

Selected Topics in the Grammar of Nalca

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Sammanfattning

Denna studie analyserar ett urval av områden i nalcas (mekspråk; Papua) grammatik, med fokus på verb och nominaler. Det finns ingen publicerad grammatik eller ordlista tillgänglig för nalca, men en översättning av Nya Testamentet användes som parallelltext. Resultaten visade att nalca är split-ergativt, starkt suffigerande och agglutinerande, med subjekt-objekt-verb (SOV) som dominerande ordföljd. Verb består av en stam och en serie suffix som uttrycker tempus/aspekt/modus, negation, numerus och person. Argumentstrukturen är ergativ-absolutiv för substantiv, för vilka syntaktisk funktion indikeras av en serie postpositioner. Dessa postpositioner kongruerar med substantiven efter genus. Ergativitet observerades inte för pronomen; trots att resultaten inte var slutgiltiga, tycktes dessa istället uppvisa ett nominativ-ackusativt system. Det numeriska systemet är ett utökat kroppsdelsystem med basen 27. Många av karaktärsdragen i nalca hade motsvarigheter i de andra mekspråken, med genussystemet och split-ergativiteten som de största undantagen. Användandet av Nya Testamentet som parallelltext visade sig vara lyckat, eftersom en grundläggande beskrivning av nalcas grammatik åstadkoms, även om ytterligare forskning krävs.

Nyckelord

grammatik, Irian Jaya, mek, nalca, Nya Guinea, Nya Testamentet, papuanska språk, parallelltext

Abstract

The present study analyzes a selection of topics in the grammar of Nalca (Mek language; Papua), with a focus on verbs and nominals. No published grammar or dictionary is available for Nalca, but a translation of the New Testament was used as a parallel text. The results showed that Nalca is split-ergative, strongly suffixing and agglutinating, with subject-object-verb (SOV) as the dominant word order. Verbs consist of a stem and a series of suffixes expressing tense/aspect/mood, negation, number and person. The case alignment is ergative-absolutive for nouns, for which syntactic function is indicated by a series of postpositions. These postpositions agree with nouns in gender. Ergativity was not observed for pronouns; while the results were inconclusive, they appeared to show a nominative-accusative case alignment. The numeral system is an extended body-part system with the base 27. Many of the features found in Nalca are comparable with other Mek languages, with the gender system and split-ergativity being two major exceptions. Finally, the use of the New Testament as a parallel text was a success, with a basic description of the grammar of Nalca having been made, although further investigation is needed.

Keywords

grammar, Mek languages, Nalca, New Guinea, New Testament, Papuan languages, parallel text

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Abbreviations

| | | | |
|------|------------------------------|------|---------------------------------|
| A | subject of a transitive verb | OBJ | object |
| ABIL | abilitative | PAUC | paucal |
| ABS | absolutive | PFV | perfective |
| BEN | benefactive | PL | plural |
| C | noun class | POSS | possessive |
| CAUS | causative | PRF | perfect |
| COM | comitative | PRS | present |
| CONJ | conjunction | PST | past |
| DAT | dative | Q | question particle |
| DET | determiner | RM | remote |
| DU | dual | S | subject of an intransitive verb |
| EQT | equative | SG | singular |
| ERG | ergative | SUBJ | subject |
| FUT | future | TOP | topic |
| GEN | genitive | VOC | vocative |
| HORT | hortative | | |
| INT | interrogative | | |
| IPFV | imperfective | | |
| MOD | mood | | |
| NEG | negation | | |
| NOM | nominative | | |
| NR | near | | |
| NZ | nominalizer | | |
| O | object of a transitive verb | | |

1. Introduction

More than 6,000 languages are spoken in the world, of which some 4,000 have never been described, or described only inadequately (Payne 1997, i). The documentation of linguistic diversity is necessary for many reasons, as potentially as many as half of the world's spoken language may become extinct by the end of this century. This is especially important for typology, a branch of linguistics that studies and classifies languages according to their structural features, as much of the linguistic diversity will be forever missed otherwise. Many of the inadequately studied languages are spoken in New Guinea, an island famous for its linguistic diversity. Nalca (nlc) is one of those languages, as little published material is yet available for it. It belongs to the Mek family, itself a branch of the large and diverse Trans-New Guinean language family, and has approximately 11,100 speakers (Lewis et al., 2013). A few of the Mek languages have been studied since a couple of decades, but most of them are inadequately documented. The Mek languages show a number of typologically interesting features, such as morphologically complex verb systems, ergativity and extended body-part numeral systems, making them a prime target for typological research. The aim of the present study is consequently to analyze a selection of topics in the grammar of Nalca, with a primary focus on verbs. Other observations that were made along the way regarding other topics are reported as well. The only published material in Nalca is a translation of the New Testament, which is used in the present study as the basis for analyzing the grammar. The results of this will then serve as a general description of the Nalca language, upon which further research can be based.

1.1 Purpose

The purpose of the present study is to analyze a selection of topic in the grammar of Nalca, with a primary focus on verbs. The research questions are:

- How are the verbal categories tense/aspect/mood, negation, number and person expressed in the language?
- What general conjugational patterns can be observed and how do they differ for various verbs?
- What general morphosyntactic properties can be identified for nominals?
- What characteristics does the numeral system show?
- How well does the use of a parallel text (i.e. the Bible) work for linguistic research when analyzing the grammar of a language?

The results of this analysis will then be compared typologically to the other Mek languages, the Papuan languages as well as the languages of the world as a whole.

1.2 Background

1.2.1 The Papuan languages

The Papuan languages constitute a grouping of all languages in New Guinea and the surrounding islands that do not belong to the Austronesian or Australian language families, comprising as many as 750 languages. The Papuan languages, however, are not necessarily genetically related, instead belonging to perhaps as many as 60 language families

As varied as the Papuan languages are, there are also many areal features that make further investigation into common typological features worthwhile. The following section serves as an attempt to summarize those common features that were deemed potentially useful for the analysis of the verb system of Nalca. Much of the discussion in this section follows Foley (1986).

Many Papuan languages exhibit only a limited set of verbs. Instead of being semantically specific like most English verbs, these describe much more general events. Foley exemplifies this with the Kalam verb *pag-*, which “roughly means ‘cause to become in an unstable condition’, and would be translated by the English verbs: *break, collapse, shatter, chip, dent, crease, fold, ripple, be sprung (of a trap), have a hollow, pour (liquid).*” (Foley 1986, 115). This is especially striking as, according to Foley, Kalam has under 100 words stems of which about 25 are in common use. Furthermore, these general verbs are often used together to describe more complex events, exemplified once again with Kalam (Foley 1986, 113):

- (1) **Kalam**
yad am mon pk d ap ay-p-yn
I go wood hit hold come put-PRF-1SG
‘I went and chopped wood and got it and came and put it’

Verbs can also be combined with either verbs or nominals to create a more specific meaning. These constructions are called serial verb constructions and are extremely common in Papuan languages (Foley 1986, 116). Examples from Kalam, which is extreme in this regard, are, showing firstly *nŋ-* ‘perceive’ (2) and secondly with *ag-* ‘sound’ (3) (Foley 1986, 116):

- (2) a. *n̄b* *nŋ*
consume perceive
‘taste’
b. *d* *nŋ*
take perceive
‘feel’
c. *pk* *nŋ*
hit perceive
‘nudge’
(3) a. *ag* *n̄n̄*
sound transfer
‘tell’

- b. *ag* *tk-*
 sound sever
 ‘interrupt’
- c. *yn* *ag-*
 burn sound
 ‘ignite (engine)’

Alternation is a common feature in Papuan languages, whereby the form of a verb stem changes according to the person and number of the core arguments (Foley 1986, 128). According to Foley, this alternation often shows an ergative pattern where the same form is used for the subject of an intransitive verb (S) and the object of a transitive verb (O). Examples from Kiwai, where all stems indicating more than one S or O begin with the vowel *i*, are (Foley 1986, 128):

Transitive stems, indicating number of O:

- (4) a. *agiwai* ‘give one’
 b. *iagiwai* ‘give some’
- (5) a. *egeba* ‘cut down one’
 b. *igeba* ‘cut down some’

Intransitive stems, indicating number of S:

- (6) a. *abu* ‘one passes’
 b. *iabu* ‘some pass’
- (7) a. *agome* ‘one drowns’
 b. *iagome* ‘some drown’

All Papuan languages do not employ alternating stems to the same degree as Kiwai however, instead limiting the alternation to a number of commonly used verbs (Foley 1986, 128). Foley states that even Kiwai shows some discrepancy, as many intransitive verb stems do not exhibit alternation.

Besides stem alternation, a common way of expressing person and number is through affixes. Person and number are typically expressed with single morphemes. This means that a distinct number morpheme is used only for the most marked number categories; for a description of markedness in this context, see Foley (1986). In Yimas, which has singular, dual, paucal and plural number, this is expressed through single morphemes for person and number except for the paucal, giving constructions such as (Foley 1986, 132):

- (8) a. *impa-ka-tu-t*
 3DU.O-1SG.A-kill-PRF
 ‘I killed those two’
- b. *pu-ka-tu-r-ijkit*
 3PL.O-1SG.A-kill-PRF-PAUC
 ‘I killed those few’

Another common feature in Papuan languages is to not only combine a person and number into a single affix, but to also incorporate tense or aspect. Examples in Kewa are (Foley 1986, 137):

- (9) a. *yó-su*
 pull-1SG.PST.RM
 ‘I pulled long ago’
- b. *yó-lua*
 pull-1SG.FUT
 ‘I will pull’
- c. *yó-e*
 pull-1SG.PRF
 ‘I pulled’

The Papuan languages also have elaborate tense systems, and almost all have more than one past tense (Foley 1986). The exact temporal distinctions can however differ between languages. Foley exemplifies this with Marind and Yessan-Mayo, where the former has a remote past for events before yesterday and a near past for events through yesterday, while the remote past in the latter language covers all events before today and the near past events of today.

As well as multiple past tenses, many Papuan languages also have more than one future tense. The difference between these are however often not temporal but mark how likely it is for an event to occur.

1.2.2 The Mek languages

The Mek languages together constitute a branch of the wider family of the Trans-New Guinean languages. The name of the language family has its origin in the word for ‘water’ or ‘river’ (Heeschen 1978), presumably in the Eipo language. The languages are spoken in Papua, or Irian Jaya as it was formerly known, a province of Indonesia comprising most of the western half of the island of New Guinea. A map of the Mek language area is shown in Illustration 1 below.

