  +clsf  
+nmbr  +prdc

‘one time or once’

These are some examples mentioned by Jacob (1965:152) which show that number nouns precede classifier nouns.

ku  moy  ‘nak  ku  moy  ‘nak  sin  
female slave  one  person  female slave  one  person  more

‘one female slave, one female slave in addition’

ton  mvay  tem  
coconut  one  tree

‘one coconut tree’

sre  mvay  pada  
ricefield  one  foot

‘one foot of ricefield’

In example 77, the number ‘one’ moy precedes the classifier noun and, in turn, the classifier is followed by another number 1.

77. (K.80:10)

sre  moy  sanre  1  
ricefield  one  clsf.  1

‘one ricefield’

This clause can be interpreted in several ways:

1. ‘The ricefield one which is a single unit’. The NP sre is the regent of the single noun moy [+sngl, +prdc] and the NP sanre 1. Syntactically, this structure is acceptable because as we have seen, the presence of the classifier is optional with sre. The classifier NP sanre [+prdc] is the regent of the dependent predicate number 1. This is also correct because when these two words cooccur, the classifier takes the number as its dependent. The classifier NP sanre 1 is a relative clause to the regent noun sre.

2. ‘One ricefield (which is called) Moy’. Moy is treated as a proper noun and is the predicate attribute of the regent sre; the NP sanre 1 is treated as the classifier attribute of the same sre. This example implies that one can interpret the information in terms of the identity of the ricefield followed by its measurement.
3. 'One ricefield'. 'One [unit] of ricefield'. This interpretation shows that there are two independent NPs *sre moy*, and [*sre*] *sanre moy* by treating [*sre*] as a gapped regent of the second NP [*sre*] *sanre l*.

The first analysis is preferable because it is simple and consistent with the interpretation of the classifier *sanre* as a measure of area rather than unit.

All of these examples show that a number noun can be the head of its own NP, thus it is a noun, not an adjective.

4.4.4.4 Indirect possessive noun phrases

Based on the Old Khmer Dated Inscriptions, there are two categories of possessive NPs: the direct possessive NP and the indirect nai-mediated possessive NP. The direct possessive NP is discussed in section 4.4.11.1. This section focuses on the indirect possessive NP.

A possessive NP is marked with the case form feature non-nominative [-Nom]. It must have a nominal regent, and is interpreted as bearing the case relation Correspondent allowed or required by its regent. In the indirect possessive NP, the regent of the possessive NP is the noun *nai* 'possession of'. *Nai* is used optionally to clearly mark a possessive construction in ambiguous contexts, and links the possessor noun *N₂* to the possessed noun *N₁*. The Old Khmer word *nai* and the Modern Khmer word *nai* are the same (Jenner 1981:175). This structure is illustrated in diagram #35.

Diagram #35

```
N₁  |
    |  
    l-index  |  l-index
    l+N      |  l+N
    l-prmn   |  l-prmn
    l2([+N]) |  l2([+N])
    l2([+prdc]) |  l2([+prdc])
```

'N₁ which is the possessed (*nai*) of *N₂*

In diagram #35, the noun *N₁* is the head of the NP and the regent of *nai*. As its dependent, *nai* bears the required [+prdc] feature. In the *nai*[l-index] matrix, the contextual features [3[-Nom], 3[+COR]] mean that *nai* obligatorily requires a non-nominative dependent that bears the Correspondent case relation. *N₂* is the dependent of *nai*. *N₂* bears the COR case relation and is the dependent possessive complement of its regent *nai* [+N, +prdc] 'possession of'. *Nai* is used optionally...
to clearly mark possessive constructions in ambiguous contexts. It links its possessor, \( N_2 \), to the higher regent \( N_1 \), since \( N_2 \) is the possessor of \( nai \) and \( nai \) is equated with \( N_1 \). The word \( nai \) is syntactically similar to the Thai word \( khŏong_2 \), the descriptive nominal predicate attribute (Savetamalya 1989:191).

In addition to the construction in diagram #35, the possessor \( N_2 \) cooccurs with the preposition \( ta_3 \) as the secondary lexical head of the PP (see section 4.3.1.3.2). This prepositional NP is illustrated in diagram #36.

Diagram #36

\[
\begin{align*}
& N_1 \\
& \downarrow N_2 \\
& l1\text{index} \\
& \downarrow +N \\
& l-prmn \\
& l2(\{+P\}) \\
& l2([-trmn]) \\
& l3([+COR]) \\
& l1\text{index} \\
& \downarrow l+P \\
& l-trmn \\
& l3\text{index} \\
& \downarrow l1\text{ctn} \\
& l3[+N] \\
& l3[-Nom] \\
& l-COR \\
\end{align*}
\]

In diagram #36, \( N_1 \) is the regent of the PP exocentric construction, where \( ta_3 \) is its lexical head and \( N_2 \) is the secondary lexical head of the construction. The regent \( N_1 \) expects a non-terminus preposition dependent and a prepositional object that bears the COR case relation. \( Ta_3 \) is the dependent of \( N_1 \) and the regent of \( N_2 \). \( N_2 \) functions as the possessor of \( N_1 \), the regent of the PP, and bears the COR case relation required by the nominal regent of the second NP.

In addition to these two types of structures, the possessive NP in Old Khmer Dated Inscriptions allows one more structure, represented in diagram #37, which is the combination of diagrams #35 and #36.

Diagram #37

\[
\begin{align*}
& N_1 \\
& \downarrow N_2 \\
& l1\text{index} \\
& \downarrow +N \\
& l-prmn \\
& l2([+prdc]) \\
& l2([+N]) \\
& l1\text{index} \\
& \downarrow l+P \\
& l-prdc \\
& l3([+COR]) \\
& \downarrow l1\text{ctn} \\
& l3[+N] \\
& l3[-Nom] \\
& l-COR \\
& \downarrow l+P \\
& l-trmn \\
& l4\text{index} \\
& \downarrow l+P \\
& l-anmt \\
& l4[-Nom] \\
& l-Nom \\
\end{align*}
\]
In diagram #37, N₁ is the regent of the word nai, and nai in turn is the regent of the exocentric PP construction which has ta₃ as the lexical head and N₂ as its secondary lexical head. N₁ assumes a nominal predicate dependent. Nai expects a non-terminus preposition dependent whose object bears the case relation COR. The preposition ta₃ obligatorily expects a noun dependent.

4.4.4.4.1 nai as the regent of the possessor noun

Examples 78 to 80 show the relator nai serves as a link between the possessor N₂ and the higher regent N₁. Nai requires a non-nominative dependent which obligatorily bears the COR case relation.

78. (K.124:15)

vrah punya nai bhagavat kamraten 'aañ utkṛsta
sacred pious work belonging to divine K. 'A. Utkṛsta

‘the sacred pious work of Divine K. 'A. Utkṛsta’

In example 78, the regent compound NP vrah punya is equated to nai. Nai obligatorily requires its own dependent bhagavat ‘divine one’ to bear the COR case relation. Thus bhagavat is the possessor of the noun nai. Nai thus connects the bhagavat to vrah punya, the higher regent of the phrase, since bhagavat is the possessor of nai and nai is equated to vrah punya.

