

CHAPTER 9

NUMBER NOUNS

9.1 Previous Studies

Modern Khmer numbers and classifiers are constituents of noun phrases that normally appear together. In Southeast Asian SVO languages, the word order of numbers and classifiers is normally either: (1) noun-number-classifier or (2) number-classifier-noun. In Modern Khmer, the order is noun-number-classifier. Some grammars of Southeast Asian languages analyze number words as adjectives (as in Thai, Savetamalya 1989), as nouns (as in Old Khmer, Sak-Humphry 1992) or as a distinct ‘numeral’ class, unrelated to other word classes in the respective languages (as in Modern Khmer, Huffman 1967, Ehrman 1972). However, all but Huffman (1967) agree that classifiers in Modern Khmer belong to the noun class.

In this chapter, my first goal is to show that number words in Modern Khmer are nouns based on their distribution. The second goal is to show their syntactic dependency with other constituents in their constructions.

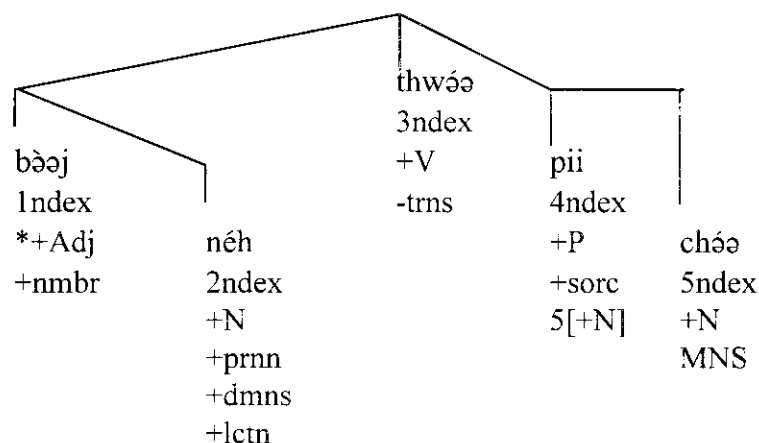
9.2 What Word Class do Number Words Belong To?

1. bə̀əj (néh) thwóə pii chéə
 three this make of wood
 ‘These three are made of wood.’

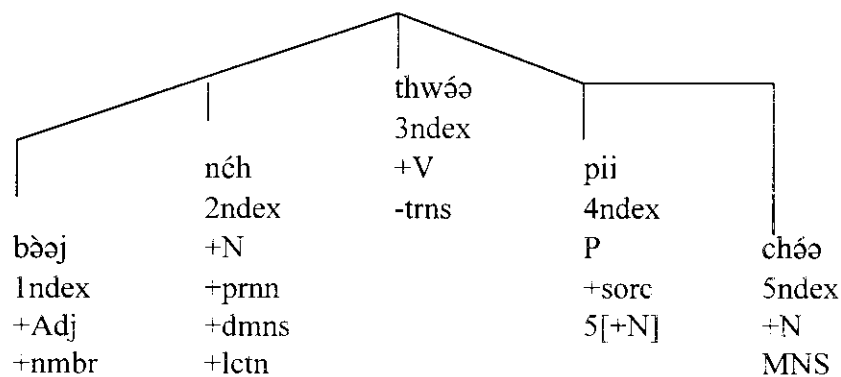
Example 1 has the noun phrase *bə̀əj nəh* occupying the subject slot of the verb *thwə̀ə*. The word *nəh* is placed between parentheses to show that it is optional. One of the universal constraints imposed by lexicase dependency grammar is that every lexical form in every language must be a member of one of the following eight syntactic classes or ‘part of speech’: noun (N), verb (V), adjective (Adj), determiner (Det), preposition (P), conjunction (Cnjc), adverb (Adv) and possibly sentence particle (Spart). Thus the number word *bə̀əj* is not permitted to belong to a distinct ‘numeral class’, since it is not allowed in this theory.¹ The word *bə̀əj* (Starosta 1988:27) might possibly be interpreted as (a) an adjective or (b) as a noun.

If *bə̀əj* ‘three’ is an adjective, we could have two interpretations as shown in examples 1 and 1a.

¹Of course, this constraint does not rule out the possibility that there could be a class of ‘numerals’ as a subclass of one of these eight classes.



Example 1 is not acceptable because an adjective cannot be the head of a noun phrase, and cannot occupy the subject slot, in a dependency grammar.