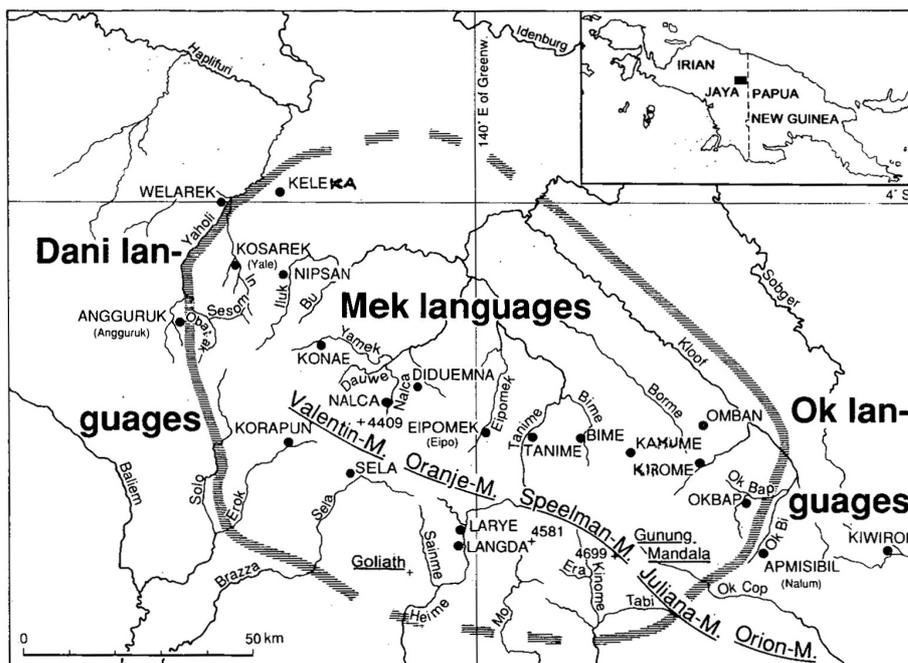


Illustration 1: A map of the Mek language area (adapted from Heeschen 1992, 466)

The first data concerning a Mek language was published in 1912, when a Dutch expedition had reached Mount Goliath at the southern borders of the Mek language area (Heeschen 1992). Because of this, the Mek languages were called ‘Goliath languages’ for a long time onward. In the mid-1970s a team of German researchers began anthropological and linguistic field research with the Eipo people, one of the Mek peoples (Ploeg 2004, 42). Most of this work was focused only on the Eipo and their language, but eventually other Mek languages were documented as well. Much of the work was done as Christian missionary work, within which a translation of at least the New Testament for Nalca was produced. The Mek languages can be organized into four groups, or dialect clusters, which are (citing Heeschen 1992, 467):

- 1) in the north-west, the Yale language spoken around Kosarek, the dialects spoken in the Iluk, Obahak, Sesom, and Yamek valleys;
- 2) in the south-west, the dialects spoken around Korapun, Sela, and, probably, Nalca;
- 3) in the centre, Eipo, Una (spoken around Langda and Larye), and the dialect spoken in the Tanime valley;
- 4) in the east, all the dialects spoken between Bime and Okbap.

Heeschen writes that the languages are spoken in small communities with much mutual contact, both between Mek languages and with the surrounding language families, such as the Dani and Ok languages (1992, 468–470). Because of this, many words have been borrowed between the different communities.

Despite research having been done on the Mek language area, particularly on the Eipo people and their language, much linguistic research remains for the other Mek languages, some of which have hardly been documented at all; an exception is Una, for which a grammar has been published (Louwerse 1988).

2. Method

2.1 Material

Nalca is a language with no previously published dictionary/wordlist or grammar. The only available material of any length is a translation of the New Testament.¹ Since fieldwork in the Highlands of Irian Jaya could not be undertaken for this paper, the New Testament is the sole source of Nalca here. The New Testament has the advantage that it is a parallel text; that is, translations in other languages are available which facilitates the understanding of the text. Here the Nalca text has been used together with an English translation, namely the American Standard Version.

The use of parallel texts to analyze the grammar of a language is not very widespread in modern linguistics. Most modern linguists prefer fieldwork based on authentic material to the analysis of translated texts. Parallels may however be drawn between the method of analysis and linguistic fieldwork, i.e. both aim to describe a language using authentic material, although there are obvious differences. Hyman (2001) writes the following about linguistic fieldwork:

In other words, fieldwork must not only be conducted in the first person, but also involve either a second person (elicitation) or a third person (observation). For something to be considered fieldwork, the researcher must acquire linguistic material directly from other speakers. Working either by introspection or by means of linguistic data collected by others should, thus, automatically disqualify the enterprise from the category of fieldwork. (Hyman 2001, 16)

However, despite the method of gathering data being different, the method of analysis used in this study is close to linguistic fieldwork in several respects, since both aim to identify, describe and classify patterns in natural language. Hyman writes the following:

If not clear from the preceding, then let me add two further qualities of fieldworkers. The first is the love of discovery, of going out into the unknown in search of uniqueness. [...] The second quality of the fieldwork mental state I would like to discuss is what I would call a dedication to “whole language,” if that term had not been adopted for other purposes. [...] As a field-worker one’s objective is to study whatever is out there. (Hyman 2001, 29–30)

This is the aim and purpose of the present study. Therefore, literature regarding linguistic fieldwork was the basis for the analysis, despite there being major differences between fieldwork and the present study.

The results from the analysis were compared with common typological characteristics among the languages of the world (using the World Atlas of Language Structures, WALS), the Papuan languages (Foley 1986) and the Mek languages in particular (Heeschen 1978; 1992; Louwse 1988).

¹ The translation of the New Testament into Nalca was given to me by my supervisor Bernhard Wälchli. It was extracted from a CD by Östen Dahl, who received it from Lourens de Vries at the University of Amsterdam. It can also be found online, at http://gospelgo.com/p/nalca_nt.htm. The translator is unknown to me.

2.2 Procedure

The main part of the present study was the identification, description and classification of certain selected topics in the grammar of Nalca. The procedure used can be divided into a series of steps, as described below.

Alignment of translations. The translations of the New Testament into both Nalca and English were computationally aligned verse by verse in a digital spreadsheet. This was done beforehand by my supervisor Bernhard Wälchli.

Identification of proper nouns. As no prior vocabulary or grammar was available, it was impossible to analyze the morphosyntax of Nalca without first establishing an elemental lexical basis. The first step was therefore to identify proper nouns. Proper nouns require no previous knowledge of a language, and were very frequent because of the nature of the source text. Parallels can be drawn between this process and deciphering an unknown script; an example is Linear B, which was deciphered by identifying place names (Ventris and Chadwick 1953).

Identification of frequent words. When proper nouns had been identified, I could turn my focus to other parts of speech. This was done by initially searching for short sentences with proper nouns and attempting to identify the other elements. This was a manual and tedious process, requiring many hours of finding patterns in the parallel text. It was quickly discovered that verbs were some of the most complex elements in the language while nouns, adjectives and adverbs rarely varied in form. This turned the initial phase primarily into an effort to identify nouns and adjectives, with a special focus on nouns. Combinations of proper and common nouns were also used and compared, e.g. *Parisi nim* ‘Pharisees’ and *Saduki nim* ‘Sadducees’, indicating that *nim* means ‘people’. In the beginning this was mostly guesswork, as the surrounding words were unknown. However, by comparing constructions in a number of sentences, meaning could more easily be determined with some certainty, e.g. *Parisi nim* means ‘Pharisees’ no matter what follows or precedes it. At this stage, the aim was not to obtain a detailed semantic analysis of nouns and adjectives; it was sufficient to arrive at a rough lexical approximation.

Identification of verbs. With a basic understanding of some nouns of Nalca, and consequently some arguments of the verbs in the text, it was possible to start investigating verbs. This was done by choosing an English verb that was frequent and could be expected to occur in many forms (i.e. tenses, aspects, moods, persons). However, verbs which are known to be irregular in many languages, such as ‘go’ and ‘come’ were avoided. An example of a word that was investigated is ‘hear’. Searches were then done to find all occurrences of all forms of the English verb, after which the verses in Nalca and English were compared in order to find corresponding forms. Information about Eipo (Heeschen 1978), in which verbs consist of stems and an array of suffixes, gave an indication about what could be expected for Nalca. A similar system was soon discovered in Nalca as well, and some stems could be identified, e.g. *keb-* ‘hear’.

Organizations of verb forms in paradigms and subparadigms. When the basics of the verb system of Nalca had been determined, i.e. verbs consisting of stems (sometimes with stem alternations) and suffixes, searches were done in order to find all variants of a given verb stem. The identified forms were placed in a table in an attempt to organize the verb paradigm. Subparadigms (i.e. the various combinations of the stem and suffixes) were then organized according to form, which were expected to approximately correspond to function; see e.g. Carstairs (1987). Using *keb-* ‘hear’ as an example, this meant that all forms beginning with *keb-* were placed in one column, forms beginning with *kem-*

in a second column, forms beginning with *kebnam-* in a third one and so on, while person was organized per row, e.g. 1SG forms were placed in the first row, 2SG forms in the second row etc.

Classification of verb forms. When no more forms could be extracted for the most common verbs (e.g. 136 forms were found for *keb-* ‘hear’), they were once again organized, but this time according to function instead of form. Attempts were made to segment suffixes into chains of suffixes, which was accomplished by systematically removing or adding parts of the verb forms to find a difference in function if a result was found. This was a traditional morphological analysis, as described in various morphological textbooks; see e.g. Kroeger (2005). Due to Nalca's being a strongly agglutinating language, the identification of the suffixes was not difficult, but using the New Testament as a parallel text was not enough to clearly understand the function of the suffixes. The specific function of morphemes was deduced by either the English translation (e.g. past or present) or by context (e.g. dual number). Parallels were then drawn to Eipo (Heeschen 1978), which strengthened the analyses. Finally, linguistic terminology was applied to the results based on typological literature, often by comparison with Eipo (Heeschen 1978).

Classification of other parts of speech. Equipped with a basic understanding of the fundamental structure of Nalca regular verbs, it was possible to further investigate the nominal categories. Nouns, adjectives and pronouns were analyzed to identify their basic morphosyntactic properties, which led to the discovery of a case system apparent in both pronouns and postpositions. The case system in turn was the starting point for the discovery of a gender system. The search for morphosyntactic properties was also driven by the typological feature set in WALS which proved to be useful since some WALS features were available for related Mek languages. All results were compared with data from WALS as well as available data for other Mek languages (Heeschen 1978; 1992; Louwense 1988) in order to compare the typological features of Nalca with other languages.

2.3 Glossing

All examples of Nalca given in the present study were glossed by me, based on the Leipzig Glossing Rules.² The interlinear glosses were intended to be as linguistically descriptive as possible (e.g. ‘3PL.NOM’, not ‘they’), as the aim of the present study was to describe multiple topics in the grammar of Nalca. While attempts were made to gloss everything, some words in Nalca remained unknown to me by the end of the analysis; these are indicated with question marks in the interlinear glosses. For the English translations of the Bible verses, the American Standard Version was used.

2.4 Limitations

The use of the New Testament as a parallel text has inherent limitations which are not restricted to the present study. First of all it is written, while Nalca is otherwise only spoken, which casts doubts on how natural the language in it is. It is also a single genre, and the Bible in particular may cause difficulties due to the variety of translations and interpretations of its content; see de Vries (2007) for a discussion of the use of the Bible as a parallel text in linguistic research.

² See <http://www.eva.mpg.de/lingua/resources/glossing-rules.php>

3. Results

3.1 Word order

The word order subject-object-verb (SOV) is typologically the most common dominant word order, occurring in approximately 41% of all languages (Dryer 2011a). Furthermore, of the languages listed in WALS with OV as the dominant order, 97% show a preference for postpositions (Dryer 2011b), and 60% a preference for the order noun-adjective (Dryer 2011c).

In regard to the above information, Nalca is not unusual regarding dominant word order. It is strongly SOV (verbs have only been observed in the final position of a clause), uses postpositions, and exhibits the order noun-adjective. A typical sentence in Nalca is shown in (10).

- (10) *Dara, sokok nim era sikja yuba ke-lem-ak*
 CONJ world people ABS 3PL.GEN word hear-IPFV-3PL.PRS
 ‘and the world heareth them’ (1 Jn 4:5)

The same dominant word order is found in Eipo (Heeschen 1978, 34) as well as Una (Louwerse 1988, 103–105), indicating that it is common among the Mek languages.

3.2 Verbs

3.2.1 Verb formation

Nalca exhibits extensive agglutination, whereby verbs are formed by appending an array of suffixes in a general linear order. This order, where elements in parentheses are optional, is shown in (11).