79 (K.904B:10)

ni gi vnok nai ge kloñ
with respect to be group belonging to he Baron
+N +prdc COR

Sundaryyayuvati 'aañ
sundaryyayuvati Our

‘with respect to the [slave] force of Our Baron Sundaryyayuvati’

Example 80 displays the relationships between a direct possessive NP, a coordinate predicate NP and nai.
80. (K.54:17-8)

'āmnoy bhavakumāra vā dharmaṃsara toṁ
gift Bhavakumāra male slave Dharmaṃsara coconut

slā jhe 'antaṃ nai vraḥ kaṃratān
areca palms trees plants belonging to V. K.

'aṅ dāyī kamlunī gui rudrāśrama
'A. other inside Rudrāśrama

'the gift of Bhavakumāra: male slave Dharmaṃsara, coconut trees, areca palms, trees, [and other] plants belonging to other V. K. 'A. inside Rudrāśrama'

In example 80, the regent 'āmnoy has bhavakumāra [COR] as its possessive dependent attribute. The gift already has one possessor, which is Bhavakumāra. The gift is the coordinate predicate NP which is vā dharmmasāra, toṁ, slā, jhe, 'antaṃ 'slave, coconut trees, areca palms, trees and plants'. This coordinate predicate NP with missing a coordinate conjunction [doṅ] is the regent of the word
nai. Nai is the regent of the possessor noun vraḥ [COR]. Notice that the direct possessive NP bhavakumāra is followed by the indirect possessive NP, and the presence of nai is needed to clearly mark the second possessor at the end of a long list of gifts.

4.4.4.2 Possessor noun phrases cooccurring with ta₃

The focus here is to examine the relationship between the possessor N₃ and its regent ta₃. As demonstrated in the preposition section 4.3.1.3.2, ta₃ has location and non-terminus [+lctn, -trmn] as lexical features and [?+[N]] as a contextual feature, which means that it is the lexical head of an exocentric construction whose phrasal co-head must be a NP. Examples 81 to 83 illustrate this type of construction.

81. (K.926:15)

\[
\begin{array}{c}
kantai \\
\text{woman of sacrifier to vraḥ} \\
\text{kloṅ mraṭān vrau l kloṅ yāṅ au l ge 2} \\
\text{Kloṅ Mraṭān Vrau l Kloṅ Yāṅ Au l they 2} \\
\end{array}
\]

'the women of the sacrifier to the Vraḥ, one Kloṅ Mraṭān Vrau [and] one Kloṅ Yāṅ Au, they: 2'

82. (K.154A:10)

\[
\begin{array}{c}
sabhā ta mār ta tāṅ gi mraṭān purusapala bhāga \\
\text{council of Mar of Tāṅ be Lord Purusapala Holy} \\
\text{mraṭān sudarśana bhāgavata mraṭān bhavāditya} \\
\text{Lord Sudarśana Holy Lord Bhavāditya} \\
\end{array}
\]

'the council of Mār [and] of Tāṅ consisting of the Holy Lord Purasapala, the Holy Lord Sudarśana, [and] the Lord Bhavāditya'
The presence of $ta_3$ in these two places signals that $mär$ and $tän$ are not equated to the regent but rather function as the possessors to the regent.

83. (K.493:24)

kloñ tän ta poñ bhā slesma
baron mistress of Sir Bhā Slesma

‘the Baroness mistress of Sir Bhā Slesma’

Example 83 shows the regent noun $tän$ is the regent of the possessive PP $ta_3$ $poñ bhā slesma$. $Poñ$ is assigned the case relation feature [COR]. Without the presence of the preposition $ta_3$, the interpretation below could result:
Without the presence of *ta₂*, this tree represents a coordinate predicator NP with a missing conjunction [doň]. The gloss for this one would be 'the Baron Tañ and Sir Bhäuser Slesma'. The point to be made here is that the presence of the preposition *ta₂* in this type of structure is not optional, because it serves a function that requires its co-lexical head to bear the COR case relation. Thus the presence of *ta₂* is required to clearly mark the Correspondent case relation when the clause is ambiguous or might otherwise be interpreted differently.

4.4.4.4.3 nai as the regent of a possessor noun with *ta₂* as its co-head

Example 84 shows the predicate noun *nai* as the regent of its dependent possessive PP attribute.

84. (K.904B:18-9)

'aampal  dāsadāsi  gomahiṣa
all  male and female slaves  cows and carabao

ksetrārāma  nai  gi  phoṅ  pre
groves and fields  possession of  be  also  use

 gi siddhi  ta  vraḥ
be perfection (legal sense)  of  Vraḥ

'all of the slaves, the cows, the carabao, the fields [and] the groves belonging to them, are assigned to the exclusive use of the Vraḥ’
The tree representation starts from the fourth index. Here nai is the possessor of the entire preceding list of gifts, and serves as antecedent of the verbal relative clause construction gi phon pre gi siddhi. Nai is also the regent of the PP ta₃ vraḥ, so that nai gi phon pre gi siddhi ta₃ vraḥ is ‘possessions of the Vraḥ’. Also this is not an odd structure, as we have seen in section 4.4.3. Nai requires its possessive dependent to bear the COR case relation; thus, vraḥ functions as COR case relation to nai, the regent of the PP.

4.4.4.5 Indirect verbal relative clauses

As mentioned earlier, there are three types of relative clause structures found in Old Khmer Dated Inscriptions in which the N₁ is modified by an attribute sentence: (1) the verbal relative clause, (2) the nominal equative predicate attribute, and (3) the indirect verbal relative clause. This section focuses on the indirect verbal relative clause.

In the indirect verbal relative clause construction, the N₂ man or tel, which bears the lexical feature [+rltv], is found (1) between the head noun of a NP and a following verbal relative clause, or (2) between the preposition ta₄ and the S of the relative clause.

There are at least two possible syntactic analyses for this construction, differing in the relationship postulated to hold between N₂ and the following S. These analyses are illustrated in diagrams #38 and #39.

Diagram #38

```
NP
  S=NP
    |
  N₁
    |
     |
  N₂
    |
     |
  S₂
    |
     |
 S
     |
     |
  V
    |
     |
  I
     |
     |
  L
     |
     |
  R
     |
     |
  T
     |
     |
  E
     |
     |
  N
     |
     |
  D
     |
     |
  C
     |
     |
```

In the analysis represented in diagram #38, N₂ could, in principle, be either an attribute modifying a regent N₁, or the regent of a free NP.