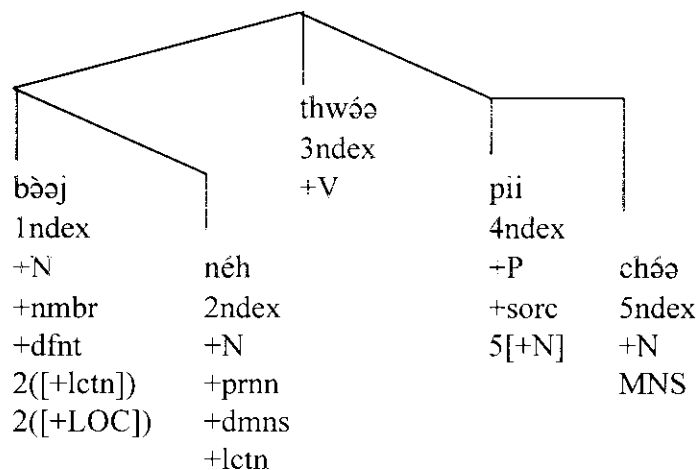
Example 1a is not acceptable either because in general a demonstrative pronoun like *nəh* cannot have a dependent² (see pronouns in chapter 5). Also, since the word *nəh* is optional in this construction, the constituent *bəəj nəh* must have *bəəj* as the regent of

²This is unlike the situation in Western Austronesian languages, for example, where there are demonstrative nouns which commonly take dependent nouns (S. Starosta, p.c.).

néh. This rationalization does not work either, because an adjective cannot be the head of a noun phrase and occupy the subject slot.

Thus the analysis of number words as adjectives is not possible. In addition, the analysis would also be inconsistent with Khmer's branching topology, since Khmer is otherwise (with the exception of the position of subjects and topics) a consistently right-branching language.

In Khmer (see example 1b), based on its distribution, *bə̀əj* is the head of an NP which occupies the subject slot, the Nominative PAT of the verb *thwə̀ə*, and thus can only be a noun, not an adjective.



In summary, based on this analysis, number words do not belong to an adjective word class in Khmer, because: (1) as an adjective, the number would branch off to the left of its regent noun, an inconsistency of relative position in relation to its head; (2) if number words are adjectives, this analysis would also be inconsistent with Khmer's

branching topology, since Khmer is otherwise (with the exception of the position of subjects and topics) a consistently right-branching language; (3) in terms of its syntactic distribution, a number word (as shown in example 1) occupies the head position of a subject NP, thus the number word could only be a noun, not an adjective, in a dependency grammar; and (4) so far the only positive evidence for analyzing words as adjectives comes from translations into Thai or English, which is weak evidence at best.

9.3 Further Grammatical Evidence that Number Words are Nouns

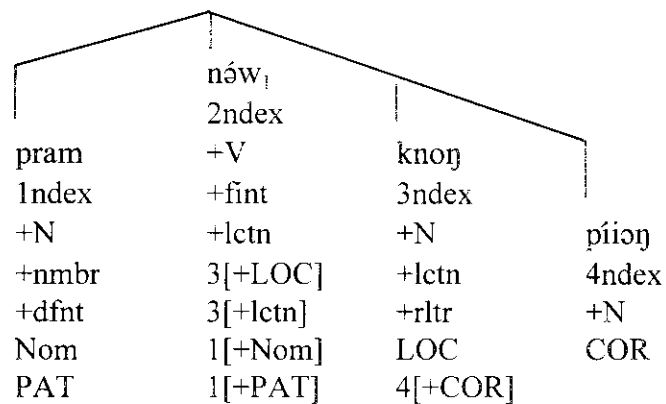
This section will provide further evidence that number words are nouns rather than adjectives, in that they are heads of NPs, and that they have the characteristics of nouns, including the ability to occur as heads of subjects, objects and predicate NPs.

9.3.1 Numbers as Heads of Subject NPs

In this section I will examine constructions wherein the number words occupy the subject and object slots.

Let us examine examples 2, 3 and 4 where the numbers are heads of number noun phrases.

2. pram nǎw_i knoŋ píəŋ
 five locate in jar
 ‘The five are in the jar.’



The noun phrase *pram* occupies the subject slot (example 2). The location verb *nów₁* has the number *pram* as its subject Nom-PAT. This analysis provides evidence that (a) the number word *pram* is a noun (because the subject is a noun phrase, and an adjective cannot occupy the head position of an NP), and (b) a number noun in Khmer, in general, does not require the concurrence of a classifier noun, except with personal pronouns.

3. bəəj nóh thləj nah
 three that cost very
 +N +prnn +V +Adv
 +nmbr +lctn
 Nom +dmns
 PAT LOC
 ‘Those three are very expensive.’

