Selected topics in the grammar and lexicon of Matal

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Sammanfattning/Abstract

Abstract [sv]

Abstract [en]
This thesis describes basic grammatical features and lexicon of Matal, a Chadic language spoken by around 18 000 people in northern Cameroon. A translation of the New Testament is used as a parallel text for the purposes of this study. The identified language structures are compared with other Chadic languages. The results show that Matal is overall typical for the language family, except for the pronominal system, which lacks a clusivity distinction. Nouns and adjectives have a limited morphology, only expressing number as a grammatical category, whereas verbs have many categories that are expressed morphologically, by prefixation and suffixation. For finite verb forms, subject prefixes are obligatory. Tense is expressed either by altered tone in the stem vowel or morphologically. Several verbal suffixes with number and person variants have been identified, although their functions have not been entirely clarified. A system of complex adpositions that make extensive use of grammaticalized body concepts has also been inquired, within which the phenomenon of preposition agreement has been identified. Basic syntactic features, such as word order, negation and topicalization are also addressed. The analysis of the lexicon demonstrates that the basic vocabulary is mainly inherited from earlier stages of the language, but a large number of lexical loans in various semantic domains have also entered Matal.

Keywords
Matal, Chadic languages, verbal morphology, Afroasiatic languages, Cameroon, parallel text
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<th>Description</th>
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<tr>
<td>ADJ</td>
<td>adjectivizer</td>
</tr>
<tr>
<td>ANPH</td>
<td>anaphora</td>
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<tr>
<td>COMPL</td>
<td>complementizer</td>
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<tr>
<td>DEM</td>
<td>demonstrative</td>
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<tr>
<td>DEM.PROUN</td>
<td>demonstrative pronoun</td>
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<tr>
<td>DIR</td>
<td>directive</td>
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<td>DIR.OBJ</td>
<td>direct object</td>
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<td>DIST</td>
<td>distal</td>
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<td>EXIST</td>
<td>existential</td>
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<td>FUT</td>
<td>future</td>
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<td>IMP</td>
<td>imperative</td>
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<td>INF</td>
<td>infinitive</td>
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<td>IO</td>
<td>indirect object</td>
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<td>LOC</td>
<td>location</td>
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<td>NEG</td>
<td>negation</td>
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<tr>
<td>OBJ</td>
<td>object</td>
</tr>
<tr>
<td>PFV</td>
<td>perfective</td>
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<tr>
<td>PL</td>
<td>plural</td>
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<tr>
<td>POSS</td>
<td>possessive</td>
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<td>PST</td>
<td>past</td>
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<tr>
<td>PTCP</td>
<td>present participle</td>
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<tr>
<td>Q</td>
<td>question particle</td>
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<tr>
<td>REFL</td>
<td>reflexive</td>
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<tr>
<td>REL</td>
<td>relativizer</td>
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<tr>
<td>SG</td>
<td>singular</td>
</tr>
<tr>
<td>SUBJ</td>
<td>subjunctive</td>
</tr>
<tr>
<td>TOP</td>
<td>topicalizer</td>
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1. Introduction

This thesis investigates some of the basic traits in the grammar and lexicon of Matal, a Chadic language spoken by at least 18,000 people in Mandara Mountains, North Cameroon. Chadic language family includes some 150 languages. However, only a few of them have received adequate description.

Existing scholarly work on Matal only includes study of its phonology (Rossing, 1978). Therefore, the present study is aimed at helping us to understand the basic grammatical properties of Matal and create a foundation for further investigation. The grammar is analyzed using a New Testament translation as a parallel text. As in the case of many other minor languages of the world, the New Testament translation is the only text published in Matal.

This thesis will mainly focus on describing basic grammatical features of Matal. Major lexical categories will be identified and described to their basic properties. Special attention will be paid to verbs, as a lexical category which in many Chadic languages often expresses a large range of grammatical categories morphologically.

2. Background

This chapter will provide an overview of the language family in which Matal is a member and its subdivisions. In (2.1) Afroasiatic languages, as the highest taxon in the taxonomy of Matal's genetic affiliations, is presented; (2.2) shortly introduces the Chadic language family, since comparisons of investigated phenomena will be made mostly with other languages in this branch of Afroasiatic languages. Section (2.3) gives general geographic information about the area where Matal is spoken, and describes previous research carried out on the language. Finally, aims and research questions will be stated explicitly in (2.4).