The [2([+rltv])] and [2([+prdc])] imply that N₂, the nominal relative noun man or tel, is functioning as a predicate attribute of the regent N₁. In the lexical
matrix of $N_2$, $[3(+V)]$, $[3+fint]$ and $[3+prdc]$ mean *man* or *tel* allows a verb as its dependent and requires the verb to be a predicate finite complement. Thus *man* and *tel* function as complementizers, the marker of the beginning of a verbal relative clause. In addition, this relative noun *man* or *tel* is coreferential with its antecedent, which is its regent $N_1$.

Diagram #39

```
     NP
      / |
  S_2  |
     /  |
 N_1  |
      / |
 | N_2 |
     /  |
    /  |
   /  |
 | V   
```

In diagram #39, $[3(+V)]$ in $N_1$ shows us that the verb is an endocentric dependent of $N_1$, and $[2(+rltv)]$ indicates that this verb expects a relative noun as dependent. The relative noun *man* or *tel* is the dependent of the verb in the relative clause $S_2$, and this $V$, in turn, is the direct attribute of the $N_1$.

Thus, there are two possible types of analysis to propose: (1) that the predicate relative $N_2$ is the regent of $S_2$ and is outside of this verbal relative clause $S_2$, as in Thai (Savetamalya 1989:120); or (2) that the relative $N_2$ is a dependent of the verb inside of the verbal relative clause $S_2$, as in English. Examples 85 and 86 illustrate each alternative analysis.

4.4.4.5.1 *Example of man or tel analyzed as regent of a verbal relative clause*

85. (K.561:27-28)

```
kñum man kloñ trasok oy ta vrah
slave whom Baron Trasok give to Vrah
```

'slaves whom the Baron Trasok gave to the Vrah'
In word 1, the contextual features [2([+rltv])] and [2([+prdc])] imply that the relative predicate noun man is an adjunct to the noun kñum. In word 2, the contextual features [5([+V]), 5[+prdc] and [5+[fint]] imply that the noun man requires the verb to be a predicate, finite complement.

In this phrase, kñum [+humn] is the regent of man. Man [+rltv, +prdc] functions as the predicate attribute to the regent noun kñum, and, in turn, is the regent of the verb oy, the head of the sentence kloñ trasok oy ta vrah. Man links its regent kñum to its dependent clause kloñ trasok oy ta vrah. Man directly dominates or cap-commands the following relative verbal clause and is in turn cap-commanded by the head of the NP, to which it bears a predicate relation. In the relative verbal clause kloñ trasok oy ta vrah, there is a missing object of the verb oy, because the verb oy is a transitive verb, which means that it expects a Patient, an object that bears the Accusative case form. In the PP ta vrah ‘to the Vrah’, vrah is the indirect object of the verb oy ‘give’, and vrah [LOC, +dvin] bears the Locus case relation. Semantically man represents the missing object. Man [+prdc] is coreferential with both the head noun kñum and with the missing object of the verbal relative clause, which thereby establishes a link of coreference between the head noun kñum and the missing argument of the verb oy.

4.4.4.5.2 Example of man or tel analyzed as dependent of a verbal relative clause

According to the analysis in diagram #39, N₁ is the head of the entire NP, and is followed by a dependent S₂. S₂ has the verb V as the head and other elements as attributes, including N₂ [+rltv].

86. (K.561:27-28)

kñum man kloñ trasok oy ta vrah
slave whom Baron Trasok give to Vrah

‘slaves whom the Baron Trasok gave to the Vrah’
In example 86, \textit{kñum} [+humn] is the regent of the verb \textit{oy}, and \textit{oy} is the head of the relative clause \textit{man kloñ trasok oy ta vrah}. The transitive verb \textit{oy} has \textit{kloñ trasok} as subject, \textit{ta vrah} as its indirect object, and \textit{man} as a clause-initial [+Acc] topic dependent of the verb \textit{oy}. \textit{Man} is coreferential both with the head noun \textit{kñum} and with the missing object of the head verb of the verbal relative clause \textit{oy}.

Between the two alternative analyses just considered, the analysis in diagram #38 is considered to be preferable to the one in diagram #39 based on evidence discussed in the following section. This preference implies that the word \textit{man} or \textit{tel} with the lexical feature [+prdc] is the regent of a dependent verbal relative clause and links its regent to its dependent relative clause attribute.

4.4.4.5.3 Analysis of \textit{man} or \textit{tel} as a [+prdc] regent of a verbal relative clause

This section will show that \textit{man} or \textit{tel} is a relative noun and should function as a regent rather than the clause-internal topic of the relative clause NP-S construction.

4.4.4.5.3.1 \textit{gui} \textasciitilde \textit{gi} as regent of \textit{tel} [+prdc]

As demonstrated in section 2.1.1.2.1, \textit{gui} is an intransitive copula verb and must have a predicate dependent noun as its attribute. In example 87, the copula verb \textit{gi} is the regent of the clause, and is followed immediately by \textit{tel} and a finite clause with a missing direct object. As a copula verb, \textit{gi} requires a following [+prdc] NP, and since by the analysis represented in diagram #39, \textit{man} plus the following verbal clause is not an NP, only the analysis represented in diagram #38 can satisfy this requirement. Thus, the relative noun \textit{tel} must be the head of the whole construction following \textit{gi} and must bear the [+N, +prdc] lexical features in order to satisfy its regent’s requirement.

87. (K.154B:5-6)

\textit{gi tel mraññ devasvāmi oy ta poñ śruta nu cam ta vrah} is what Lord Devasvāmi give to Sir Śruta to tend of Vrañ

‘This is what Lord Devasvāmi has given to Sir Śruta to tend [to the needs of] the Vrañ.’
The copula verb \( gi \) is the regent of \( tel \) and requires a dependent predicate noun. \( Tel \) is \( gi \)'s complement and bears the \([+\text{prdc}]\) function, which is grammatically more like a CR than a CF, in order to satisfy its regent's requirement. Therefore \( tel \)[+prdc] is the head of the whole construction \( tel \ mratān \ devasvāmi \ oy \ ta \ poñ śruta \ nu \ kam\) ta \( vrah \) and thus the regent of a verbal relative clause \( mratān \ devasvāmi \ oy \ ta \ poñ śruta \ nu \ kam\) ta \( vrah \). \( Tel \) connects the verb of the higher clause \( gi \) to the subordinate clause. The verb \( oy \) has \( mratān \ devasvāmi \) as its subject, \( ta \ poñ śutra \) as its indirect object, \( nu \ kam\) ta \( vrah \) as its infinitival adjunct, and a missing direct object, which is linked to \( tel \) by RCCR. \( Tel \), in turn, is ultimately equated with the subject of \( gi \) (if any) by the usual linking and chaining rules for copula constructions.

Example 88 is almost identical to example 87, except that there is a missing subject and object in the verbal relative clause construction.

88. (K.127:19)

\[
\text{gi} \quad \text{tel} \quad \text{oy} \quad \text{ta} \quad \text{vrah} \quad \text{kamratān} \quad \text{'aṅ} \quad \text{suvarṇālinga}
\]

is what give to V. K. 'A. Suvarṇālinga

'This is what [I] give to the V. K. 'A. Suvarṇālinga.'
4.4.4.5.3.2 *gui* – *gi* as regent of *man* [+prdc]

Example 89 shows *man* as a predicate noun which is the head of a free NP and the regent of S that follows it.