In example 3, the number word *bəəj* ‘three’ is the head of its own NP; thus it is a noun. This NP occupies the subject slot, functioning as the nominative PAT of the verb *thləj*, and is the regent of the locational demonstrative pronoun *nóh*. This number is a

noun because only a preposition, verb or noun, not an adjective, can take a pronoun as its dependent attribute in lexibase dependency grammar.

4. pram néh cǐiə caan taaε piir nóh cǐiə chnaŋ
 five this is plate but two that is pot
 ‘These five are plates but those two are cooking pots.’

In this coordinate conjunction construction (example 4), the number words *pram* and *piir* are the sole subjects of the verb *cǐiə* and the regents of the locational demonstrative pronouns *néh* and *nóh*, respectively.

Number words as dependents of verbs can occupy the subject slot and function as the Nom-PAT to their regents. They are the heads of their NP, and thus, are nouns.

9.3.2 Numbers as Heads of Object NPs

In examples 5 through 8 the number words are the only dependent attributes following the main verbs of the sentences.

5. təŋ qəh mǐiən pram
 total have five
 ‘There are five in total.’ or ‘The total has five.’

In example 5, the transitive verb *mǐiən* ‘to have’ has the number word *pram* as its Acc-PAT, corresponding to the ‘direct object’ of a transitive verb in traditional terminology.

6. khnom tǐŋ pùuəŋ
 I buy four
 ‘I bought four.’

7. *khnom* *ɲam* *múuəj* *taae* *koət* *ɲam* *bəəj*
 I eat one but he eat three
 ‘I eat one but he eats three.’

In examples 6 and 7, the number words *pùuən* ‘four’, *múuəj* ‘one’ and *bəəj* ‘three’ are the Acc-PATs of the transitive verbs *tij* and *ɲam*.

8. *teəŋ qah* *kýy* *pram*
 total are five
 ‘The total is five.’

In example 8, the copula verb *kýy* has the number word *pram* ‘five’ as its predicate complement.

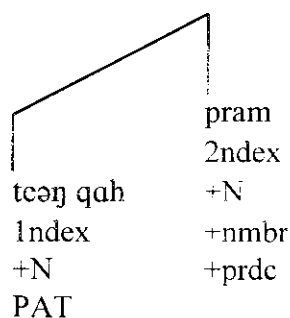
All four verbs in the above examples require a preceding and a following noun dependent, and a word which satisfies this requirement must be a noun; moreover, in lexicase dependency grammar, an adjective cannot be the dependent attribute of a verb. Therefore these constructions support the claim that a number word is a noun, not an adjective.

9.3.3 Numbers as Heads of Predicate Noun Phrases

In lexicase dependency grammar, a sentence is any phrase that has a word marked [+prdc] ‘predicate’ as its lexical head, a verb or a predicate-inflected preposition or noun. In the nominal predicate construction, the regent or head N bears the feature [+prdc], and as an intransitive predicate, it has a nominative PAT dependent (Sak-Humphry 1992:10).

In this section, I will demonstrate that a number is a noun which can function as the head of a free nominal predicate construction.

9. *teəŋ qəh* *pram*
 total five
 ‘The total is five.’



Example 9 is identical to example 5, except for the absence of the verb *miiən*. In example 9, the number word functions as the head of the noun phrase and is the predicate regent of the word *teəŋ qəh*.

In Khmer a predicate noun [+N, +prdc] cannot be negated at all with the negative markers such as *min...*(*tée*) or *qat...*(*téc*) or *pum* (Sak-Humphry, Indrambarya and Starosta (in press)). Using this as a criterion to test example 9, the resulting negated construction is unacceptable: **teəŋ qəh min pram tée*. This supports the claim that the number *pram* in example 9 is not a verb but a noun that has a predicate function, and is the predicate regent of the NP *teəŋ qəh*. Again, number words cannot be adjectives, since adjectives are never predicates in a lexibase dependency analysis.

In all of the above examples based on their syntactic distributions, number words belong to the noun class, not the adjective class, because they function syntactically as the heads of (1) subject NPs, (2) object NPs and (3) nominal predicate NPs.