- (11) stem - (negation) - (tense/aspect markers) - (object pronouns) - tense/person markers - (enclitics)

The first element is the verb stem, which carries the semantic meaning. These are generally very short, often being limited to a single closed syllable, with the final consonant commonly being *-b* or more rarely *-n* or *-k* for monosyllabic stems, and *-g* for polysyllabic stems. Examples are *keb-* ‘hear’, *eib-* ‘see’, *yan-* ‘go’, *buk-* ‘sit’, and *somog-* ‘die’.

The second element is the negative suffixes *-nggu-* and *-nggom*. The first one may or may not change the stem, e.g. *keb-nenggu-* and *ke-nggu-*.

The third element is the tense/aspect markers. These affixes are most often added to the stem without any modification of the latter, but exceptions occur, e.g. *keb-nam-* ‘hear-FUT’ but *ke-lem-* ‘hear-IPFV’. Certain tense/aspect suffixes may also be sequenced, giving more complex temporal distinctions, e.g. *kelemn-* ‘hear-FUT-IPFV’.

The fourth element is the object pronouns. They sometimes change the vowel of the following tense/person ending, resulting in forms such as *kebsuk* ‘he heard them’, which consists of *keb-s-ok* ‘hear- 3PL-3SG.PST’.

The fifth element is the tense/person suffixes, expressing both person and number of the subject as well as tense. These are divided into four groups: one used for present or future events, one for past events, one for commands, and one for asking questions. These can be used alone with the verb stem to express relatively simple temporal distinctions or together with any of the aforementioned tense/aspect suffixes to express more complex temporal distinctions, e.g. *kebok* ‘he heard’ but *kelemok* ‘he was hearing’.

The sixth and final element is the enclitics. These are simply suffixed to the complete verb and are used as conjunctions or clausal nominalizers.

3.2.2 Verb stems

Verbs stems in Nalca belong to a few different categories, depending on the number of syllables and the final consonant.

Most verbs stems in Nalca are monosyllabic and have a final *-b*, e.g. *keb-* ‘hear’, *hweb-* ‘heal’, and *dob-* ‘take’. Verbs of this type are the most regular, i.e. the stem rarely changes, which is why these verbs are the most frequent in the examples given here. For regular stems, the alternation can be summarized with the following rules:

Regular *b*-stems (exemplified with *keb-* ‘hear’):

- 1) The final *-b* becomes *-l* if the verb is part of a serial verb construction, unless it is the last and inflected verb, e.g. *kel*.
- 2) The final *-b* is dropped before the imperfective *-lem-*, e.g. *kelem-*.
- 3) The final *-b* is dropped before the perfective *-m-*, e.g. *kem-*.

However, a few monosyllabic verb stems with final *-b* exhibit a different pattern, giving the following rules for their stem alternation and the subsequent suffixes:

Irregular *b*-stems (exemplified with *eib-* ‘see’):

- 1) The final *-b* becomes *-l* if the verb is part of a serial verb construction, unless it is the last and inflected verb, e.g. *eil*.
- 2) The final *-b* becomes *-lli* before the imperfective *-lem-*, e.g. *eillilem-*.
- 3) The final *-b* becomes *-yi* before the perfective *-m-*, e.g. *eiyim-*.
- 4) The 3SG.PST *-ok* becomes *-uk* if it follows directly after the stem but remains *-ok* if another affix comes before it, e.g. *eibuk* but *eiyimok*.
- 5) The final *-b* becomes *-yib* before the conjunctive enclitic *-oka*, e.g. *eiyiboka*.

All verbs of this latter type have the syllable structure *(C)eib-* where *(C)* is an optional consonant, e.g. *eib-* ‘see’, *beib-* ‘bring forth, give birth to’.

A second type of monosyllabic verb stem has a final *-n*. Only two verbs of this type were found, namely *yan-* ‘come’ and *bin-* ‘go’. These exhibit stem alternation, giving the following rules:

n-stems:

- 1) The final *-n* becomes *-l* if the verb is part of a serial verb construction, unless it is the last and inflected verb, e.g. *yal*.³
- 2) The final *-n* is dropped before the tense/person suffixes of the past tense, e.g. *yasa* or *bisa*. If the tense/person contains an initial vowel, the stems are further reduced to *y-* or *by-*, e.g. *yok*. The 3SG.PST *-ok* and 3PL.PST *-ek* become *-uk* and *-ik* respectively after *by-*, e.g. *byuk* and *byik*.
- 3) The final *-n* becomes *-ba* before the imperfective *-lem-*, which occurs as *-lam-*, e.g. *yabalam*.⁴
- 4) The final *-n* becomes *-la* (with *yan-*) or *-li* (with *bin-*) before the perfective *-m-*, e.g. *yalam-* or *bilim-*.
- 5) The final *-n* is dropped before (or fused with) the future *-nam-*, which occurs as *-nim-* with *bin-*, e.g. *yanam-* or *binim-*.
- 6) The final *-n* becomes *-la* (with *yan-*) or *-li* (with *bin-*) before the hortative, e.g. *yalalul*⁵ or *bililulum*.
- 7) The final *-n* becomes *-b* before the conjunctive enclitic *-oka*, e.g. *yaboka*.

Some *b*-stems also exhibit rule 2 above, so that *heib-* ‘say’ occurs as *hyok* ‘he said’ and *hyek* ‘they said’.

The third and last type of monosyllabic verb stem has a final *-k*. Only one verb, *buk-* ‘sit’ has been found to belong to this category.⁶ The following rules have been observed for this verb:

k-stems:

- 1) The final *-k* becomes *-l* if the verb is part of a serial verb construction, unless it is the last and inflected verb, e.g. *bul*.
- 2) The final *-k* is dropped before the imperfective *-lem-*, which occurs as *-lum-*, e.g. *bulum-*.
- 3) An *-u* is added between the final *-k* and the perfective *-m-*, e.g. *bukum-*.

Nalca also exhibits disyllabic verb stems. These are more difficult to find and consequently only one category has been observed. Verb stems belonging to this group are called *g*-stems and comprise the verbs *somog-* ‘die’ and *eleg-* ‘give’, which were the *g*-stems found. These stems could just as well be called ‘disyllabic *k*-stems’ and be analyzed as *somok-* and *elek-*. However, as they occur more frequently with a stem-final *-g* in the verb paradigm, which consequently minimizes the number of rules, ‘*g*-stem’ will be the classification used in the present study. This also clearly differentiates them from the monosyllabic *k*-stems.

³ *bin-* ‘go’ was not found in a non-final position of a serial verb construction, therefore never occurring in the expected form **bil*.

⁴ *bin-* ‘go’ was not found to occur with the imperfective *-lem-*. Furthermore, it very rarely occurs with the present tense forms of the tense/person suffixes, and when doing so always uses the future *-nim-*. A plausible conclusion is that *bin-* cannot be used in the imperfective aspect.

⁵ The 3SG hortative of *yan-* ‘come’ also occurs as *yabalul* ‘let him go’ (Joh 11:44), although only once.

⁶ Other possible candidates are *sek-* of unknown meaning, which frequently occurs as *sekok*, and *dak-*, also of unknown meaning, which occurs a few times in compounds, e.g. *webdakok* or *ubdakok*.

Analyzed as g-stems, their stem-final consonant is *-k* before a following consonant, and *-g* before a following vowel. These stems are governed by the following rules:

g-stems:

- 1) An *-a* or *-e* is inserted between the stem-final *-g* and the perfective *-m-*, e.g. *somogam-* or *elegem-*.
- 2) An *-a* or *-e* is inserted between the stem-final *-g* and the future *-nam-*, e.g. *somoganam-*.
- 3) The final *-g* becomes *-k* when nominalized with *-na'*, e.g. *somokna'*.
- 4) The final *-g* becomes *-w* before the enclitic *-oka*, e.g. *somowoka*.

The verb stems of Nalca very similar to Eipo. (Heeschen 1978, 25) writes that “stems have the structure *cvc-*, the second consonant being either *-b-* or *-k-*.” However, no indication of polysyllabic stems akin to those in Nalca is given. Furthermore, Eipo also exhibits *n*-stems in *yan-* ‘come’ and *bin-* ‘go’, both of which are identical to their counterparts in Nalca. Heeschen writes that some petrified or irregular forms seem to suggest that these verbs originally had a stem-final *-k*, and that the stem-final *-n* indicates repeated or continued action, as shown in the following example (adapted from Heeschen 1978, 25):

- (12) **Eipo**
- a. *Manbol, ob-m-ik*
 Manbol hit-MOD-3PL.PST
 ‘They killed Manbol.’
- b. *me tokwe on-m-al*
 child earth hit-MOD-3SG.PRS
 ‘The child is hitting (repeatedly) the earth/on the earth.’

Heeschen (1978, 26) also writes that the stem can be expanded by derivational affixes, mentioning the the causatives *-ei-* and *-rob-*, e.g. *teleb-rob-m-al* ‘good-CAUS-MOD-3SG.PRS’. No derivational affixes were found for Nalca.

3.2.3 Tense/person suffixes

The tense/person suffixes of Nalca verbs express the person and number of the subject as well as the tense of the verb. These are the only obligatory component of the verb (apart from the verb stem), except when the imperative negation is used (see 3.2.7). In contrast to the independent pronouns, which exhibit only singular and plural forms, the tense/person suffixes also display a dual number. As with the independent pronouns, there are no gender distinctions. The tense/person suffixes can be divided into four documented groups (see Table 1): the first one expresses the present or future tense (referred to simply as PRS), the second expresses the past tense (PST), the third one expresses the hortative mood or more generally the imperative mood (simplified as HORT), and the fourth and last one is used as an interrogative mood (INT).

Table 1: The tense/person endings. Undocumented positions are marked with a single hyphen.

| | | PRS | PST | HORT | INT |
|----|---|------|------|--------|--------|
| SG | 1 | -na | -sa | - | -sinya |
| | 2 | -lam | -lom | - | - |
| | 3 | -la | -ok | -lul | -so |
| DU | 1 | -nam | - | - | - |
| | 2 | -rum | -rum | - | - |
| | 3 | -rak | -rek | - | - |
| PL | 1 | -ab | -uba | - | -sibya |
| | 2 | -lum | -lum | -lulum | - |
| | 3 | -ak | -ek | - | - |

Some points should be noted about the dual. Firstly, the dual was not found in the hortative and interrogative moods. This, however, should not be taken as proof that there are no hortative or interrogative dual forms, but should instead be seen as a likely consequence of the sparsity of dual forms in the data. Secondly, it should be noted that the dual forms have been observed suffixed to tense/aspect affixes and not directly to the verb stem.

As previously mentioned, the tense/person suffixes can be added either to the verb stem or to other suffixes, i.e. the tense/aspect and object suffixes. This allows various combinations, such as the following (*keb-* ‘hear’ is shown in bold for comparison):

- (13) a. *Galilea sokok dubnya Herodes bedya Yesus adya unu-lam-la*
Galilee land king Herod ERG Jesus GEN be-IPFV-3SG.PRS
*an yuba **keb-ok***
DET word hear-3SG.PST
‘Herod the tetrarch heard the report concerning Jesus’ (Mt 14:1)
- b. *nunja yuba **ke-lem-ak***
1PL.GEN word hear-IPFV-3PL.PRS
‘he (that knoweth God) heareth us’ (1 Jn 4:6)
lit. ‘they hear our word’
- c. *Ugunda **keb-lulum!***
2PL.NOM hear-2PL.HORT
‘Behold (...)’ (Mt 20:18)

The interrogative forms are used in questions, followed by the question markers *do* or *de*, and are generally used with the future *-nam-*. However, their use may sometimes appear to be a conditional mood, but this is more rare. Both of these uses are shown in (14).