89. (K.79:21)

\[
\begin{align*}
\text{tmen} & \quad \text{gui} \quad \text{man} \quad \text{gui} \quad \text{noh} \quad \text{sre} \quad \text{tel} \quad \text{oy} \\
\text{owner} & \quad \text{is} \quad \text{the} \quad \text{one} \quad \text{who} \quad \text{is} \quad \text{that} \quad \text{ricefield} \quad \text{which} \quad \text{give} \\
\text{ta} & \quad \text{vrah} \quad \text{po}ñ \quad \text{rudrabhava} \\
\text{to} & \quad \text{Vrah} \quad \text{Sir} \quad \text{Rudrabhava}
\end{align*}
\]

‘owner of his own ricefield, which [he hereby] gives to the shining one: Sir Rudrabhava’

The copula verb *gui* requires a predicate noun [+N, +prdc] as its dependent, and *man* satisfies this requirement. This sequence *man gui noh sre tel oy ta vrah poñ rudrabhava* is a free NP, and has *man* as its regent. The verb *gui* is the head of its own clause and the dependent of the predicate noun *man*.

4.4.4.5.3.3 *gui–gi* as regent of PP with *man* [+prdc] as its secondary lexical head

90. (K.49:13)

\[
\begin{align*}
\text{'ampal} & \quad \text{kium} \quad \text{tmur} \quad \text{kra}pi \quad \text{sre} \quad \text{damriñ} \\
\text{all} & \quad \text{slaves} \quad \text{cattle} \quad \text{buffaloes} \quad \text{ricefields} \quad \text{plantation} \\
\text{gui} & \quad \text{ta} \quad \text{man} \quad \text{ge} \quad \text{pu cah} \quad \text{añ} \quad \text{oy} \quad \text{ta} \quad \text{vrah}
\end{align*}
\]

‘All slaves, cattle, buffaloes, ricefields [and] plantation are what they our Elder Lord gave to Vrah.’
The copula verb gui[8ndex] is the main verb of this sentence and has ‘ampal as its subject and ta₄ man as its predicate. The noun ‘ampal is the regent of the coordinate predicate relative clauses kñum, tmur, krapî, srê, damrînî, with a missing conjunction [don]. The predicate PP ta₄ man has man as the regent of the relative clause ge pu caḥ 'aṅ oy ta vraḥ. The PP ta₄ man is in an exocentric construction where ta₄ functions as the complementizer connecting the ta₄ man S construction to the regent copula verb gui. The copula verb gui in turn requires man to bear the [+prdc] feature.

These four examples (87 to 90) help to establish the syntactic function of the relative noun man or tel [+prdc] due to its dependency relationship with its regent, the copula verb gui ~ gi, or the preposition ta₄ in the exocentric construction, where this PP is also the dependent of the copula verb gui. The simplest analysis, then, is to claim that the two relative nouns man and tel should also be analyzed as [+N, +prdc] dependents with following verb-headed clausal complements.
4.4.4.5.3.4 \([NP \ N - \text{COR} - [+N, +prdc]]\): man/tel - S as a [+prdc] attribute

Syntactically, a noun can have an NP as its dependent. The nominal dependent can bear a case form CF and either a case relation CR or [+prdc] as required by its regent. In the multiple dependent constructions (section 4), in terms of pre-Angkorian regular grammar order, this analysis shows that when a noun cooccurs with both a possessive [COR] and an equative [+prdc] dependent, the possessive dependent always precedes its predicate co-dependent.

Example 91 shows an NP headed by man [+prdc]; preceded by a possessive co-dependent NP. This type of regent-dependent relationship reinforces and conforms to the finding above (possessive-predicate sequencing). In addition, the regent of the relative noun man or tel is interpreted as coreferential with it through the (RCCR).

91. (K.493:27)

sre mratăn bhã kusuma man oy ta vrah
ricefield Lord Bhã Kusuma which give to Vrah

‘ricefield of Lord Bhã Kusuma, which [he] gives to the shining one’

----

4.4.4.5.3.5 \([NP \ N - \text{LOC} - [+N, +prdc]]\): man/tel - S as a [+prdc] attribute

In example 92, the locational NP is followed by its co-dependent predicate NP man, supporting the analysis proposed here that man and tel constructions are NPs with head nouns bearing the feature [+prdc]. This analysis is in accord with the regular LOC - [+prdc] dependent order in terms of the relationship among the co-dependents of a noun.
92. (K.493:26)

sre kamluñ tnal man tañ 'amvi pradâna
ricefield inside elevated road which retainer 'Amvi gave

'the ricefield inside of the elevated road which the retainer 'Amvi gave (me)'

The four types of examples show: (1) that the man or tel construction is a free NP which may occur as the predicate dependent of a copula verb (examples 87, 88 and 89); (2) that man or tel may be the predicate dependent of the ta₄ in the exocentric construction, where ta₄ in turn is the dependent of a copula verb (example 90); (3) that man or tel [+N, +prdc] confirms and strengthens the pattern of pre-Angkorian regular grammar in 'possessive-predicate sequencing' (example 91); and (4) 'locative-possessive sequencing' (example 92) which are established in the multiple dependents section 4.

Earlier it was stated that the relative noun man is found between (1) its regent noun and its dependent verbal relative clause S₂ and (2) between its regent preposition and its dependent verbal relative clause S₂. In the following section, the focus is on man functioning as a dependent of various types of nouns.

4.4.4.5.4 *man as the dependent of a noun*

Example 93 presents the verb in the relative clause as having a missing agent and a missing patient. These missing constituents are semantically coreferential with their antecedents by zero anaphora and RCCR respectively.

93. (K.749:11-4)

kãm mratañ kirttigañ man oy tã ge kvan
slave Lord Kirttigañ whom give to person-children

nu ge pamre 'ay tã vrañ kammratañ 'añ sã Gambhîresvara
and servants at to V K. 'A. Sã Gambhîresvara
man oy ta harigana kñum taí ku 'me laṃvan 1...
whom give to Harigana slaves female ku 'me laṃvan 1...

man oy ta harivāhana gho va srac ta bhāgya 1
whom give to Harivāhana male workers va srac ta Bhāgya 1

man oy ta tān gāy kñum taí praton 1
whom give to Tān Gāy slaves female Praton 1

'slaves of the Lord Kirttigana, whom (1) [he] gives to [his] children and
servants at [the sanctuary] of the V. K. 'A. Śrī Gambhirēśvara, whom (2)
[he] gives to the Harigana, the female slaves: one female slave 'Me Laṃvan...,
whom (3) [he] gives to the Harivāhana, the male workers: one
male slave Srac Ta Bhāgya...[and] whom (4) [he] gives to the Tān Gāy,
the female slaves: one Praton'