9.3.4 Conclusion

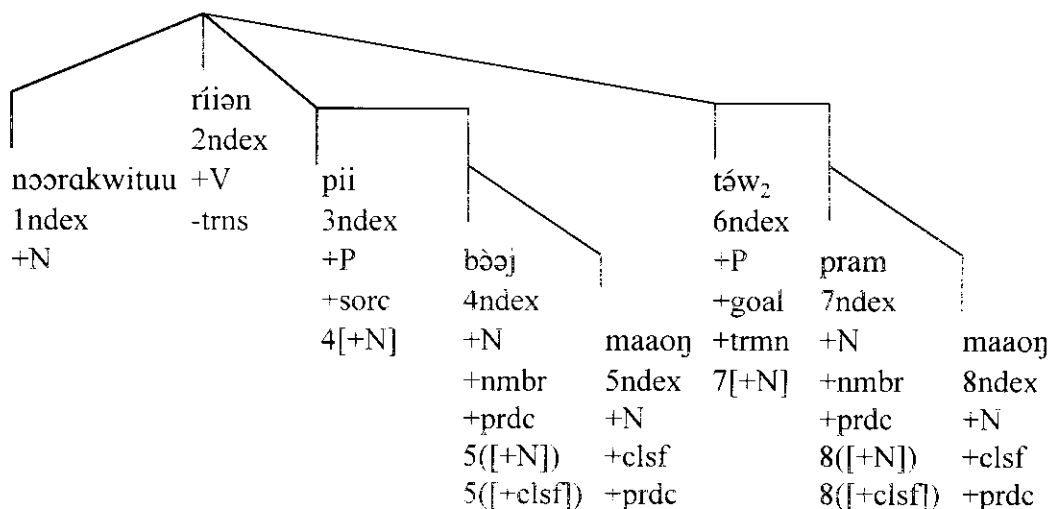
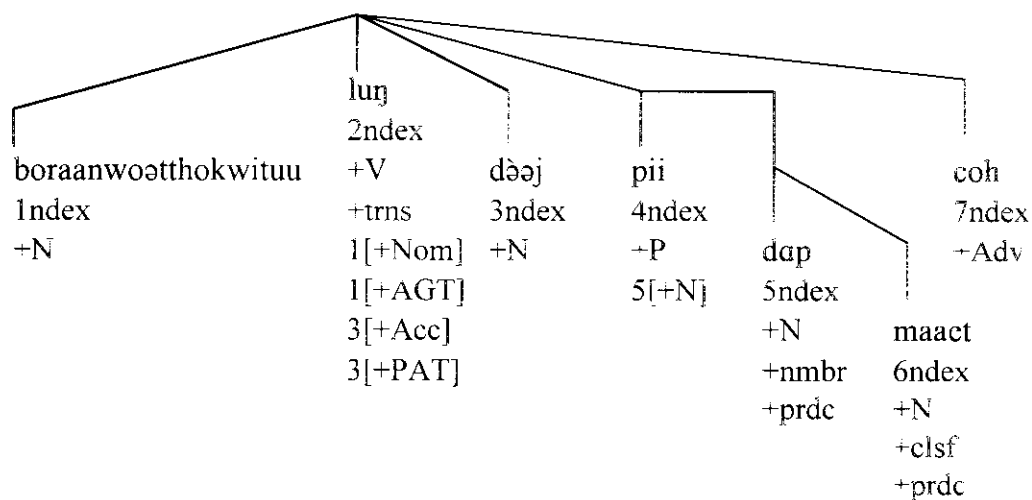
The analysis above shows that a number word functions as the head of its own NP. It is a noun, not an adjective (adjectives may not exist in this language at all). In terms of their grammatical functions, number words share many characteristics with common nouns in Khmer, including the ability to function as the lexical heads of (a) subjects (examples 1-4), (b) object phrases (examples 5-7) and (c) nominal predicates (examples 8-9).

Having justified that number words belong to the noun class, I will examine in the following section the syntactic relationship that a number word can have, with its regents and its dependents.

9.4 Prepositions as Regents of Number Nouns

Since numbers are nouns, and can have verbs as their regents, the other possible regents could be prepositions and nouns.

10. boraanwoətthokwituu luŋ dəəj pii dɔp maaet coh
 archaeologist excavate earth from ten meter down
 ‘The archaeologists excavate down from ten meters.’
11. nɔərakwituu ríən pii bəəj maaon tɔw₂ pram maaon
 anthropologist study from three hour to five hour
 ‘The anthropologist studies from three hours to five hours.’