- (14) *Goma wining dok ak molowa-nam-so dara,*
 CONJ bird egg DAT request-FUT-3SG.INT CONJ
siribna' ak elega-nam-so de?
 scorpion DAT give-FUT-3SG.INT Q
 ‘Or if he shall ask an egg, will he give him a scorpion?’ (Lk 11:12)

Almost all of the tense/person suffixes are added to the verb stem or previous affix without any modification of the previous syllable. The exceptions are all the second person suffixes as well as the 3DU suffixes, which remove the final *-m* if added to an affix ending in *-m*, resulting in forms such as *keb-ek* ‘hear-3PL.PST’ and *keb-nem-ak* ‘hear-FUT-3PL.PRS’, but *keb-lum* ‘hear-2PL.PST’ and *keb-ne-lum* ‘hear-FUT-2PL.PRS’.

As previously stated, portmanteau suffixes expressing person, number and tense are common in Papuan languages according to Foley (1986). The system displayed in Nalca seems to adhere to this generalisation, as shown in the following examples from Kewa (Foley 1986, 137):

- (15) **Kewa**
- a. *yó-lua*
 pull-1SG.FUT
 ‘I will pull’
- b. *yó-e*
 pull-1SG.PRF
 ‘I pulled’
- (16) **Nalca**
- a. *eib-na*
 see-1SG.PRS
 ‘I see’
- b. *eib-sa*
 see-1SG.PST
 ‘I saw’

There are however a few peculiarities in the Nalca system. Only four tense distinctions have been observed (present/future, past, hortative and interrogative). Foley (1986) does not give information about common temporal distinctions, but some information is given for Eipo by Heeschen (1978), who gives five different tense distinctions: present/future, near past, remote past, hortative-deliberative and abilitative/imaginative. The information given by Heeschen (1978, 28) is organized in Table 2.

Table 2: The tense/person suffixes of Eipo, adapted from Heeschen (1978).

| | | PRS | PST.NR | PST.RM | HORT | ABIL |
|----|---|---------|----------|--------|--------------|----------|
| SG | 1 | -n, -ne | -mum | -se | -nyam, -nuun | -tinye |
| | 2 | -lam | -mum | -lum | -lyam | -tum |
| | 3 | -l, -le | -mo | -uk | -luul | -to |
| DU | 1 | -nam | -mum | -num | -nyanam | -tenimye |
| | 2 | -rum | -marum | -rum | -ruurum | -tum |
| | 3 | -rak | -marunge | -rik | -ruurak | -tering |
| PL | 1 | -ab | -mupe | -upe | -nyab | -teibye |
| | 2 | -lum | -malum | -lum | -luulum | -tum |
| | 3 | -ak | -munge | -ik | -nyak | -ting |

Some observations can immediately be made when comparing the Eipo system to Nalca. First of all, the system and forms of Eipo closely resemble Nalca. The present/future and remote past suffixes are nearly identical to the corresponding Nalca suffixes, giving pairs such as (Eipo/Nalca) *-ne/-na*, *-lam/-lam*, and *-le/-la* for the present/future tense, and *-se/-sa*, *-lum/-lum*, and *-uk/-ok* for the remote past. The hortative is also almost identical, despite the fact that only two forms have been found for Nalca, yielding the two pairs *-luul/-lul* and *-luulum/-lulum*.

The tense that Heeschen refers to as the ‘abilitative/imaginative’ is also very close to the interrogative mood found in Nalca, yielding the pairs (Eipo/Nalca) *-tinye/-sinya*, *-teibye/-sibya*, and *-to/-so*. Heeschen does not discuss the reason for calling it the abilitative/imaginative, but briefly mentions that it can be used with the perfective *-am-* or a past tense to form the conditional (1978, 28). This corresponds to some of the uses of the interrogative in Nalca, and further indicates that the two sets are related.

These examples clearly show that the tense/person suffixes of Eipo and Nalca are closely related. The minor differences may represent phonetic differences or simply different representations of basically identical pronunciations; this, however, is not of major importance for the present study. Nevertheless, the resemblance of the forms demands an inquiry into further overlapping.

Only one suffix set for the past tense has been observed in Nalca, while Eipo has two. The past tense of Nalca corresponds to the remote past tense of Eipo, indicating that there may exist a separate near past tense in Nalca as well. This, however, has not been observed. It is possible that the near past is absent in the New Testament or that it is just too rare to have been observed, or even that a remote past tense is absent in Nalca.

3.2.4 Tense/aspect suffixes

The tense/aspect suffixes can be divided into three observed affixes: *-nam-*, *-lem-* and *-m-*. Only *-nam-* is added to the verb stem without any modification, while *-lem-* and *-m-* remove the final consonant of the stem.

-nam- (see sentence 17a) expresses the future (FUT) and is normally used with the present/future form of the tense/person suffixes. It may also occur as *-nem-* or, more rarely, *-nim-*, depending on the verb stem. A final variant is *-num-*, which occurs after the negation *-nggu-*.

-lem- (see sentence 17b) is most commonly used to express the present tense, but may also be suffixed with *-nam-* to form a future tense (see sentence 17c). *-lem-* may be the imperfective aspect (IPFV) and is referred to as such in the present study. Like *-nam-*, *-lem-* is most commonly used with the present/future form of the tense/person suffixes, but instances of *-lem-* with a following past form of the tense/person suffixes have been observed. *-lem-* may also occur as *-lam-* (with *yan-* ‘come’) or *-lim-* (with *bin-* ‘go’).

-m- (see sentence 17d) is used with the past form of the tense/person suffixes in order to express the past tense. It also occurs as *-im-*, although only with irregular verbs without a final *-b*, in which case the previous consonant (i.e. the stem-final consonant) becomes *-l*. It should also be noted that the 1PL.PST suffix becomes *-ouba* after *-m-*, giving *ke-m-ouba* ‘we heard’, not **ke-m-uba*. The difference between *-m* and a tense/person suffix compared to using solely the latter has not been ascertained. For reasons given below, it is glossed as a perfective aspect (PFV).

- (17) a. *Dara, sikda ban yuba keb-nam-ak*
 CONJ 3PL.NOM DET word hear-FUT-3PL.PRS
 ‘they will also hear’ (Acts 28:28)
- b. *Dara, sokok nim era sikja yuba ke-lem-ak*
 CONJ world people ABS 3PL.GEN word hear-IPFV-3PL.PRS
 ‘and the world heareth them’ (1 Jn 4:5)
- c. *Ugunda eimik era Imik Neyung yuba ken dara, ke-lem-ne-lum*
 2PL.NOM ? ABS God word hearing CONJ hear-IPFV-FUT-2PL.PRS
 ‘By hearing ye shall hear’ (Acts 28:26)
- d. *Petrus bedya, “Ban ara Wenelesilnya bera an,” yuba ke-m-ok*
 Peter ERG DET ABS the Lord ABS TOP word hear-PFV-3SG.PST
 ‘So when Simon Peter heard that it was the Lord (...)’ (Jn 21:7)

Foley (1986) does not clearly exemplify a system similar to the one observed for Nalca, but instead focuses on stem changes and verb serialization to mark aspect. Examples given are from Kiwai, which, besides having two stems for each verb expressing the continuative and punctiliar, has several aspectual suffixes: *-ti* (the iterative aspect), *-diro* (indicating continuous performance of an action), and *-wado* (indicating a frequent or regular performance of an action), yielding examples such as (Foley 1986, 148):

Kiwai

- (18) a. *ipesu-ti* ‘lose several things one at a time’
 b. *asesu-ti* ‘cut pieces from something over and over again’
- (19) a. *omudo-diro* ‘go on dragging’
 b. *orobi-diro* ‘hold on for a long time’
- (20) a. *oriodorai-wado* ‘go astern frequently’
 b. *iaeedai-wado* ‘pull the bowstring many times’

Heeschen (1978, 26–27) does however present a system in Eipo similar to the one observed for Nalca. He briefly lists five suffixes:⁷ *-na*, *-nu*-, *-am*-, *-ma*-, and *-nam*-. The following explanations of the suffixes are adapted from Heeschen's descriptions.

- *-na*- indicates a wish, desire or simply the future tense.
- *-nu*- indicates the inchoative⁸ aspect or the immediate future tense.
- *-am*- indicates the perfective aspect. A stem-final *-b* may be dropped in front of it.

The descriptions for *-ma*- and *-nam*- are less clear. Heeschen writes:

The infixes *-ma*- and *-nam*- are opposed to each other. *-ma*- indicates that the subject does not focus on the end or beginning of a state, process or action: the subject is participating in, and has sensual experience of the states, processes, and action which are seen from the standpoint of the subject engaged. *-nam*- means that the subject does not focus on the development of a state and process or on the course of an action. The subject may have no sensual experience of the states, processes and action. Examples without a good (and long) context are without value; thus, suffice it to say, that *-ma*- cooccurs mainly with forms referring to events in which the subject has participated and that *-nam*- is used in simple questions and in accounts of mythical events. (1978, 26–27)

It seems that Heeschen found it difficult to accurately describe the two suffixes. It appears to be a distinction of realis and irrealis, or two types of evidentiality, but this is not clear from Heeschen's description.

Comparing Eipo with Nalca, there appears to be a correspondence between Eipo *-na*- and Nalca *-nam*-, both of which indicate the future tense. Eipo also has an immediate future tense, but this was not observed for Nalca.

The perfective aspect of Eipo, *-am*-, resembles the Nalca *-m*- in both its shape and in the fact that a stem-final *-b* is dropped in front of it. It is uncertain whether the Nalca *-m*- is a perfective aspect or not, but its being used as a past tense as well as the clear correspondence with the Eipo *-am*- is a strong indicator that it is indeed a perfective aspect.

Besides the suffixes above, Heeschen also mentions that “[t]he combination of the stem ending in *-l*- together with perfective *-am*- and the 3rd singular or plural of the [past tense-person suffixes] forms general statements and descriptions” (1978, 29). This resembles *-lem*- in Nalca. The description given by Heeschen is not self-evident for the Nalca *-lem*- and further investigation is needed to determine its exact role. However, Heeschen (1992, 472) briefly mentions that Yale, another related Mek language, possesses the durative suffix *-lam*-. Owing to the similarity between the suspected imperfective *-lem*- of Nalca and the durative *-lam*-, the analysis that *-lem*- is in fact an imperfective appears plausible. For these reasons, *-lem*- is referred to as an imperfective in the present study.

No equivalents of Eipo *-nam*- and *-ma*- were found in Nalca. Reasons for this may be that the material is too limited, that their frequency is too low or simply that there are no such distinctions in Nalca. This may also have been overlooked in the analysis, whereby these forms were missed or understood as being parts of other morphemes. The latter possibility may be true for every observed tense/aspect morpheme, e.g. Nalca *-nam*- may actually be *-na-m*-. Nevertheless, the segmentation of morphemes does not necessarily mean that the analysis is faulty: e.g. Nalca *-nam*- may be *-na-m*-, but it still indicates the future tense. Further studies are necessary to fully understand the potentially complex system of tense/aspect suffixes in Nalca.

⁷ Heeschen refers to these as infixes, even though they are appended to the stem. In the present study, they are referred to as suffixes.

⁸ Called the ‘ingressive’ by Heeschen.

3.2.5 Object suffixes

Nalca has a series of object suffixes (see Table 3) which indicate the direct object of a transitive verb. They can also be used with intransitive verbs, where they may indicate direction (see 22 below), although this requires further investigation. These suffixes differ from the tense/person suffixes, but resemble the independent pronouns in that there is no dual; instead, the plural is used for both plural and dual referents. As with both the tense/person suffixes and the independent pronouns, there are no gender distinctions.