2.1. Afroasiatic languages

Matal belongs to the Chadic branch within the larger Afroasiatic family of languages. As the name suggests, languages composing it are indigenous to Africa and Asia and occupy a vast area in much of north of Africa and in the Middle East, totaling about 400 individual languages (Blench, 2006). This results in some of the languages being closely related to each other and even partially mutually intelligible, at the same time as it is far less obvious that other languages within the family are in fact related. However, the relatedness of Afroasiatic languages is well established (Hayward, 2000, p. 75). Similar to the extensive geographical spread of Afroasiatic languages, their typological diversity is equally huge.

The great typological diversity and seemingly low resemblance of the basic lexical stock are thought to have arisen due to the considerable amount of time that has passed since Afroasiatic ceased to be a single language. According to various estimates, Proto-Afroasiatic disintegrated no later than 10,000 years ago (Diakonoff, 1988; Blench, 2006). For comparison, Proto-Indo-European is believed to
have split into descendant branches no later than 6000 years ago, in accordance with the mainstream Kurgan-hypothesis (Clackson, 2007, p. 19). It is also the case, that the off-split of the individual branches from the Proto-Afroasiatic was protracted during thousands of years and did not take place in course of a few generations. Furthermore, the branches that split off from the original Afroasiatic cluster of dialects diverged into their own sub-branches at different times (Diakonoff, Afrasian Languages, 1988, p. 23). This explains why the individual language families within the Afroasiatic demonstrate such varying degree of internal lexical and structural resemblance. To give one example, some languages share basic lexical stock with other members of the same sub-family to a much higher degree than do languages in other sub-families. Because of the great time depth and relatively loose resemblance of the subgroupings to each other, it has been proposed that Afroasiatic rather should be viewed as a phylum or a “superfamily”, with all lower-standing nods being elevated to the status of family and branch respectively (Diakonoff, 1991).

There are various ways of representing the internal classification of Afroasiatic languages. One of the most influential ones is summarized by Hayward (2000) as including six major branches: Berber, Semitic, Egyptian, Cushitic, Omotic and Chadic. Primarily two of the branches, Egyptian and Semitic, provide us with linguistic data of a very old age, as the earliest sources of these languages date back 4000-5000 years, whereas other branches have not been attested in written form for comparably long (Hodge, 1975). The branches mentioned vary greatly to the degree of internal affinity: while Semitic and, even more so, Berber languages are in tight relatedness within their respective branches, Cushitic and Omotic languages have diverged much more extensively, to such a degree that their internal and external classification has not been easy to resolve (Diakonoff, 1965, pp. 10-11). Nevertheless, Chadic exceeds the other branches in terms of typological diversity (Frajzyngier & Shay, 2012, p. 236)

The common origin of Afroasiatic languages was first proposed based on the resemblance of pronominal systems and other morphological traits, leading to the idea that they might be cognate. More recent attempts show an interest in reconstructing Proto-Afroasiatic forms as to their stems and have yielded somewhat different sets of reconstructions (Blench 2006, p 85). Such enterprises understandably result in partial success at best, as the reconstruction of all proto-languages of contemporary and extinct Afroasiatic branches is not yet completed. Proto-Chadic is no exception to this (Frajzyngier & Shay, 2012), although Jungraithmayr & Ibriszimow (1994) produced a tentative reconstruction of a large number of lexical roots based on their reflexes in three subbranches of Chadic languages. Most researchers believe the Afro-Asiatic homeland to have been located somewhere in modern-day Ethiopia, Sudan or Eritrea, that is, north-eastern parts of Africa, from where it spread by migration of its pre-historic speakers (ibid. 86)

One notable feature of Semitic languages, which is the best studied branch within the family, is the system of so-called consonantal roots, where lexical meaning of a word is conveyed in a root consisting of (mostly) three consonants, whereas flectional or derivational morphology is expressed by inserting respective vowels (Diakonoff 1965, p. 27). Consonantal roots are also found in Egyptian and Berber branches, but not in other branches of Afroasiatic, although limited instances of internal flexion, such as plural formation through vowel insertion and deletion, is found in all branches (Hodge 1971, p. 20).

The focus of scholarly discussion on Afroasiatic has long circled around the following question: has this triconsonantal system been inherited from the proto-language and subsequently dismantled in Chadic, Cushitic and Omotic, or is it a later innovation? In the latter case, the root system of the proto-language must rather have been biconsonantal, with a stable vowel which carried no grammatical function (Hodge 1971, p. 16). The scholarly consensus leans towards the latter possibility (Diakonoff, 1988; Ehret, 2008). A possible way, in which biconsonantal roots with a stable
vowel became tri- or more consonantal in the remote past might have been through use of verbal extensions, as the study of Chadic languages suggests.