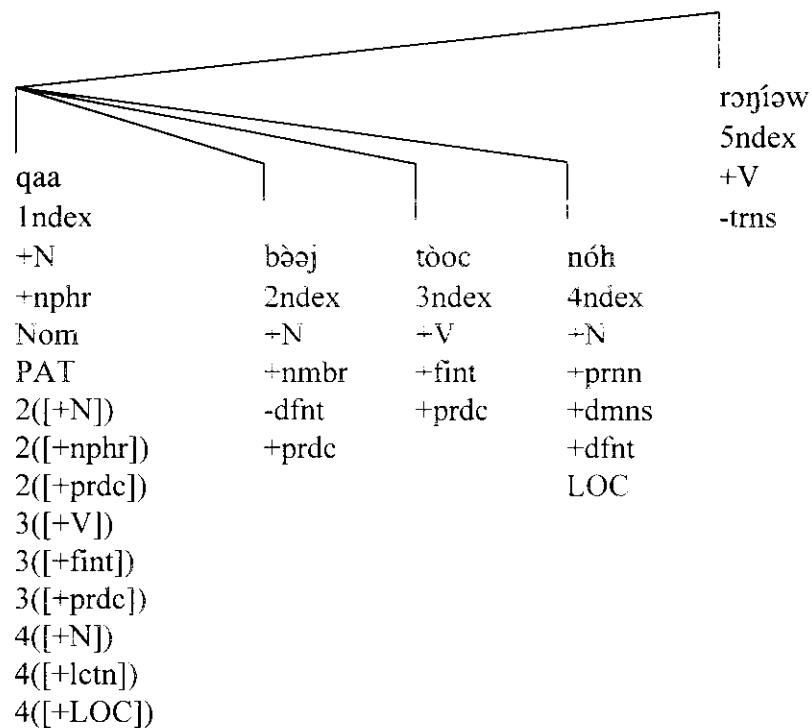
In these two constructions the number nouns *dap* (example 10), *bəəj* and *pram* (example 11) have the prepositions *pii* and *təw₂* as their respective regents. They function as predicate dependents to their preposition regents. This illustration clearly supports the claim that number nouns are nouns rather than adjectives, since adjectives cannot be the dependents of prepositions in dependency grammar.

9.5 Number Nouns as Dependents of Other Nouns

9.5.1 Number Nouns as Dependents of the Anaphoric Noun *qaa*

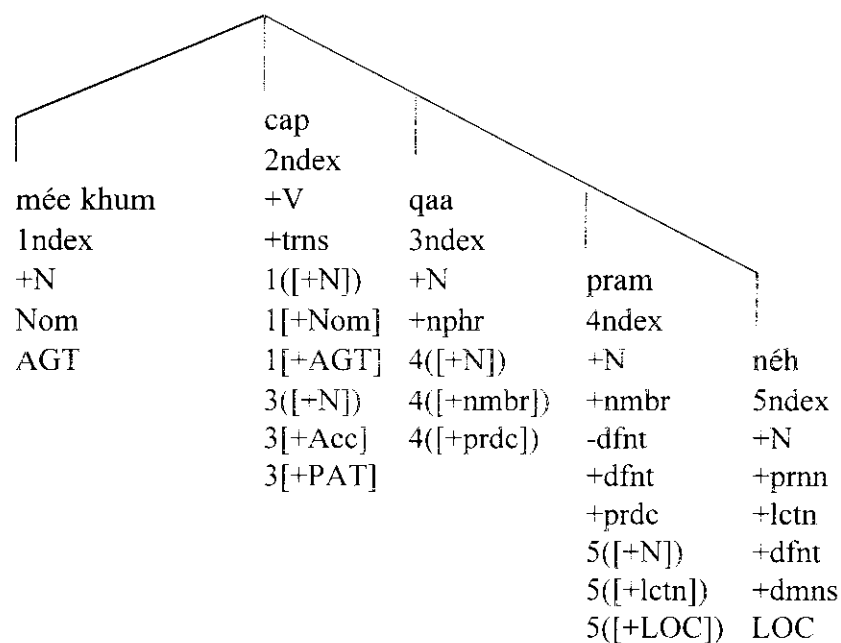
As shown in the anaphoric noun section (chapter 4), a number noun can be the predicate dependent attribute of an anaphoric noun.

12. *qaa* *bəəj* *təoc* *nóh* *rəŋjəw*
 the one three small there crow
 ‘The three small ones there crow.’



In example 12, the anaphoric noun *qaa* occupies the subject slot and functions as the regent of the predicate number noun *bəəj*.

13. *méc khum* *cap* *qaa* *pram* *néh*
 chief of subdistrict arrest the one five here
 ‘The chief of the subdistrict arrested these five.’



In example 13, *qaa* occupies the object slot and functions as the regent of the predicate number noun *pram*.