Table 3: The object suffixes of Nalca.

| | SG | PL |
|---|------|-----|
| 1 | -ny- | -s- |
| 2 | -nj- | -s- |
| 3 | -∅- | -s- |

As can be seen in the table, the same suffix is used for all plurals. Furthermore, no suffix has been found for the 3rd person singular, which indicates that it probably is a null morpheme. If the past tense 3SG or 3PL subject suffixes *-ok* or *-ek* follow the plural object suffixes, they become *-uk* or *-ik* respectively.

An example of a sentence with an object suffix shown in (21).

- (21) *nak men eib-ny-ok*
 1SG.DAT first see-1SG.OBJ-3SG.PST
 ‘[he] found me’ (2 Tim 1:17)

The related Mek language Eipo also has object suffixes reminiscent of those in Nalca. Heeschen (1978, 27) does, however, only mention three:⁹ *-nV-* ‘me, for me, toward me’, *-kV-* ‘you, for you, toward you’, and *-sV-* ‘us, for us, toward us’, where *V* stands for either /i/ or the vowel of the following syllable. He also writes that these have a direct object function with transitive verbs, and an indirect object, benefactive or locational function with intransitive verbs. What function Heeschen ascribes to an indirect object of an intransitive verb is unknown to the present author.

3.2.6 Enclitics

The last element of the verb is the enclitics. Two have been found, namely *-oka* and *-a’*.

-oka functions as a conjunction and is used to chain clauses. Constructions with *-oka* can have different objects for each verb, but the subject must be the same. This is shown in (22) (the enclitic is marked in bold):

- (22) *sikda nadya yuba keb-oka nak diriga yala-ny-ak*
 3PL.NOM 1SG.GEN word hear-CONJ 1SG.DAT after go-1SG.OBJ-3PL.PRS
 ‘[My sheep] hear my voice (...) and they follow me’ (Jn 10:27)

-a’ functions as clausal nominalizer. It is added to a fully inflected verb, enabling it to function as a noun, i.e. with a postposition or case marker, as shown in (23).

⁹ As with the tense/aspect suffixes, Heeschen (1978) refers to these as infixes. However, they do not seem to modify the verb stem in any way and should probably be regarded as suffixes, which is the position taken here.

- (23) *sirik sam bu-lum-ok-a' ak eib-ek*
 right side sit-IPFV-3SG.PST-NZ DAT see-3PL.PST
 ‘they saw (a young man) sitting on the right side’ (Mk 16:5)

Forms with *-oka* can superficially be very similar to forms with *-a'*, e.g. *keboka* and *keboka*. However, as the latter type is fully inflected, it also occurs in forms such as *kebeka'* and *kebnamla'*. The difference becomes evident when separating the morphemes: *keb-oka* and *keb-ok-a'*.

3.2.7 Negation

The most basic form of negation in Nalca is achieved with the particle *gom*, which is placed at the end of the clause or following the phrase it negates. It is often used to negate an equative sentence, as in (24) below.

- (24) *Ban benera alda Maria gedya me e sona'anya gom de?*
 DET TOP.ABS 3SG.NOM Mary GEN son carpenter NEG Q
 ‘Is not this the carpenter, the son of Mary’ (Mk 6:3)

The negation *gom* is clearly common among the Mek languages, occurring as *gum* in Eipo (Heeschen 1978) and *kum* in Una (Louwerse 1988).

Negative imperatives are formed by adding *-nggom*¹⁰ to the verb stem, followed by the particle *mem*, as shown in (25). A similar construction is used in Una (Louwerse 1988, 89).

- (25) *momnya do-nggom mem*
 letter put-NEG NEG
 ‘Write not’ (Jn 19:21)

Nalca also has another type of negation that is not present in either Eipo or Una, where *-nggu-* or *-nenggu-* is added to the verb stem. This is exemplified in (26). However, the specifics of how this negation is used has not been established, and the changes that occur in the verb paradigm are not yet understood; e.g. it sometimes replaces the last consonant of the verb stem, e.g. yielding both *kenggu-* and *kebnenggu-* from *keb-* ‘hear’. Because of this uncertainty, the suffixes of the verbs have not been separated by hyphens in the following examples to avoid potentially misleading analyses.

- (26) a. *Wenelesilnya Yesus alja be' ara, eibnenggubek*
 Lord Jesus 3SG.GEN body ABS see.NEG.3PL.PST
 ‘[they] found not the body of the Lord Jesus’ (Lk 24:3)
- b. *Ugunda beknenggululum de?*
 2PL.NOM remember.NEG.2PL.HORT Q
 ‘and do ye not remember?’ (Mk 8:18)

While this construction is only understood to a small degree, it separates Nalca from the other Mek languages and would therefore be interesting for further typological studies.

¹⁰If *-nggom* is understood as being derived from *gom*, which is plausible, it may also be analyzed as simply *-gom* where *-ng* is a change in the verb stem.

3.2.8 Serialization

Like many Papuan languages, Nalca exhibits verb serialization. These serial verb constructions indicate a series of action that all describe the same event, with their main morphosyntactic feature being that they are conjoined without any conjunction. In Nalca, serial verb constructions are formed placing two or more stems side by side, with only the last one being inflected. The final *-b* of the verb stems before it becomes *-l*. Two typical serial verb constructions are shown in (27).

(27) a. *Wera nara alak hwel bi-nim-na*
 CONJ 1SG.NOM 3SG.DAT heal come-FUT-1SG.PRS
 ‘I will come and heal him’ (Mt 8:7)

 b. *mek gwan gemek sam bul bil-im-ok*
 sea side side sit go-PFV-3SG
 ‘(On that day went Jesus out of the house), and sat by the sea side.’ (Mt 13:1)

Heeschen (1992, 477) states that verb serialization is “one of the favourite constructions in the Mek languages.” He writes that such constructions are used for four purposes: 1) to form a new semantic unit; 2) to specify an aspect, in which the meaning of one stem becomes generalized and instead denotes an aspect; 3) to increase the valency; and, 4) to express purpose or intention. These different distinctions have not been identified for Nalca, although some or all of them are likely present. However, it is impossible to fully understand the use of verb serialization in Nalca using solely the New Testament.

3.3 Nouns

Nalca has a large number of nouns. New nouns can be formed by at least the following two processes:

- 1) Nouns can be juxtaposed, e.g. *Imik Neyung* ‘God’, from *im* ‘heaven’ and *neyung* ‘father’.
- 2) Nouns can be formed from verbs, by dropping the final consonant and adding *-na'*, e.g. *dena'* ‘food’, from *deb-* ‘eat’.

These processes are very similar to the ones described by Heeschen (1978, 29–30) for the Eipo language. The two processes found for Nalca are identical to the first two given by Heeschen, although Eipo does not exhibit an apostrophe when forming a noun from a verb, e.g. Nalca *dena'*, but Eipo *dina*, both ‘food’. However, Eipo has a third process, which Heeschen describes as “labialization of the verbal stem or of the verbal stem plus one of the tense-aspect [suffixes],” giving e.g. *yukwe* ‘young plant’ from *yuk-* ‘plant’ (Heeschen 1992, 30). No similar process was found for Nalca.

Nalca nouns are normally not inflected, but instead have their syntactic function determined by the various postpositions. However, some common nouns occur in more than one form, e.g. *mek* ‘water, river’ (occurring as *meka* and *mekek*), *yub* ‘word, voice’ (occurring as *yuba*), *soko* ‘land, world’ (occurring as *sokok*, shown in 28 below), and *mein* ‘mountain’ (occurring as *meina*, *meini*, and *meinik*). I believe that the forms in *-k* are a merger of the noun and the dative marker *ak*. An argument supporting this analysis is that the postposition *sam* ‘beside, to, in’ (< *sam* ‘side’), which generally comes after the case marker *ak* (or a variant of it), is never preceded by any of the above words in their base form followed by *ak*, but instead by their form with a final *-k*; e.g. *Jesus ak sam* ‘to Jesus’, but *sokok sam* ‘to the land’. No similar phenomenon has been documented for Eipo (Heeschen 1978, 29).

Plural is generally not overtly marked in Nalca. It may however occur, using the plural word¹¹ *yok-yok*, as in (28). Note that the verb is conjugated as if the noun were singular.

- (28) *Sokok* *anara,* *yok-yok* *yuba* *nauba* *ulu-m-la*
 world TOP.ABS PL voice many be-PFV-3SG.PRS
 ‘There are, it may be, so many kinds of voices in the world’ (1 Cor 14:10)

Furthermore, a few common nouns, all denoting human beings, have plural forms, e.g. *me* ‘child, son’ (pl. *mab*, *memab* or *mekmab*), *weis* ‘brother’ (pl. *weisab*), *hem* ‘friend, brother’ (pl. *hemyab* or *hem yab*), *nengma* ‘son’ (pl. *nengmab*), *nenya* ‘husband’ (pl. *nenyab*), *gelma*¹² ‘girl, daughter’ (pl. *gelmab*), and *gel* ‘woman’ (pl. *gelewa*). All of these, besides *gel*, have a plural ending in *-ab*, which probably is the result of a merger between the noun and a subsequent particle *yab*, which only occurs with *neyung* ‘father’ (pl. *neyung yab*), *najabo* ‘small child’ (pl. *najabo yab*) and rarely with *hem* ‘friend, brother’ (pl. *hem yab*, more frequently *hemyab*). If *yab* is a plural marker, it is no longer productive. The origin of *-wa* in *gelewa* ‘women’ (sg. *gel*) is unknown.

¹¹ For a discussion on ‘plural words’, see (Dryer 1989).

¹² *gelma* ‘daughter’ is probably the result of a historical contraction between *gel* ‘woman’ and *me* ‘child’.

3.3.1 Case

Nalca is an ergative-absolutive language, i.e. the subject of a transitive verb is in the ergative case, and the subject of an intransitive verb as well as the object of a transitive verb is in the absolutive case. However, the pronouns seem to exhibit a nominative-accusative alignment, making Nalca a split-ergative language. This is discussed further in 3.6 below.

Other cases are marked as well, such as the dative, benefactive and comitative, most of which semantically overlap with adpositions. Generally, case is only marked for animate nouns.

Case in Nalca is indicated by postpositions for nouns (both proper and common), which agree with the noun (see 3.6), or with inflection for pronouns (see 3.4). As noted in 3.3, there are also a few nouns that are inflected for case (note *heikek* in 29b).

There is also at least one case that can hardly be defined as a postposition. If *o* is placed after a noun, it indicates the vocative case.

A few typical sentences exhibiting the main syntactic cases are shown in (29).

- (29) a. *Yesus adya dara, alak meka' yuba sab elega-nggub-ok*
Jesus ERG CONJ 3SG.DAT any word answer give-NEG-3SG.PST
'But Jesus gave him no answer.' (Jn 19:9)
- b. *Yesus ara Yerusalem heikek bili-m-ok*
Jesus ABS Jerusalem city.DAT go-PFV-3SG.PST
'Jesus went up to Jerusalem' (Jn 2:13)
- c. *ugunda dubnya bedyinya nera dubnya bek elega-na-lum*
2PL.NOM king POSS ABS king DAT give-FUT-2PL.PRS
'Render therefore unto Caesar the things that are Caesar's' (Mt 22:21)
- d. *sikda anja nununumna' len nang era seleb o-m-ak*
3PL.NOM 2SG.GEN prophet ABS PRF kill-PFV-3PL.PRS
'they have killed thy prophets' (Rom 11:3)

The system of ergativity is clearly shown in the above examples. The same postposition, *ara* (or *nera*, *era* etc.), is used for the subject of an intransitive (*Yesus ara* 'Jesus' in 29b) and for the patient of a transitive verb (*dubnya bedyinya nera* 'the things that are Caesar's' in 29c, *anja nununumna' len nang era* 'thy prophets' in 29d). Another postposition, *adya* (or *nedya*, *edya* etc) is used for the agent of a transitive verb (*Yesus adya* 'Jesus' in 29a). This demonstrates that Nalca is an ergative language, at least for nouns (both common and proper). The reason for the pronouns being glossed as nominative and not ergative is discussed in 3.4.