Another characteristic feature of the language family as a whole is the presence of dual grammatical gender in its members synchronically or at least diachronically. Overall, a correspondence of -t-suffixes with the feminine gender and -k-suffixes with the masculine gender could be established (Terry 1971, p 120). At the early stages of investigation of the Afroasiatic and its possible members, the presence of grammatical gender in any given language under inquiry was one of the initial signs of its possible affinity with the family (Hayward 2000, p. 84). However, gender is absent altogether in a few of the Chadic languages, which once again shows their internal diversity (Frajzyngier & Shay, Chadic, 2012, p. 236).

2.2. Chadic languages

Chadic languages received their name due to the proximity of Lake Chad to the core of their geographical distribution, primarily restricted to the territory of three countries: Nigeria, Cameroon and the Republic of Chad. They comprise between 140 and 160 languages, although many of them are endangered. Out of this number, only about 40 languages are described (Frajzyngier 2012). Internally, Chadic languages consist of three to four subdivisions: West, East, Central and, possibly, a fourth one named Masa. Hausa belongs to the West Chadic group, whereas the Central Chadic group, which Matal is a member of, is also called Blu-Mandara (ibid).

The largest language within Chadic branch, Hausa, is spoken by at least 27 million people as a native tongue and by 20 million as a second language. Hausa is widespread in several countries in West Africa, where it functions as lingua franca and a trading language, with the largest number of speakers living in Nigeria. It is by far the best studied Chadic language and was early linked to other Afroasiatic languages, although the relationship as to more detailed classification was long unclear (Hayward 2000)

A salient feature of Chadic languages is the use of numerous verb extensions, which are possibly inherited from Proto-Afroasiatic (Ehret 2008). Verb extensions are defined as “suffixes placed between the stem and the final inflection of a verb, in order to “extend” the radical and form verbal derivatives” (Cocchi, 2009, p. 90). The term “radical” in the citation refers the root consonants. In many Chadic languages, the third radical is a fossilized verb extension. In such cases, the former verb extension may have lost its productivity. Verb extensions often convey aspectual meaning, as opposed to affixes that encode such grammatical categories as number, gender, person.

There exist several competing classifications of Chadic languages. Given the many sub-divisions, lower taxons of every branch (East, Central and West) are given names by letters and digits for convenience, for example A.1, B.2, B.3 and so on, by the researchers. The sub-divisions do not have equal number of languages; for example, the Central Chadic sub-division C is represented solely by one language, Gidar (Newman, 1977).

2.3. Matal

The object of this study, the Central Chadic language of Matal, is also known as Mouktele/Muktele/Mouktile/Muktile/Balda. According to some accounts, the name ‘Matal’ is an exonym meaning ‘the people on high’, used by speakers of the neighboring Mada language (Rossing, 1978, pp. 7-8), reflecting its geographical distribution. It is spoken in the Far North Region of Cameroon, primarily southeast of the town of Mora in the department of Mayo Sava by 18,000 people, according to somewhat dated estimate from 1982 (Ethnologue, 2017). A different source
gives the figure 50,000 speakers (Joshua Project, 2017). The landscape where Matal is spoken constitutes foothills and north-eastern edges of Mandara mountain range, some 25 kilometers in a beeline from Nigerian border and 170 kilometers in a beeline from neighboring Chad’s capital city N’Djamena.

It is reported that many speakers of Matal also speak Zulgo-Gemzek and some use Mada. Matal is also used as a second language among the speakers of Mada (Ethnologue, 2017). According to the same source, the command of Wuzlam, a closely related language that is spoken immediately to the east of the distribution area of Matal, is also commonly used. Although Wuzlam was reported to have fewer speakers than Matal, around 10,000 individuals, it was used as second language by speakers of several other languages in the region, (Ethnologue, 2017). At the same time, Rossling (1978, p. 4) reports that Wandala language was serving as a lingua franca of north-easternmost edge of Mandara Mountains, although Fulfulde was slowly replacing it as such.

![Diagram of languages around the town of Mora in the Far North Region, Cameroon. The area of distribution of Matal is marked red. Adapted from Rossing (1978, p. 2).](image)

Figure 1: The languages around the town of Mora in the Far North Region, Cameroon. The area of distribution of Matal is marked red. Adapted from Rossing (1978, p. 2).