This phrase has four man's, which imply four verbal relative clauses. The
first clause is shown in the following tree:

```
<table>
<thead>
<tr>
<th>kñum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Index</td>
</tr>
<tr>
<td>1+N</td>
</tr>
<tr>
<td>1+Humn</td>
</tr>
<tr>
<td>2(+[COR])</td>
</tr>
<tr>
<td>14([+prdc])</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>kirt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+N</td>
</tr>
<tr>
<td>1+Rltv</td>
</tr>
<tr>
<td>1+[prdc]</td>
</tr>
<tr>
<td>1-Nom</td>
</tr>
<tr>
<td>15(+[V])</td>
</tr>
<tr>
<td>1+[fint]</td>
</tr>
<tr>
<td>15+[prdc]</td>
</tr>
<tr>
<td>14+[Pat]</td>
</tr>
<tr>
<td>nu</td>
</tr>
</tbody>
</table>
```

This tree represents only a portion of the clause (K.749:11-4). The word man
[+rltv, +prdc] is the dependent predicate of the noun kñum (the higher regent of the
entire clause), the adjacent sister of the Correspondent NP mraṭān kirttigana and the
regent of the verbal relative clause oy ta ge-kvān nu ge pāṃre 'āy ta vṛaḥ. The
verbal relative clause has a missing subject and a missing object. Based upon
semantic context, the agent of the verb oy is the owner of the slaves who is mraṭān
kirttigana 'Lord Kirttigana' and the patient or object of oy is the word man 'who',
which has kñum as its antecedent.

The second, third and fourth occurrences of man and its relative clause are
diagrammed the same way as in this tree, which also means that the noun kñum is
the regent of these constituents as well. Since kñum is the common regent noun of
all these four NPs, these NPs are analyzed as coordinated and interpreted as
conjoined NPs with an implied missing conjunction [doñ] or (dañ). This coordinate predicated NP construction is a normal and common one.

In example 94, man is interpreted as the missing object of dār and coreferential with the sru, the subject of the main verb gui.

94. (K.79:9-10)

sru man dār jnâhv gui tloñ 10
paddy which demand exchange are tloñ 10

‘the paddies which [X] demanded in exchange are 10 tloñ’
4.4.4.5.5 *man* as the dependent of a preposition

4.4.4.5.5.1 *Preposition ta₄ as regent of man*

The PP *ta man* S is an exocentric construction where the preposition *ta₄* is the lexical head and *man* is the secondary lexical head.

In example 95, *man* is interpreted as the missing object of the verb *pradāna*, and coreferential with the regent *kñum*.

95. (K.561:29)

kñum ta man poñ vinduśakti pradāna ta vrah
slave that whom Sir Vinduśakti bestow to Vraḥ

'slaves whom Sir Vinduśakti has bestowed upon the Vraḥ'

4.4.4.5.5.2 *Preposition nu as regent of man*

The PP *nu man* has the preposition *nu* as the lexical head and *man* the secondary lexical head of an exocentric construction. The example is rather long but is needed in order to give a full explanation of the analysis.

96. (K.493:19-23)

poñ bhā vinaya ktiṅ kраО canmat 1...
Sir Bhā Vinaya surrender carabao ungelded 1...

nu man poñ chaṅ ktiṅ sre poñ
with which Sir Chaṅ surrender ricefield his
Old Khmer noun phrases

tel matiśakti ta pamre tem gui专人 ai
which Matiśakti of former servant give up at

kañjrap 'mac purandarapura soñ ktiñ ra
prisoner of war bound to Purandarapura repay debt

'Sir Bhā Vinaya has surrendered one ungelded carabao... with which, Sir Chañ has surrendered a ricefield of his which Matiśakti (his former servant) had turned over to the prisoners of war bound to [the land in] Purandarapura to repay the debt to himself'

Here the focus is on the nu man. In the relative clause poñ chañ ktiñh sre poñ 'Sir Chañ surrendered his ricefields', the verb ktiñh has poñ chañ as its subject and sre as its direct object. Thus, there does not seem to be an open slot in the S available for the interpretation of man in the verbal relative clause. However man still functions as the link to a preceding regent and connects to some following element. Nu man is interpreted as the oblique adjunct in the S clause. Man is a noun, and could in principle bear any CR or [+prdc]. In most examples, man appears in the [+prdc] relation either to a regent noun or to a regent verb. Man typically links to a missing direct object in the following verbal relative clause by RCCR. However, there is no reason why man could not bear some other relation to its regent (in example 96 as MNS=MEANS).

As mentioned at the beginning of this section, man and tel have many things in common. In the following section, this study examines and describes the dependency relationships of tel that exist in the data, and points out some of the parallels with the man analysis.

The word tel corresponds to an identical word in modern Khmer and has the same syntactic function. In addition, the Old Khmer word tel also has three other meanings: "(1) to be constant, unchanged; (2) to be handed down or on, transmitted; and (3) unidentified constituent of toponym" (Jenner, 1981:20).
4.4.4.5.6. tel as the dependent of a noun

Examples 97 and 98 show the relative noun tel, like man, functioning as a dependent predicate attribute of noun and the regent of S.

97. (K.54:8-9)

sre tel poñ sivadatta oy 'āy ta 'añ ge phoñ
ricefield which Sir Sivadatta give at to me these things

tel 'añ oy ta vraḥ kamratān 'añ śivaliṅga
which I give to V. K. 'A. Śivaliṅga

'the ricefields which Sir Sivadatta gave me, these things which I gave to the V. K. 'A. Sivaliṅga'

98. (K.561:33)

ge tel poñ bhavacandra pre tve sre
they whom Sir Bhavacandra commanded to cultivate riceland

'they whom Sir Bhavacandra commanded to cultivate the riceland'
Example 99 illustrates the grammatical equivalence of man and tel. The relative nouns man and tel cooccur in the same sentence, and both have the same antecedent sre 'ricefield'. Here the NP headed by tel is conjoined to the NP headed
by man, and together they form a coordinate predicate relative clause with a missing conjunction [doñ].

Man is the regent of the verbal relative clause jāhv ta ge 'nak vrah cas, with jāvh as its dependent verb. This verb jāvh has a missing subject and missing object. From context, the missing subject is identified as Jñacandara, and man is interpreted as the missing object, coreferential with its antecedent sre 'ricefields'.

The relative noun tel is the regent of the coordinate verbal relative clause oy₁ ta vrah kamratān ukka, and oy₂ satra kan'āk. These two relative clauses are conjoined with the missing conjunction [doñ]. Jñacandara again is the subject of these two verbs oy₁ and oy₂, and tel is interpreted as its missing object, whose antecedent is sre. The adverb ukka is used to mark the end of the construction.

In example 100, tel is the dependent predicate of the demonstrative noun neh and the regent of S.