Heeschen (1992, 482) describes the Mek languages as ergative, using Eipo as an example. While Heeschen does not give a detailed description of the ergativity or the case system as a whole, Louwse (1988) describes in detail the case system of the Mek language Una.

3.3.2 Noun classes

Nalca also seems to exhibit noun class distinctions, with possibly five categories having been observed. These are not visible on the nouns themselves, but on their topic and/or case markers.

Since the purpose of this study is not lexicographical, observations on the noun classes of Nalca are speculative. For this reason, noun classes are not marked in the glossed examples outside this chapter. However, some observations have been made, which are given below.

Class 1 is characterized by an initial *a-*, e.g. *ak*, *ab*, and *anyek*. Its semantics are uncertain; it is used for *Yesus* ‘Jesus’ and *Imik Neyung*¹³ ‘God’, various common nouns such as *yub* ‘word, voice’ and *ganya* ‘soul’, nouns with final *-na*’ derived from verbs, such as *somokna*’ ‘death’ (from *somok-* ‘die’), and *ekla buna*’ ‘seat, throne’ (from *buk-* ‘sit’), as well as nominalized verbs with a final *-a*’, e.g. *bulumoka*’ ‘(his) sitting’ (from *buk-* ‘sit’). Examples are:

- (30) a. *Wera sikda Yesus ak eib-ek*
 CONJ 3PL.NOM Jesus DAT.C1 see-3PL.PST
 ‘and they found him [Jesus]’ (Mk 1:37)
- b. *sirik sam bu-lum-ok-a’ ak eib-ek*
 right side sit-IPFV-3SG.PST-NZ DAT.C1 see-3PL.PST
 ‘they saw (a young man) sitting on the right side’ (Mk 16:5)

Class 2 is characterized by an initial *be-*, e.g. *bek*, *beb*, and *benyek*. It is mostly used for proper names denoting male referents, e.g. *Petrus* ‘Peter’, *Daud dubnya* ‘King David’, and *Imik Neyung* ‘God’ (which also occurs with class 1 markers¹⁴). The only two common nouns found to belong to this class are *neyung* ‘father’ and *hem* ‘friend, brother’. Examples of class 2 proper nouns are:

- (31) a. *alja si nera Zakheus bek ulu-m-ok*
 3SG.GEN name ABS.C4 Zacchaeus DAT.C2 be-PFV-3SG.PST
 ‘a man called by name Zacchaeus’ (Lk 19:2)
- b. *Imik Neyung bek ugun nidya’ amba sob-soba’ gib-lem-ab*
 God DAT.C2 2PL all BEN always thank-IPFV-1PL.PRS
 ‘We give thanks to God always for you all’ (1 Thess 1:2)

Class 3 is characterized by an initial *ge-*, e.g. *gek*, *geb*, and *genyek*. It is mostly used for both proper nouns denoting female referents, e.g. *Maria* ‘Mary’ and *Elisabet* ‘Elizabeth’. It was only observed for two common nouns: *gel* ‘woman’ and *yougel* ‘widow’ (which is probably derived from *gel*). Examples are:

¹³ *Imik Neyung* ‘God’ is actually a compound; see 3.3.

¹⁴ The situation for *Imik Neyung* ‘God’ is more complicated than is presented here. *Imik Neyung* occurs more frequently with class 1 markers, while *neyung* ‘father’ written alone occurs more frequently with class 2 markers. However, *Imik Neyung* may, as shown above, occur with both class 1 or 2 markers.

- (32) a. *nunda arasina' gel gek hnon eiyi-m-ouba*
 IPL.NOM ? woman ABS.C3 one see-PFV-1PL.PST
 'a certain maid (having a spirit of divination) met us' (Acts 16:16)
- b. *Yesus adya Maria gek (...) hyok*
 Jesus ERG.C1 Mary DAT.C3 say.3SG.PST
 'Jesus saith unto her [Mary]' (Jn 11:40)

Class 4 is characterized by an initial *e-*, e.g. *ek*, *eb*, and *enyek*. Like class 1, the underlying semantics of this class is uncertain; it is used for a few common nouns denoting human beings, e.g. *gelma* 'girl daughter' and *weis* 'brother', as well as some of the plurals formed with *yab* (see 3.4.1), e.g. *hemyab* (sg. *hem* 'friend, brother') and *mab* (sg. *me* 'son, child'). An example is:

- (33) *Hekasa Kain bera alja weis ek o-m-ok do?*
 why Cain ABS.C2 3SG.GEN brother DAT.C4 kill-PFV-3SG.PST Q
 'And wherefore slew he [Cain] him [his brother]?' (1 Jn 3:12)

Class 5 is characterized by an initial *ne-*, e.g. *nek*, *neb*, and *nenyek*. The only noun that has been found to belong to this category is *me* 'child, son', giving rise to the suspicion that this is merely a variant of class 4, to which *mab*, the plural of *me* 'son', belongs. However, as no evidence has been found to this, it is referred to as class 5 in this study. An example is:

- (34) *me nera ob-nem-ab*
 son ABS.C5 kill-FUT-1PL.PRS
 'let us kill him [the son]' (Mt 21:38)

As shown above, clear patterns have been observed regarding noun classes in Nalca. However, exceptions are numerous, i.e. many nouns use markers from more than one class, and it should be stressed that the classifications displayed above are highly uncertain. Nevertheless, these observations and examples serve to show that the evidence points to Nalca having an elaborate system of noun class distinctions.

Corbett (2011) writes that syntactic evidence, i.e. agreement, is necessary for a pattern to be identified as a gender system. Consequently languages with gender solely in lexical entries and/or derivational patterns do not have gender system. Gender agreement can involve verbs, adjectives, determiners, numerals and focus particles. This definition of gender clearly supports the analysis that Nalca has a gender system.

The discovery of a noun class system in Nalca is not wholly surprising. Approximately half of the world's languages show exhibit systems of two or more genders (Corbett 2011), and it is a widespread feature among the Papuan languages, especially among those of the Sepik basin and the lowlands of Papua (Foley 1986, 77). As the Mek languages are situated in Papua, the chance of them exhibiting gender a system is therefore rather high. While gender distinctions are explicitly nonexistent in Una (Dryer et al. 2011), it does exhibit some variation among its case markers (Louwerse 1988). No gender system can be found in Eipo, at least according to the descriptions by Heeschen (1978; 1992); however, Heeschen does not discuss gender at all, which therefore does not exclude gender distinctions in Eipo. The same is true for Yale, which is discussed briefly in Heeschen (1992). All of

these indicates that gender is not a common feature among the Mek languages, which, if the analysis is correct, separates Nalca from its relatives. However, as some variations have been found in Una, a comparison between Nalca and Una would be profitable in order to further analyze this system.

3.4 Pronouns

Nalca exhibits a set of pronouns independent from the subject tense/person and object suffixes of the verb (Table 4). The independent pronouns, in contrast to the tense/person suffixes, have no dual number. Like the subject tense/person and object suffixes, they do not exhibit any gender distinctions.

Table 4: The independent pronouns of Nalca.

| | SG | PL |
|----------|----|------|
| 1 | na | nu |
| 2 | an | ugun |
| 3 | al | sik |

The pronouns can be used in their basic form, as in (35). This is unusual and likely has a pragmatic function.

- (35) *na ya-nam-na*
 1SG come-FUT-1SG.PRS
 ‘I will come’ (Rev 3:3)

More often, the pronouns are combined with various inflections to express different cases (see Table 4). Most of the inflections are clearly related to postpositions (e.g. DAT *-k* and *ak*, CONJ *-b* and *ab*, BEN *-samba* and *amba*) while some (such as NOM *-da* and GEN *-ja*) are less clearly related to postpositions.

Table 5: The independent pronouns of Nalca combined with postpositions. Undocumented positions are marked with a single hyphen.

| | base | NOM | DAT | CONJ | GEN | BEN | COM | |
|----|----------|------|--------------------|---------|---------|---------------------|-----------|---------------|
| SG | 1 | na | nara ¹⁵ | nak | nab | nadya ¹⁵ | nasamba | nablaboka |
| | 2 | an | anda | anak | anab | anja | ansamba | - |
| | 3 | al | alda | alak | - | alja | alsamba | - |
| PL | 1 | nu | nunda | nuk | nub | nunja | nunsamba | - |
| | 2 | ugun | ugunda | ugunuk | ugunub | ugunja | ugunsamba | ugunublaboka |
| | 3 | sik | sikda | sikenek | sikeneb | sikja | siksamba | sikeneblaboka |

The postpositions can be separated from the base form of the pronoun if a qualifier is used, such as *nidya* ‘all’ (see 36, identical to 31b).

¹⁵While superficially similar to the absolutive postposition *ara*, *nara* seems to function as nominative, e.g. *Nara Wenelesinya bek seleb eibna* ‘I have seen the Lord’ (Jn 20:18). The same is true for the genitive *nadya*, which is similar to the ergative and genitive postposition *adya*. While it is possible that the 1SG forms function as nouns, i.e. exhibiting ergative-absolutive case alignment, no evidence has been found directly supporting it.

- (36) *Imik Neyung bek ugun nidya' amba sob-soba' gib-lem-ab*
 God DAT 2PL all BEN always thank-IPFV-1PL.PRS
 'We give thanks to God always for you all' (1 Thess 1:2)

As can be seen in the Table 4 above, pronouns do not exhibit ergativity. While ergativity is observed nouns, no such alignment has been clearly observed for Nalca. This is shown in (42).

- (37) a. *alda buk-uk*
 3SG.NOM sit-3SG.PST
 ' [he] sat down' (Lk 4:20)
- b. *sikda bili-m-ek*
 3PL.NOM go-PFV-3PL.PST
 'they went' (Lk 2:42)
- c. *sikda Zaitun meinik sam by-ik*
 3PL.NOM (mount of) Olives mountain.DAT to go-3PL.PST
 'they went out unto the mount of Olives' (Mt 26:30)
- d. *sikda anja nununumna' len nang era seleb o-m-ak*
 3PL.NOM 2SG.GEN prophet ABS PRF kill-PFV-3PL.PRS
 'they have killed thy prophets' (Rom 11:3)

As the above examples show, the same form is used for the subject of both intransitive and transitive verbs. For this reason, this case may be analyzed as the nominative case. The presence of a nominative case suggests the occurrence of an accusative case as well; however, unfortunately no example of a pronoun as the patient of a transitive verb has been observed, besides for *eib-* 'see' which takes dative objects. As Nalca exhibits object suffixes on the verb, a plausible explanation is that only these can be used to indicate the pronouns as patients of a transitive verb, however, no evidence for this has been found.

Case marking of pronouns in the other Mek languages is probably ergative-absolutive, as has been described for Una (Louwerse 1988). While not explicitly discussing the case marking on pronouns, Heeschen (1992) describes Eipo as an ergative language. Furthermore, of the 172 languages in WALS for which enough information is available to compare case alignment in pronouns and full noun phrases (Comrie 2011a), only five use the ergative-absolutive alignment for pronouns and nominative-accusative alignment for full noun phrases. Furthermore, four of these are spoken in Australia and one in South America. There is therefore no genetic or areal support for such a system to exist in Nalca, making the Nalca system quite unexpected.