9.5.2 Number Nouns as Dependents of Pronouns

- | | | | |
|------|---------------------|-------|-----------|
| 14. | * <u>né</u> h | piir | thlaj |
| | this | two | expensive |
| 14a. | * <u>naa</u> | pram | chɣaj |
| | which | five | delicious |
| 14b. | * <u>naa mú</u> uəj | piir | lqəə |
| | which one | | two good |
| 14c. | * <u>qw</u> əəj | pram | chɣaj |
| | what | five | delicious |
| 14d. | * <u>jə</u> əj | bəəj | kcyl |
| | we | three | lazy |

14e.	<u>qneəknaa</u>	bə̀əj	kc̀yl	
	who	three	lazy	
14d'.	<u>jə̀əŋ</u>	bə̀əj	neək	kc̀yl
	we	three	clsf	lazy
	'We three are lazy.'			
14e'.	<u>qneəknaa</u>	bə̀əj	neək	kc̀yl
	who	three	clsf	lazy
	'The three who are lazy.'			

Examples 14 to 14e have pronouns as the regents of number nouns. All constructions are ungrammatical, implying that number nouns can never function as the dependents of pronouns. However, in examples 14d' and 14e', with the cooccurrence of the classifier noun *neək*, the constructions are allowable. This implies that when number nouns cooccur with their predicate classifier dependents, the personal pronoun can have a number noun as its predicate dependent. This in turn suggests that bare predicate number nouns are interpreted as inanimate.

9.5.3 Number Nouns as Dependents of Classifier Nouns

The justification that classifier words belong to a noun class rather than an adjective class is discussed in the section on classifier nouns (chapter 6).

15.	* <u>lot</u>	pram	nə̀w ₁	knə̀ŋ	píə̀ŋ
	lot	five	locate	in	jar
15a.	pram	<u>lot</u>	nə̀w ₁	knə̀ŋ	píə̀ŋ
	five	dozen	locate	in	jar
	'Five dozen are in the jar.'				

Example 15 is inappropriate: the word *lot* does not refer to the classifier noun *lot* ‘dozen’ but rather to a common noun meaning ‘a lot, or parcel of land’. This is different from the classifier *lot*, as shown as in example 17a. Based on this analysis, the classifier noun can never take a number noun as its dependent.

9.5.4 Number Nouns as Dependents of Extension Nouns

The relative noun *daael* and non-relative noun *kaar* cannot take number nouns as their dependents, as shown below:

16.	* <i>khnom</i>	<i>luk</i>	<i>daael</i>	<i>pùuən</i>	(<i>tum</i>)	<i>nóh</i>	
	I	sell	which	four	ripe	those	
16a.	* <i>kaar</i>	<i>tiŋ</i>	<i>pùuən</i>	<i>thwəə</i>	<i>qaaoj</i>	<i>koət</i>	<i>sapbaaj</i>
	I	buy	four	cause	for	he	happy

Examples 16 and 16a are ungrammatical. This implies that the relative extension noun *daael* and the non-relative extension noun *kaar* can never take number nouns as their dependents.

9.5.5 Number Nouns as Dependents of Relator Nouns

According to the criteria that relator nouns must have COR dependents, number nouns can never satisfy the COR requirement of the relator noun. Thus, number nouns can never function as the dependents of locational relator nouns and the non-locational relator nouns *rbah*₂ and *nəj*, as illustrated below:

17.	* <i>kraaom</i>	<i>múuəj</i>	<i>míiən</i>	<i>kqam</i>	<i>dap</i>
	under	one	have	clay pot	ten

- 17a. * qandòŋ rbah₂ pram míiəŋ kqaam dap
 well inside possession of five have clay pot ten

Examples 17 and 17a are ungrammatical. The locational relator noun *kraaom* ‘under’ and the non-locational relator noun *rbah₂* ‘possession of’ are the regents of the number nouns *múuəj* ‘one’ and *pram* ‘five’. This implies that predicate number nouns cannot function as the dependents of relator nouns.

9.5.6 Number Nouns as Dependents of Location Nouns

The following construction has the location noun as the regent of number noun.

18. sraae mpháj lic týk
 ricefield twenty sink water
 ‘Twenty ricefields submerged in the water.’

In example 18. the regent location noun *sraae* takes the number noun *mpháj* as its predicate dependent attribute.

9.5.7 Number Nouns as Dependents of Ordinary Nouns

Can a number noun be the dependent of an ordinary noun?³

19. kamkaar tɨŋ qaŋkaar pram bəəj baaw
 worker buy rice eight sack
 ‘The worker bought eight sacks of rice.’

- 19a. tamnaaŋ ríiəh baoh chnaaot piir daŋ
 congressman vote ballot two time
 ‘The congressman votes two times.’