100. (K.154A:8)

\[
\text{gi neh tel mratān oy ta poñ saṅkaraśaṇa}
\]

is these what he give to Sir Saṅkaraśaṇa

'These are what he gave to Sir Saṅkaraśaṇa.' [It is] these that he gave to Sir Saṅkaraśaṇa.

4.4.4.5.7 tel as the dependent of a preposition

This structure is similar to the ta man structure, where the relative noun tel is the secondary lexical head of the PP exocentric construction, as shown in example 101.
101. (K.341N:3-4)

\[ \text{gi} \quad \text{ta} \quad \text{tel} \quad \text{prativaddha} \quad \text{ai} \quad \text{vrać} \quad \text{kammraten} \quad \text{'añ} \]

are that who devoted to V. K. 'A.

'\text{those who are ever devoted to the shining one Our High Lord}'

In conclusion, man and tel are defined as predicate relative nouns due to their dependency relationship with their regent, the copula verb gui ~ gi. Man and tel can be interpreted as the missing object, subject, an indirect object, dependent of a verb in the relative subordinate clause are marked as coreferential with its antecedent in the same or preceding clause by the RCCR. When the preposition ta₄ intervenes between man or tel and the head noun, ta₄ is analyzed as the complementizer of the equational predicate which is headed by man or tel.

5. Multiple noun dependency relationships

In section 3, noun phrases with no dependents were examined. In Chapter IV, the focus was on NPs with one dependent modifier. In this chapter, the types and dependency relationships of NPs that have more than one dependent sisters are examined.

These dependency relationships between head nouns and their various dependents will be subcategorized and analyzed according to their syntactic functions with respect to their regent and the linear syntactic relation with their co-dependents. As shown in the following diagrams, this subcategorization is based upon the relationship between: (1) possessive and equative NPs; (2) possessive and locative NPs; (3) possessive, locative and equative NPs; (4) possessive, equative and locative NPs; (5) cooccurring equative NPs; (6) equative and locative NPs; and (7) locative and predicative NPs.
Most of the data presented in this chapter have already been discussed in previous chapters in terms of dependency relations obtaining between the regent and its various attributes.

5.1 Relationship between possessive and equative noun phrases

When a noun cooccurs with a possessive and an equative dependent (a predicate noun), the possessive dependent precedes the predicate dependent.

This analysis is illustrated in the following tree representations (examples 1 to 5) to show the relationship between the regent noun and its dependents.
1. (K.137:18)

kñum vraḥ rapaṃ col 'aṇi  vidyunmati 'aṇi  
slaves his dancers: Col 'aṇi  Vidyunmati 'aṇi

'his slaves, the dancers: one Col 'aṇi, one Vidyunmati 'aṇi'

2. (K.505:10)

ku srālaṇ kon ku laṅ tai pau tai 
female slave srālaṇ child her adolescent female nursing female

'the female slave Srālaṇ, her children: the female adolescent, the female infant'

3. (K.54:11)

kantai mṛtaṇ Śanaiścara 'amnoy ta vraḥ kamṛtaṇ 'aṇ 
woman Lord Śanaiścara gift of V. K. 'A.

ku vñau
female slave Vñau

'the woman of Lord Śanaiścara the gift of V. K. 'A: the female slave Vñau
4. (K.749:11-4)

kñum mratañ kṛttagañ man oy ta ge kvan
slave Lord Kṛttagañ whom give to person-children

'slaves of the Lord Kṛttagañ, whom [he] gives to [his] children'

5. (K.54:17-8)

'amnoy bhavakumāra vā dharmmasāra toñ
gift Bhavakumāra male slave Dharmmasāra coconut trees

sla jhe 'antaṃ nai vraḥ kamṛatān 'aṅ
areca palms trees plants belonging to V. K. 'A.

daiy kam̄luṅ gui rudrāśrama
other inside be Rudrāśrama

'The gift of Bhavakumāra: male slave Dharmmasāra, coconut trees, areca palms, trees, [and other] plants belonging to other V. K. 'A. inside Rudrāśrama.'
Based upon this analysis, it may be said that in co-dependent relationships, a possessive NP is followed by a predicate NP.

5.2 Relationship between possessive and locative phrases

Previously, in terms of syntactic order, it was shown that the first co-dependent functions as COR, and the second co-dependent functions as [+prdc] to their regent.

In this section the first co-dependent remains the same, but the second co-dependent functions as LOC to its regent.

This analysis is illustrated in examples 6 to 8.

6. (K.44B:7-8)

snañ nam pitaï kamluñ 'āngana
maker cake, Pitai inside courtyard

‘maker of Pitai cake within the courtyard’

7. (K127:14)

kñum 'añooy mraṭān īśvaravindu ta vṛah kamṛatān 'an
slaves gift Lord īśvaravindu to V. K. 'A.
suvarṇalīnga don vṛah kamrataṁ 'aṁ maniśiva
Suvarṇalīṅga and V. K. 'A. Maniśiva

'slaves, the gifts of Lord Īsvaravindu to the V. K. 'A. Suvarṇalīṅga and the V. K. 'A. Maniśiva'

8. (K.44A:9-10)

'amnoy tāṁ 'aṁ kloṅ rāṅko
gift Retainer 1st Commissioner Husked Rice
+N COR

don poṅ vṛahasena ai ta vṛah kamrataṁ 'aṁ and Sir Varahasena at to V. K. 'A.
+titl +P +P -lctn
COR +trmn -trmn LOC

'amvi kāla vṛah kamrataṁ 'aṁ śrī raudravarma
from time V. K. 'A. Śrī Raudravarma
+P +time
+srco LOC

'the gift of Our Retainer the Commissioner of Husked Rice and Sir Varahasena to the V. K. 'A. from the [life] time of the V. K. 'A. Śrī Raudravarma.'

In conclusion, the possessive NP precedes its co-dependent, locational PP. This ordering relationship holds for all the data examined.
5.3 Relationship between possessive locative, and equative noun phrases

This section deals with NPs containing three types of co-dependents functioning as possessive [COR], locative [LOC] and equative predicate [+prdc] to their common regent, as shown in examples 9 to 11.

9. (K.54:14)

'امنو somakırtti ta vraḥ ku kdok
gift Somakırtti to Vraḥ female slave Kdok

'the gift of Somakırtti to the Vraḥ the female slave Kdok'

10. (K.9:24)

'امنو poñ din ai trās sre sanre 80
gift Sir Din at Trās ricefield clsf. 80
+N +títl +P +lctn -anmt
COR LOC +prdc

'the gift of Sir Din at Trās 80 ricefields'
11. (K.54:14)

'āmnoy candrodaya 'āy ta vrah ku ya juṅ

gift Candrodaya at to Vrah female slave Ya Jun

'the gift of Candrodaya to the Vrah, the female slave Ya Jun'

5.4 Relationship between possessive, equative and locative noun phrases

In section 5.1.3, the order of co-dependents is [COR], [LOC], and [+prdc], while in this section the order is [COR], [+prdc], and [LOC], as illustrated in example 12.