3.5 Adjectives

Nalca exhibits only a limited set of adjectives, with only six having been observed in this study: *perob* ‘good’, *malya* ‘bad’, *nauba* ‘large, many’, *mek* ‘small, little’, *mirin* ‘black’, and *kul* ‘white’. The adjectives can be placed before or after the noun they qualify; a position before the noun probably indicates emphasis, although this needs further investigation. The adjective can also function as a predicate, as in (38a), whereby it is placed in the same position as a verb.

- (38) a. *Garam ara perob*
 salt ABS good
 ‘Salt therefore is good’ (Lk 14:34)
- b. *dara, nimi nauba alak sam ya-lam-ek-a' eiya-m-ok*
 CONJ people many 3SG.DAT to go-IPFV-3PL.PST-NZ see-PFV-3SG.PST
 ‘and seeing that a great multitude cometh unto him (...)’ (Jn 6:5)
- c. *kul pam ek eib-sa*
 white horse DAT see-1SG.PST
 ‘I saw (...) and behold, a white horse’ (Rev 19:1)

Adjectives are generally rare in the New Testament, even for English, which means that finding only a small set of adjectives for Nalca is to be expected. However, Heeschen (1978, 30) notes that the related Mek language Eipo also exhibits only a small set of adjectives: *teleb* ‘good’, *malye* ‘bad’, *wik* ‘big, many’, *metek* ‘small, little’, *meriin* ‘black’, *kurun* ‘white’ and *bii* ‘red’. Interestingly, this set is nearly identical, both in form and meaning, to the one observed for Nalca, with the only exception being that *bii* ‘red’ was not found in Nalca¹⁶ and that *wik* and *nauba*, both ‘big/large, many’, as well as *teleb* and *perob*, both ‘good’, do not resemble each other in form.

¹⁶Nalca has a few different ways to express ‘red’, e.g. by using the noun *eneng* ‘blood’.

3.6 Postpositions

Nalca exhibits an extensive set of postpositions, with functions that range from purely syntactic (e.g. the ergative and absolutive case markers *adya* and *ara*) to purely semantic (e.g. *gangganek* ‘among’). They can be divided into two categories, depending on whether they agree with the noun in terms of noun class or not.

Inflected postpositions. The set of postpositions that agree with the noun are listed in Table 6 below.

Table 6: The set of postpositions in Nalca that agree with the noun. The asterisk denotes an unobserved but expected form.

| class 1 | class 2 | class 3 | class 4 | class 5 | function |
|---------|---------|---------|---------|---------|------------|
| adya | bedya | gedya | edya | nedya | ERG, GEN |
| ara | bera | gera | era | nera | ABS |
| ak | bek | gek | ek | nek | DAT |
| an | ben | gen | en | nen | TOP |
| anaso | beneso | *geneso | eneso | neneso | EQT |
| amba | bemba | gemba | emba | nemba | BEN |
| ab | beb | geb | eb | neb | CONJ |
| anadya | benedya | genedya | enedya | nenedya | TOP + ERG |
| anara | benera | genera | enera | nenera | TOP + ABS |
| anyek | benyek | genyek | enyek | nenyek | TOP + DAT |
| anaba | beneba | geneba | eneba | neneba | TOP + CONJ |

Functions have been observed for all postposition listed in the above table. However, these are just approximations, which is probably all that can be accomplished using the New Testament. Research with native speakers of Nalca is necessary to make better and presumably more correct categorizations.

The first three postpositions indicate the core syntactic relations of Nalca, denoting the ergative (*adya*), absolutive (*ara*) and dative (*ak*) cases. The forms for the ergative also appear to function as the genitive, e.g. *Maria gedya me* ‘the son of Mary’ in (24). It should be noted that the dative case is used not only as an indirect object, but also e.g. as the object of the verb *eib-* ‘see’ or as a complement with the copula (as in 41 below). Examples of these are given throughout the present study, e.g. (30) in 3.3.2 above.

The function of the topic marker, *an*, is probably the most uncertain among the listed postpositions. The reason for this is that topicality is difficult to discern in a parallel text, where the translation is in a language without topic markers (i.e. English in this case). *an* is often used in combination with *ban*, a determiner that is placed before the noun.

The equative case marker, *anaso*, is used for comparison, akin to the English ‘like’, as in the following example (occurring as *eneso*):

- (39) *Bok penenya nera, yem sapi pam eneso ulu-m-ok*
 CONJ second ABS calf EQT be-PFV-3SG.PST
 ‘(And the first creature was like a lion,) and the second like a calf’ (Rev 4:7)

The benefactive case marker, *amba*, is used to mark for whom or what an action is done, as shown in the following example:

- (40) *nunda jong una' amba ok we-lem-ab*
 1PL.NOM truth BEN only serve-IPF-1PL.PRS
 ‘(For we can do nothing against the truth, but) for the truth.’ (2 Cor 13:8)

The conjunctive marker, *ab*, is used to conjoin two noun phrases, as in the following example (occurring as a pronoun, *nab*, and *beb*):

- (41) *Nab Neyung beb dara, hnonok ok ulu-nam*
 1SG.CONJ God CONJ CONJ one.DAT only be-1DU.PRS
 ‘I and the Father are one.’ (Jn 10:30)

It should be pointed out that the meanings and uses of the postpositions *anadya*, *anara*, *anyek* and *anaba* are uncertain. The analysis of them being combinations of the topic marker *an* and the respective case marking form is therefore tentative.

Noninflected postpositions. Only three noninflected postpositions, namely *sam* ‘in, to, beside, at’, *gangganek* ‘among’, *dubuk* ‘on’. There are probably more such postpositions, but an extensive investigation was not done in this study. These postpositions exhibit different characteristics; *sam* ‘in, to, beside, at’ is identical to the noun *sam* ‘side’ and always follows the dative case, *gangganek* ‘among’ appears to be inflected with the dative *ak*,¹⁷ and *dubuk* ‘on’ is probably related to words like *dubnya* ‘king’ and *dub soko* ‘kingdom’.

¹⁷ cf. *deba' ganggan pik* ‘through the middle of the clouds’ and Eipo *-kankan* ‘among, between’

3.7 Numerals

Nalca exhibits an extensive numeral system with the base 27. These are shown in Table 7.

Table 7: The numbers 1-27 in Nalca. Asterisks indicate undocumented but expected numerals.

| | | | |
|----|----------------------|----|--------------|
| 1 | hnon | 15 | - |
| 2 | penya | 16 | odara' |
| 3 | winilya | 17 | *goklomdara' |
| 4 | dom | 18 | sagodara' |
| 5 | lam | 19 | soubna dara' |
| 6 | hnab | 20 | lindara' |
| 7 | sek | 21 | *sekudara' |
| 8 | lin | 22 | *hnabdara' |
| 9 | soubna | 23 | *lamdara' |
| 10 | sago | 24 | domdara' |
| 11 | goklom | 25 | - |
| 12 | o | 26 | - |
| 13 | me(i)k | 27 | denga |
| 14 | meija' dubuka' badya | | |

In the above table, positions marked with a single hyphen are undocumented. Numerals marked with an asterisk are undocumented, but can be deduced by comparing the numerals. The use and variation among the numerals are described below.

The numeral *hnon* 'one' functions only as a cardinal number. It can be inflected (cf. the inflected nouns in 3.3), but only for DAT as *hnonok*. When the number 'one' is used as an ordinal, *men* 'first' is used.

The numerals *penya* 'two' and *winilya* 'three' are only used as cardinals. When used as ordinals, their forms become *penenya* 'second' and *winilinya* 'third'. While the dual does not occur as a separate form in the pronouns, it can be indicated by using *penya* after the pronoun, e.g. *sikda penya* 'they (NOM) two'.

All numerals between four and thirteen are used as ordinals when in their base form. In order to be used as cardinal numerals, *-badya* is added as a suffix, e.g. *dombadya* 'four', *lambadya* 'five', *hnabbadya* 'six' etc. The reason for 'thirteen' being given as *me(i)k* is that it occurs as both *mek* and *meik*, with no observed difference besides *meik* being less frequent.

The numeral for 'fourteen', *meija' dubuka' badya*, differs from the other numerals, but is despite its unusual form open for analysis. The first element, *meija'*, is probably derived from *meik* 'thirteen'. The second element, *dubuka'*, is in turn related to *dubuk* 'on, on top of'. Finally, *badya* is also used for the numbers 4-13 when used as cardinals, as well as being used in the compound *hekbadya* 'how many', indicating that it means 'number' or 'amount'. Consequently, *meija' dubuka' badya* would mean 'number on top of thirteen', which it certainly is.

The numerals 15 and 25-26 are unknown, but the numerals between them exhibit a reverse pattern of the numbers 4-12, with the addition of *dara'*, either as an affix or as a separate word with no apparent difference in meaning; however, the meaning of *-dara'* is unknown. These numerals have only been observed as cardinals, so their ordinal forms are unknown.

The number 27 is represented by the numeral *denga* '27', which is the base of the numeral system. It is mostly used to form compounds, e.g. *denga penya* '54', i.e. 'two 27's'. If a further digit is added, it is placed at the end preceded by *ebdobnya*, e.g. *denga winilya ebdobnya goklombadya* '100', i.e. 'three 27's plus 19'. Numbers are often simplified when translated to Nalca due to the different numeral base, i.e. '50' is often translated as *denga penya* '54', and '100' as *denga dombadya* '108'.

When used with nouns or pronouns, the numerals are positioned as adjectives, i.e. they are placed after the noun or pronoun. However, they may also be used alone. This is shown in (42) below (numerals are marked in bold).

- (42) a. *Lazarus bera seleb li **dombadya** soko lomok ma-m-ok-a'*
 Lazarus ABS PRF day four earth inside lie-PFV-3SG.PST-NZ
ak eiyi-m-ok
 DAT see-PFV-3SG.PST
 'he found that he had been in the tomb four days already' (Jn 11:17)

- b. *Bok **penenya** nera, yem sapi pam eneso ulu-m-ok*
 CONJ second ABS calf EQT be-PFV-3SG.PST
 '[And the first creature was like a lion,] and the second like a calf' (Rev 4:7)

It is worth noting that numbers sometimes are explicitly stated either in Arabic numerals or Indonesian, presumably for clarification. This is employed to its greatest extent for very large numbers, for which only Indonesian numerals are used.

The numeral system is an extended body-part system, meaning it uses more than the ten fingers to extend the system (Comrie 2011b). Comrie exemplifies this with Kobon, which uses names for body parts of the left side of the body, from 'little finger' to 'hole above breastbone,' to count from 1-12, then repeating the process in reverse for the right side to count from 13-23. Numerals larger than '23' are created by the same process, starting again from the left little finger for '24'. A side effect of this is that *siduy* 'shoulder' can denote '10', '14', '33', '37', '56' and so on (Comrie 2011b). However, Comrie also writes:

There are usually means, optional or obligatory depending on the language, to distinguish the second side of the body used in a count from the first, as well as to indicate which pass across the body is being used, but there is no productive means to identify other than a small number of passes across the body. Extended body-part systems are thus typically rather limited in the range of numbers that they can express, but can be used productively at least into the scores. (Comrie 2011b)

Nalca clearly uses such a system. The numerals continue up to '14', after which they are reversed. *-dara'* is in turn added to indicate that it is the second side. In order to indicate a second pass around the body, *denga* is used. For the third pass, *denga* is followed by *penya* 'two' to indicate 2×27, for the fourth it is followed by *wilinya* 'three' indicating 3×27, and so on. However, because of the limited source material, the relationship between the numerals and the body parts has not been established, beyond 'shoulder' being *sago* '10'.