³ Regarding the definition and detailed analysis of ordinary nouns, see ordinary noun section in chapter 10.

In examples 19 and 19a, the ordinary nouns *qanjkaar* ‘rice’ and *chnaaot* ‘ballot’ function as the Acc-PAT of the verbs *tij* and *baoh*. They are the regents of the predicate number nouns *pram bə̀əj* ‘eight’ and *piir* ‘two’, respectively.

9.6 Number Nouns as Regents of Other Nouns

In this section I will examine constructions where number nouns cooccur with noun dependents.

9.6.1 Number Nouns as Regents of the Anaphoric Noun *qaa*

20.	*bə̀əj	qaa	tòoc	nóh	rə̀híəw	
	three	the one	small	there	crow	
20a.	*mée khum		cap	<u>pram</u>	qaa	néh
	chief of subdistrict		arrest	five	the one	here

As shown in examples 20 and 20a, the anaphoric noun *qaa* cannot have number nouns as its dependents. The converse is not possible, as shown in examples 12 and 13 of section 9.5.1.

9.6.2 Number Nouns as Regents of Pronouns

21.	piir	<u>naa</u> _i	thwóə	pi	cháə
	two	this	make	from	wood
	‘Which two are made of wood?’				
21a.	piir	nóh	chə̀jəp		
	two	that	delicious		
	‘Those two are delicious.’				
21b.	piir	qə̀wə̀əj _i	chə̀jəp		
	two	what	delicious		
	‘What two are delicious?’				

21c.	*pram	jóəŋ	nów ₁	knoŋ	kuk	
	five	we	locate	inside	jail	
21d.	*pram	qneəknaa ₁	nów ₁	knoŋ	kuk	
	five	who	locate	inside	jail	
21c'.	pram	neək	jóəŋ	nów ₁	knoŋ	kuk
	five	clsf	we	locate	inside	jail
	N	+N	+N	+V	+N	+N
	+nmbr	+clsf	+prnn	-trns	+lctn	+lctn
	Nom	-dfnt	+prsn	+lctn	+rltr	COR
	PAT	+prdc	COR		LOC	
	'The five of us are inside the jail.'					
21d'.	pram	neək	qneəknaa ₁	nów ₁	knoŋ	kuk
	five	clsf	who	locate	inside	jail
	N	+N	+N	+V	+N	+N
	+nmbr	+clsf	+prnn	-trns	+lctn	+lctn
	Nom	-dfnt	+anmt	+lctn	+rltr	COR
	PAT	+prdc	COR		LOC	
	'Which five are in jail?'					

In examples 21-21b, the number noun *piir* functions as the Nom-PAT of the verbs *thwóə* and *chŋaŋ*. In turn *piir* functions as the regent of the pronouns *naa*, *nóh* and *qwəəj*.

In examples 21c-21d, the number noun *pram*, which occupies the Nom-PAT of the locational verb *nów₁*, takes the pronouns *jóəŋ* and *qneəknaa₁* as its dependents. Thus, number nouns can take other pronouns as their dependents, except the animate pronoun *qneəknaa₁* and the personal pronoun *jóəŋ*. However, if they occur in conjunction with their sister human classifier noun *neək*, the constructions are acceptable, as shown in examples 21c' and 21d'.

9.6.4 Number Nouns as Regents of Extension Nouns

23. khɲom luk pùuən daaɛl tum nóh
 I sell four which ripe those
 +prnn +V +nmbr +rltv +V +prnn
 ‘I have sold those four which are ripe.’
- 23a. pùuən daaɛl tum néh thlaj nah
 four which ripe this expensive very
 ‘These four which are ripe are very expensive.’
- 23b. kaar tiŋ laan pùuən thwóə qaaoj koət sapbaaj
 the fact buy car four cause for he happy
 ‘Buying four cars makes him happy.’

In the previous section, example 16 shows that *daaɛl* can never take the number noun *pùuən* ‘four’ as its dependent. In example 23, the number noun *pùuən* functions as the object of the verb and the regent of the predicate relative noun *daaɛl* and the locational demonstrative pronoun *nóh*.

In example 23a, the number noun *pùuən* functions as the regent of the relative noun *daaɛl* and the Nom-PAT of the verb *thlaj*. Thus, number nouns can take the relative noun *daaɛl* as their predicate dependent.

Example 23b is acceptable, but the number noun *pùuən* is the immediate dependent of the common noun *laan*, although not the non-relative noun *kaar*. A detailed analysis of *kaar* is discussed in of chapter 7.