12. (K.49:11-2)

pu caḥ 'aṅ ratnabhānu pu caḥ 'aṅ ratnasiṅha
elder lord our Ratnabhānu elder lord our Ratnasiṅha

ta ai tem ske
of at Tem Ske

'our Elder Lord Ratnabhānu [and] our Elder Lord Ratnasiṅha of (the place) Tem Ske'
In conclusion, the possessive NP can cooccur with two other co-dependents in these orders: [COR], [LOC], [+prdc] or [COR], [+prdc], [LOC].

5.5 Relationship among predicate noun phrases

Attention is focused here on the equative NP as first co-dependent. The relationship among the various subtypes of equative NPs is shown in examples 13 and 14.

13. (K.18:30-10)

\[
\begin{array}{c}
gi \, ne \, kñum \, dañ \, sre \, 'amnoy \, kloñ \, ta \, vrañ \\
are \, these \, slaves \, and \, ricefield \, gift \, his \, to \, Vrañ \\
\end{array}
\]

‘These are the slaves and ricefields (which are) his gift to the Vrañ’

14. (K.18:6)

\[
\begin{array}{c}
kñum \, kantai \, ku \, kmer \, 1 \, kon \, 4 \\
slave \, female \, female \, slave \, Kmer \, 1 \, child \, 4 \\
\end{array}
\]

‘the female slaves: one female slave Kmer [and] 4 children’

In conclusion, the predicate NP can cooccur with other co-dependents predicate NPs.
5.6 Relationship between predicate and locative noun phrases

Example 15 shows a human predicate NP followed by a locational prepositional phrase, with ta₂ as lexical head of the double exocentric construction.

15. (K.561:19-20)

poñ kamvinn ta 'ây vrai tlann
Sir Kamvinn of at Vrai Tlann

'Sir Kamvinn of (the territory) Vrai Tlann'

5.7 Relationship between locative and predicate noun phrases

In this section the focus is on NPs with the first co-dependent functioning as LOC and the second or third dependents as [+prdc], as illustrated in examples 16 to 20.

16. (K.9:31)

damriñ ai panla anan 1
plantation at Panla anan 1

'one plantation at Panla Anan'
17. (K.9:30-1)

sre ai vra h kantai 'amnoy poñ sraman sanre 4
ricefield at Vrah Kantai gift Sir Sraman clsf. 4

'four ricefields at Vrah Kantai, the gift of Sir Sraman'

18. (K.22:30)

sre ai le kyel vra h vinaya loh travañ poñ
ricefield at top cove Vrah Vinaya until pond Sir

bhā nis mās 1-10
bhā nis mās 11

'the ricefield at the top of the cove of the Vrah Vinaya as far as the pond of Sir Bhā Nis, 11 mās'
19. (K.79:17)

sre  stuk  tlos  'amnoy  poñ  lah  'añ  tloñ  2
ricefield  Stuk  Tlos  gift  Sir  Lah  'añ  tloñ  2

‘the ricefield at Stuk Tlos, the gift of Sir Lah ‘añ 2 tloñ’

20. (K.493:26)

sre  kamluñ  tnal  man  tañ  'amvi  pradāna
ricefield  inside  elevated  road  which  retainer  'Amvi  gave

‘the ricefield inside of the elevated road which the retainer 'Amvi gave (me).’
These last two sections show that an equative noun phrase can precede or follow its co-dependent locational noun phrase or locative prepositional noun phrase.

In summary, the following consistent linear precedence hierarchy can be extracted from these data:

possessive  <  equative  ❑
            ❍  ❍  ❍
            ❍  ❍
locative ❏

6. Summary and Conclusion

6.1 Summary of the study

The analysis presented here is the result of an investigation of the nouns and noun phrases found in Old Khmer pre-Angkorian Dated Inscriptions. This investigation marks the beginning of my contribution to Old Khmer Studies. In addition to my actual analysis, it provides enough analyzed examples to allow others to make further contributions to the study of Old Khmer grammar by using the same lexicase framework employed in this study or to attempt a different new approach.

No other syntactic studies are available for evaluation or comparison with this investigation. Despite limitations imposed by the source materials and the lack of previous syntactic work on which to build, I believe I have found some interesting regularities and generalizations in the area of my topic, NP structure.

1. With the exception of the lack of adjectives and sentence particles, the word classes of the pre-Angkorian Khmer language are those allowed for by the lexicase framework, and the structure of NPs is consistent with the constraints imposed by this model.
2. Noun classes in Old Khmer include pronouns, derived pronouns, the demonstrative nouns *neh* and *noh*, the relative nouns *man* and *tel*, common nouns, number nouns, proper nouns, classifier nouns, title nouns, location nouns and relator nouns. The use of nouns for concepts that translate as adjectives or determiners in other languages is striking, and reminiscent of Western Austronesian syntax.

3. NPs are described in terms of labelled dependency relationships obtaining between the regent noun and its respective dependents. The syntactical relationships include case relations: possessive NP dependents (COR), location NP and PP dependents (LOC) and means NP (MNS), and equative dependent NPs (+prdc). These equative NP dependents include the following subcategories: classification, number NPs, indirect possessive NPs, and indirect relative clauses.

The investigation also includes a brief preliminary analysis of prepositional phrase and sentence structure. The most interesting findings are given in the following subsections.

6.1.1 Basic sentence patterns

1. The most interesting component in this section is the verbless sentence. This construction is ubiquitous in the dependency structure of NPs, and quite common as a complement of a copula verb, but I have encountered only one example where an N [+prdc] is the head of a non-embedded clause.

2. There are two places where my analysis differs significantly from Jenner’s. One is in the treatment of gui ~ gi as a copula rather than as a pronoun, which makes it possible to fit some otherwise awkward constructions neatly into independently needed patterns. The other is in the analysis of *amnoy*, a derivative of oy ‘give’ as a nominalization ‘gift’ rather than as a passive, which is needed to explain this word’s function as the head of NP constructions.

6.1.2 Prepositional phrases as dependents of nouns

The preposition *ai* [+P, +trmn] is categorized into two homophonous entries: *ai₁* and *ai₂*.

1. N₁ – *ai₁* – N₂ [+prpr, –humn, +lctn, LOC]. N₁ assigns case forms such as [+lctn] or [+trmn] and the case relation [LOC] to its location–noun dependent through the preposition linking rules. In addition to having a noun N₁ as its regent, the preposition *ai₁* may alternatively take the preposition *ta₂* as its regent. The investigation did not examine the occurrence of *ai* with a verbal regent.

2. N₁ – *ai₂* – *ta₁* – N₂ [LOC]. The preposition *ai₂* bears the [+trmn] feature required by its regent N₁, and *ai₂* in turn requires the feature [+lctn, –trmn] from
its dependent $ta_I$. $Ta_I$ bears the [+lctn, −trmn] features and selects a nominal dependent, $N_2$. $N_2$ fulfills the LOC requirement of $N_1$.