Extended body-part systems are rare among the world's languages, with Comrie (2011b) listing only four out of 196 languages as employing such systems, all of them located in New Guinea. Two of them are the related Mek languages Eipo and Una, with at least the latter also having 27 as base for the numeral system (Louwrese 1988, 77), indicating that such a system is common among at least some of the Mek languages.

3.8 Questions

Questions can be divided into two types: polar question (i.e. questions where the expected answer is ‘yes’ or ‘no’) and content question (i.e. wh-words like ‘who’ or ‘what’ are used) (Dryer 2011d). The tense/person suffix of the verb is generally in the interrogative mood, unless the question refers to a previous event.

Polar questions in Nalca are expressed with the addition of a question particle at the end of the sentence. This particle is *de* (glossed as Q) for simple questions, while *gom* (glossed as NEG, see 3.2.7) is used for questions where the speaker desires confirmation. Examples are given in (43).

- (43) a. “*Ban benera Galilea nang de?*”
 DET ABS Galilee man Q
 ‘(But when Pilate heard it, he asked) whether the man were a Galilaean.’ (1 Cor 9:10)
 lit. ‘Is he a Galilaean?’
- b. *ban nera nunsamba leb-s-uk gom?*
 DET ABS 1PL.BEN say-1PL-3SG.PST Q.NEG
 ‘saith he it assuredly for our sake?’ (1 Cor 9:10)

Content questions in Nalca contain equivalents to the English wh-words, with six having been observed.

- *hek* ‘what, which’, is the base form of all wh-words. Standing alone, it is used together with a noun, e.g. *hek yub* ‘what word’.
- *heka* ‘what’ is used for inanimate nouns. The final *-a* is possibly related to the nominalizer *-na* (see 3.3).
- *heknya* ‘who’ is used for animate nouns, occurring as *heknyek* in the dative. The final *-nya* is possibly related to the same suffix in *dubnya* ‘king’, *neklisilimnya* ‘teacher’ and *Wenelesilnya* ‘Lord’.
- *heknedy* ‘whose’ is used for the possessor, e.g. *heknedy si* ‘whose name’. The final *-nedy* is possibly related to the genitive *adya* (or more specifically its variant *nedy*); see 3.6.
- *hekasa* ‘why’ is used like its English counterpart, i.e. to inquire about the reason or intention behind something (see 44b). It is possibly related to *anasa* ‘therefore, so’.
- *hekbadya* ‘how many, how much’ is used to inquire about an amount. It is placed after the noun or combination of nouns, e.g. *roti gwanenga hekbadya* ‘how many loaves’. The final *-badya* also occurs with the numerals (see 3.7 above).

Content questions also use a question particle, but this occurs as *do* (also glossed as Q) instead of either *de* or *gom*, as seen in the following examples:

- (44) a. *Nadya genong gera heknya do?*
 1SG.GEN mother ABS who Q
 ‘Who is my mother?’ (Mk 12:48)
- b. *Genong o, anda hekasa enge-le-lam do?*
 mother VOC 2SG.NOM why weep-IPFV-2SG.PRS Q
 ‘Woman, why weepst thou?’ (Jn 20:13)

Eipo exhibits a similar system for questions as Nalca, where the question markers *-ro* or *-do* are used as suffixes (Heeschen 1978, 32). While these appear similar to the Nalca question particle *do*, Heeschen does not describe a system where two different markers are used for polar and content questions respectively. The same is true for Una, which has the question marker *-do* (Louwerse 1988, 86–87). Furthermore, Eipo and Una do not exhibit question words beginning with *hek-*, instead employing *dan-* (Eipo and Una) or *yate* (Eipo) together with a noun (Heeschen 1978, 32; Louwerse 1988, 86). They are only described as being used with nouns, which further separates them from the question words of Nalca.

4. Conclusion

The basic word order in Nalca is subject-object-verb (SOV) and adjectives and adpositions follow their nouns. This is common among the languages of the world as well as the Mek languages.

Verbs are agglutinating and suffixing, consisting of a stem and various optional affixes expressing number, tense/aspect/mood, negation and person. Stems can be divided into different categories, depending on how the stem alternates with the various suffixes. This is a common feature among both Mek languages and Papuan languages in general.

Nalca exhibits a split-ergative case alignment. Case is indicated by a set of postpositions for nouns, which exhibit an ergative-absolutive case distinction, while pronouns are inflected and appear to exhibit a nominative-accusative alignment; however, while the results show evidence for ergativity in nouns, the evidence is inconclusive regarding the case alignment for pronouns. Ergativity is a common feature among the Mek languages, but a difference in case alignment among nouns and pronouns has not been described for another Mek language.

Nouns in Nalca belong to a set of noun classes, which are marked on the postpositions. Noun classes and gender is not uncommon typologically, but have not been observed in other Mek languages.

The numeral system of Nalca is an extended body-part system with the base 27. While extended body-part systems are uncommon among the world's languages, the four listed in WALS that exhibit such systems are all spoken in New Guinea, with two of them being the Mek languages Eipo and Una.

The most typologically interesting features in Nalca are thus: split-ergativity, gender and the numeral system. This also serves to show why investigations into related languages are necessary, as two of these features have not been described for other Mek languages. Even languages belonging to the same language family may exhibit very different features.

The use of the New Testament to analyze the grammar of a language without a previously published grammar or dictionary is possible, as the results of this study show. Morphology and syntax could be investigated to a useful extent, while finer semantic and discourse-related features, such as distinctions between different kinds of tense/aspect/mood, are difficult if not impossible due to them not being expressed in the English translation. Much of this can probably be overcome if more than one translation is considered, particularly if a translation into a closely related language can be employed. Nevertheless, while the use of parallel texts to analyze the grammar may not produce conclusive results, it can yield a general description that can be compared typologically and expanded upon in further studies.

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Appendix: Wordlist

The following partial wordlist was created during the analysis as part of the present study, and mostly consists of nouns occurring in the present study as well as some other common words. The words are compared with the Mek languages Eipo (*eip*) and Yale/Kosarek (*kkk*) whenever possible (based on Heeschen 1978, 41–44), as well as with Indonesian (*ind*). They are listed with tentative part of speech tags, namely: nouns (n), adjectives (a), pronouns (pn), verbs (v), postpositions (pp), numerals (num) and determiners (det). The inflectional postpositions and most numerals are not listed.

| Nalca | English | Part of speech | Notes |
|----------|------------------------|----------------|--------------------------------------|
| akleng | net | n | <i>eip.</i> aleng, <i>kkk.</i> ak |
| al | he, she | pn | <i>eip.</i> el |
| ampum | tomorrow, the next day | n | |
| an | you (sg) | pn | <i>eip.</i> an |
| baga' | serpent | n | |
| beib- | give birth to | v | |
| bii | voice, cry | n | |
| bin- | go | v | |
| buk- | sit | v | |
| buku | book | n | < <i>ind.</i> buku |
| deba' | cloud | n | <i>eip.</i> doa, <i>kkk.</i> doa |
| dok | egg | n | <i>eip.</i> duk |
| dub gel | queen | n | |
| dub nang | ruler | n | |
| dub soko | kingdom | n | |
| dub una' | authority | n | |
| dubnya | king | n | |
| dubuk | on | pp | |
| e | house | n | |
| eib- | see | v | |
| eleg- | give | v | |
| emas | gold | n | < <i>ind.</i> emas |
| eneng | blood | n | <i>eip.</i> ining, <i>kkk.</i> ining |
| gal | tree | n | <i>kkk.</i> kal |
| ganya | heart, soul | n | |
| gel | woman | n | |
| gelma | daughter | n | |
| genong | mother | n | |

| | | | |
|----------------|--------------------|-----|--|
| girik | stone | n | <i>kkk.</i> kirik |
| gura' | star | n | <i>eip.</i> kurye |
| hadya' | fish | n | |
| heib- | ask | v | |
| heik | city | n | |
| hem | friend, brother | n | |
| heng | sun | n | <i>kkk.</i> heng |
| hnon | one | num | |
| hong | hair | n | <i>eip.</i> futong, <i>kkk.</i> hong |
| hwalek | wilderness, desert | n | |
| im | air, sky, heaven | n | <i>eip.</i> iim, <i>kkk.</i> im |
| Imik Neyung | God | n | |
| jam | hour | n | |
| kaca | glass | n | < <i>ind.</i> kaca |
| keb- | hear | v | |
| kom | knee | n | <i>eip.</i> kutam |
| kul | white | a | <i>eip.</i> kurun, <i>kkk.</i> kororupne |
| li | day | n | |
| malya | bad | a | <i>eip.</i> malye, <i>kkk.</i> mali |
| me | child, son | n | <i>eip.</i> me, <i>kkk.</i> me |
| mein | mountain | n | |
| mek | water, river, sea | n | <i>eip.</i> mek, <i>kkk.</i> mak |
| mek | small | a | <i>eip.</i> metek |
| mek dubuk soko | island | n | |
| mek ekla buna' | boat | n | |
| mek gwan gemek | sea side | n | |
| mek weneng | sand | n | <i>eip.</i> mek wininga |
| minggu | week | n | < <i>ind.</i> minggu |
| mirin | black | a | <i>eip.</i> meriin, <i>kkk.</i> merin |
| na | I | pn | <i>eip.</i> na, <i>kkk.</i> na |
| naga baga' | dragon | n | |
| nang | man, person | n | |
| nauba | much, large | a | |
| neklisilimnya | teacher | n | |
| nengma | son | n | |
| neyung | father | n | |
| nidya' | all | det | <i>eip.</i> niryra |
| nim | people | n | <i>eip.</i> niinye |
| nu | we | pn | <i>eip.</i> nun, <i>kkk.</i> nu |

| | | | |
|----------|-------------------------|--------|--|
| ob- | kill | v | <i>eip.</i> ob- |
| pam | pig | n | <i>eip.</i> basam, <i>kkk.</i> pam |
| penya | two | num | |
| perak | silver | n | < <i>ind.</i> perak |
| perob | good | a | |
| roti | bread | n | < <i>ind.</i> roti |
| rupiah | money | n | < <i>ind.</i> rupiah |
| sab | answer | n | |
| sago | shoulder; ten, eighteen | n; num | <i>eip.</i> takunya, <i>kkk.</i> sau |
| sam | side; to, at | n; pp | <i>eip.</i> tam |
| sapi | cattle, cow, bull | n | < <i>ind.</i> sapi |
| saram | breast | n | <i>eip.</i> taram, <i>kkk.</i> saram |
| si | tooth, name | n | <i>eip.</i> sii, <i>kkk.</i> si |
| sik | they | pn | <i>eip.</i> sik |
| singa | lion | n | < <i>ind.</i> singa |
| siribna' | scorpion | n | |
| soko | land, earth, world | n | <i>eip.</i> tokwe, <i>kkk.</i> sɔró, sou |
| somog- | die | v | |
| soruk | hand | n | <i>eip.</i> taruk |
| ub- | be | v | |
| ugun | you (pl) | pn | |
| uk | fire | n | <i>eip.</i> uukwe, <i>kkk.</i> ouk |
| wala' | moon | n | |
| weis | brother | n | |
| wining | bird | n | <i>kkk.</i> winang |
| yan | foot | n | <i>eip.</i> yan, <i>kkk.</i> yan |
| yan- | come | v | |
| yina' | seed | n | |
| yougel | widow | n | |
| yub | word, voice | n | |

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