9.6.5 Number Nouns as Regents of Relator Nouns

24.	*múuəj	kraaom	qandòŋ	míiən	kqaam	dap
	one	under	well	have	clay pot	ten
24a.	*pram	rbah ₂		koət	thlaj	
	five	possession of		he	expensive	

Examples 24 and 24a are ungrammatical. The locational relator noun *kraaom* ‘under’ and the non-locational relator noun *rbah₂* ‘possession of’ cannot take the number nouns *múuəj* ‘one’ and *pram* ‘five’ as their dependents. This implies that number nouns cannot function as the regents of relator nouns.

9.6.6 Number Nouns as Regents of Location Nouns

25.	*mphój	sraae	lic	týk
	twenty	ricefield	sink	water

As illustrated earlier in examples 17 and 18, only the location noun *sraae*, but not locational relator noun *kraaom*, can take the number noun *mphój* as its predicate dependent. However, in those two constructions (examples 24 and 25), the number nouns *múuəj* and *mphój* can neither take the locational relator noun *kraaom* nor the location noun *sraae* as their dependents. Thus, number nouns cannot be the regent of location nouns and locational relator nouns.

9.6.7 Number Nouns as Regents of Ordinary Nouns

Can a number noun take an ordinary or common noun as its dependent?

26.	*prah saŋ	leeŋ	pramrəəj	caap
	monk	set free	five hundred	bird

26a.	prah saŋ monk	lɛɛŋ set free	caap bird	<u>pramrɔɔj</u> five hundred	
	‘The monk set five hundred birds free.’				
27.	*ukbaasak disciple	prakéen offer	<u>haasiəp</u> fifty	ným yoke	kóo cow
27a.	ukbaasak disciple	prakéen offer	kóo cow	<u>haasiəp</u> fifty	ným yoke
	‘The disciples offered fifty yokes of cows.’				

Comparing examples 26 with 26a, and 27 with 27a, constructions 26 and 27 are unacceptable, because the number nouns *pramrɔɔj* and *haasiəp* cannot take the ordinary nouns *caap* and *kóo* as their dependents. Notice that the number noun *pramrɔɔj* or *haasiəp* is one word and has the syntactic distribution of a single number.

9.6.8 Conclusion

In summary, number words belong to the noun class, not the adjective class, because they function syntactically as the heads of (1) subject NP’s, (2) object NP’s, (3) nominal predicate NP’s, (4) the regents of relative clauses and (5) the heads of locational demonstrative pronouns. They cannot function as the regents of anaphoric nouns, relator nouns, location nouns or ordinary nouns.

Table 9.1 Syntactic Dependency of Number Nouns

SYNTACTIC DEPENDENCY OF NUMBER NOUNS										
Regents	<i>qaa</i> [+nphr]	Pronouns [+prmn]	Classifier N [+clsf]	<i>daae/</i> [+rtv]	<i>kaar</i> [-rtv]	Locational Relator N [+lctn, +rtr]	<i>rbah₂</i> or <i>rnaj</i> [-lctn, +rtr]	Number N [+nmbr]	Location N	Ordinary N
Dependents										
Anaphoric N										
Pronouns [+prmn]								<i>nñh</i> , <i>naa_{1/2}</i> LOC <i>sqəj_{1/2}</i> +prdc <i>naamúuej_{1/2}</i> +prdc <i>khpom'</i> COR		
Classifier N								+prdc		
Extension N <i>daae/ & kaar</i>								<i>daae/</i> +prdc <i>kaar</i> -		
Locational Relator N [+lctn, +rtr]								-		
<i>rbah₂</i> or <i>naj</i> [-lctn, +rtr]								-		
Number N [+nmbr]								-	+prdc	+prdc
Location N								-		
Ordinary N								-		
Number Nouns as Dependents of Verbs										
	<i>thlaj</i> 'expensive' [+V, -trns]	Nom-PAT	<i>tjn</i> 'buy' [+V, +trns]	Acc-PAT	<i>nəw₁</i> 'locate' [+V, +lctn]	Nom-PAT	<i>kyj</i> or <i>ciə</i> 'to be' [+V, -trns, +cpla]	Nom-PAT +prdc	<i>pji</i> 'from' [+P, +lctn]	<i>təw₂</i> 'to' [+P, +lctn]
Number N [+nmbr]								+prdc		+prdc

¹ With the cooccurrence of their sister human classifier noun *neak*, personal pronouns e.g., *jəəj*, *koət* and animate pronouns e.g., *qneəknaa₁* and *qneəknaa₂*, can function as the COR dependents of number nouns.