3. $N_1 − ta_2 − ai_I − N_2$: This construction is described under $ta$, since $ta_I$ is the regent of $ai_2$.

Working from Jenner’s insightful ‘ligature’ analysis of Old Khmer $ta$, and applying lexicase dependency criteria for word classification, the following homophonous words can be recognized.

In this analysis $ta$ is a preposition and has four syntactic functions:

4. $N_1 [+\text{goal}] − ta_I − N_2 [\text{LOC}]$. The preposition $ta_I$ bears the [+lctn] feature required by its regent $N_1$ and, in turn, expects a nominal dependent $N_2$. $N_2$ functions as a LOC complement to $N_I$, the regent of PP.

5. $N_1 − ta_2 − ai_I − N_2 [\text{LOC}]$. The preposition $ta_2$ [+lctn, −trmn] adds a semantic component of ‘vicinity’ or ‘territorial’ or ‘space’ to $ai_I − N_2 [+/- \text{anmt}]$.

6. $N_1 − ta_3 − N_2 [\text{COR}]$. $Ta_3$ requires a nominal dependent $N_2$. $N_2$ functions as the possessor of $N_1$.

7. $N_1 − ta_4 − N_2 [+\text{prdc}]$. $Ta_4 [+\text{xtns}]$ is the lexical head of an exocentric construction, where its lexical co–head may be a noun bearing the [+prdc] lexical feature.

8. $N_1 − ta_4 − V$. $Ta_4 [+\text{xtns}]$ may also take a finite verb as its [+prdc] dependent.

9. Within the preposition word class, the word $ni$, which was not mentioned in this study, remains to be investigated.

6.1.3 Direct possessive constructions

In the $N_1 − N_2 [\text{COR}]$ construction, $N_2$ is marked with the feature non–nominative and must have a nominal regent. $N_2$ is interpreted as bearing the case relation COR required by $N_1$. $N_2$ can be any noun, such as a pronoun, derived pronoun, title noun, proper noun, or common noun.

6.1.4 Indirect possessive constructions

1. $N_1 − nai− N_2 [\text{COR}]$. The word $nai$ ‘possession of’ is the regent of $N_2$. It requires its dependent to bear the COR case relation. $Nai$ serves as a link between the possessed noun $N_1$ and the possessor noun $N_2$, in that it functions simultaneously as a predicate noun to $N_1$ and the possessee of $N_2$. 
2. \( N_1 - ta_3 - N_2 [\text{COR}] \). The preposition \( ta_3 \) requires a nominal dependent. \( N_2 \) functions as possessor to the regent of the PP and bears the COR case relation.

3. \( N_1 - nai - ta_3 - N_2 [\text{COR}] \). This is a variant of the previous pattern. \( Nai \) is the regent of the possessive prepositional phrase \( ta_3 - N_2 \). \( N_2 \) bears the COR Correspondent case relation required by \( nai \).

6.1.5 Indirect verbal relative clauses

1. \( man/tel [+prdc] \). The words \( man \) and \( tel \) are found between the head noun \( N_1 \) of a NP and a following verbal relative clause, as predicate relative nouns. These relative nouns function as the regent of the following verbal relative clause and as equationals dependents of the preceding \( N_1 \). \( Man \) and \( tel \) can be interpreted as the missing object, subject, indirect object, or oblique dependent of a verb in the verbal relative clause by the Relative Clause Chaining Rule, and this missing word is then equated with the \( N_1 \) head of the NP via the \([+prdc]\) link between \( N_1 \) and \( man \) or \( tel \).

2. \( Ta_4 - man/tel [+prdc] \). \( Man \) or \( tel \) may be the secondary head of a PP exocentric construction with \( ta_4 [+xtns] \) as lexical head, and function as the complementizer to the regent noun \( N_1 \).

Further study is needed for the \( nu - man/tel \) construction.

6.1.6 Relator nouns

Words identified as relator nouns are \( kampluõ \) 'inside', \( karom \) 'below', \( krau \) 'beyond' and \( niõi \) 'side'. They appear in the following structure:

\[ N_1 - N [+rltr, LOC] - N_2 [\text{COR}] \]. The relator \( N \) bears the localistic feature \([+lctn] \), and the LOC case relation is assigned to it by \( N_1 \). In addition, \( N \) supplies other semantic and localistic features allowed and/or required by the regent noun \( N_1 \). \( N \) requires a nominal possessor \( N_2 \), which is marked with the case relation feature Correspondent \([\text{COR}] \) and the non-nominative case form \([-\text{Nom}] \).

The relator noun \( N \) can also be the direct dependent of a preposition \( P \) or of a verb.

6.1.7 Verbal relative clauses

The status of the noun \( ge \) in the verbal relative clause construction is a topic which needs further investigation.
6.1.8 Nominal equative predicate clauses

1. \( N_1 - N_2 \) [+prdc]. The regent \( N_1 \) of a nominal equative predicate clause can be either a pronoun, demonstrative noun \( neh \) or \( noh \), relative noun \( man \) or \( tel \), common noun, number noun, proper noun or a title noun. The predicative attribute \( N_2 \) can be a common noun, personal proper noun, non-personal proper noun, number, classifier, or even a relator noun. Note that numbers and classifiers are analyzed as nouns here, rather than as distinct parts of speech.

2. The classifier functions as: the head of a free NP, the secondary head of a PP, the attribute of an N, or the attribute of a verb.

6.1.9 Multiple noun dependents

The dependency relationship of NPs that have more than one dependent sisters are subcategorized according to the sequential relationship between: the possessive and equative NP sequence; the possessive and locative NP sequence; the possessive, locative and equative NP sequence; the possessive, equative and locative NP sequence; the equative and locative NP sequence; and the locative and equative NP sequence. The following linear precedence hierarchy can be extracted from these data:

\[
\begin{align*}
\text{possessive} & < \text{[equative]} \\
& < \text{[locative]} \\
\end{align*}
\]

6.2 Contributions

To the extent that the results of this investigation on nouns and NPs of the Pre-Angkorian Dated Inscriptions has been successful, it makes a contribution to comparative syntactic research on the languages of the Mon Khmer group. These results also contribute to the studies of the typological change and convergence in the Southeast Asian language area.

In addition, these results confirm the ability of the constrained lexicase version of dependency grammar to provide insightful analyses for a broad range of languages.
Appendix A. Pre-Angkorian dated Khmer inscriptions vol. I.1 and I.2

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Appendix B. Lexicase flow chart

LEXICAL ENTRIES

Derivation Rules (DRs)

Redundancy Rules (RRs)

Subcategorization Rules (SRs)

Morphological Rules (MRs)

Inflectional Subcategorization Rules (ISRs)

Linking Rules (LRs) and Chaining Rules (CRs)

GRAMMATICAL PRESENTATIONS

For a detailed discussion of each rule see Starosta (1988) and Starosta (forthcoming)
REFERENCES


Old Khmer noun phrases


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