Overall, the region where Matal is spoken is one of the most linguistically diverse areas in the world. In terms of linguistic diversity, Cameroon is second only to Papua New Guinea. The extreme linguistic diversity of this part of Africa is reflected in the immediate geographical proximity of Matal

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1 Linguistic diversity can be measured using Greenberg’s (1956) Language diversity index (LDI), which is calculated by raising the individual languages’ proportion of the total population in a given area to two, adding
as well: there are at least 30 indigenous languages within approximately 25 kilometers from the town of Mora. Many of them occupy just a couple of square kilometers as their core distribution area (Rossing, 1978, p. 2).

One valuable source for studying Matal is Rossing’s (1978) doctoral thesis, which analyzes phonological systems of 8 languages around Mora town, including Matal. The language is referred to as ‘Muktile’ in the study. The author provides a sketch of the language’s phonetic inventory which is supplemented by a word list with translations, aimed at clarifying phonemic status of different sounds or sound clusters. This word list has proven to be very useful, as it contains lexical items belonging to different parts of speech, as well as both derived and inflected forms. Items in Rossing’s thesis were used along with words from other Chadic languages in Jungraithmayr & Ibriszimow (1994) for reconstructing Proto-Chadic lexical roots. Gravina (2015) used an unpublished word list and phonology sketch by Arjan Branger for his reconstruction of the phonology of Proto-Central Chadic (p. 182).

In §2.2, it was briefly mentioned that there exist several classifications of Chadic languages. Matal has somewhat different place in these. In his internal classification of Central Chadic languages, Newman (1977) includes Matal, which he refers to as Muktele, into A.5 or Matakam-group of Central Chadic languages. He includes up to 17 other varieties, Moloko, Wuzlam and Muyang to name a few, into the same group. Wandala and Podoko are included into A.4 or Mandara-group. Blench (2006) expands the A.5 group to include some 22 varieties and refers to is a Mafa; he also breaks it down to Northeast Mafa, South Mafa and Matal, which is not part of any further sub-division within the A.5.

Together the products and subtracting the sum from 1; the procedure can be expressed in a formula given by Greenberg himself (ibid. p 109): \( A = 1 - \sum_i (i^2) \), "where A is the measure and i successively takes on the values m, n, o [that is, the individual languages that are included in the sample] etc". Applying the LDI to Cameroon, we get the incredibly high rate of 0.974. This means that the chances for two randomly chosen speakers in the country to have different native languages are extremely high. For comparison, a European country such as Poland has an LDI of 0.050, meaning that the chances for two randomly chosen speakers to have different native tongues are very small (Ethnologue, 2017).

according to his classification, but a sub-division of its own. Wandala and Podoko are classified as members of A.4, similarly to Newman (1977). The most recent classification, made by Gravina (2015), reassigns Matal from A.5 to A.4 and classifies it under A.4-Podoko, together with the latter. Although a contribution to the debate on internal classification of Chadic languages is clearly outside of the aims of present study, a personal impression that I acquired during cross-linguistic comparisons is that Matal is very similar to other languages in A.4-group, in particular Moloko and Wuzlam, and relatively dissimilar to Podoko, although the latter is indeed spoken in immediate proximity of Matal, north of it, on the way to the town of Mora. A comparison of the three main classifications of Central Chadic languages is made in Figure 3.
Figure 3: The classification of the Central Chadic sub-branches A.4 and A.5 according to Newman (1977), Blench (2006) and Gravina (2014).
2.4. Aims and research questions

The purpose of this thesis is to use the New Testament translation into Matal to investigate basic traits of its grammar and lexicon, and compare them with those of related languages. The study will be guided by the following research questions:

1. What are the major lexical categories in Matal?
2. What are their morphological and syntactic properties?
3. Which grammatical categories are expressed morphologically?
4. What is the etymological composition of Matal, as used in the dataset? Can any lexical borrowings be identified and analyzed?

3. Method

3.1. Data source

The analysis of grammatical and lexical features of Matal has been conducted using a translation of the New Testament as a parallel text. Apart from a few phrases in Matal recorded for the phonological study by Rossing (1978), the translation of New Testament from 1989 (Joshua Project, 2017) is to my knowledge the only text available in Matal. Basing a linguistic description on a parallel text can be the only option available in certain situations, for example considering the limited scope of the study, with travel to remote areas being unfeasible or too costly; it can also be problematic because of inaccessibility of area where the language is spoken due to safety reasons. These limitations apply to the current study of Matal, which is spoken within the area of the ongoing Boko Haram insurgency. In such cases, Bible translations provide a source of valuable language data. According to the missionary organization United Bible Societies (2018) that produces Bible translations, there are nearly 2200 languages for which complete Bible translation or a New Testament translation have been produced. Carrying out research on a nearly undescribed language based on parallel texts clearly differs from field work. Nevertheless, it is feasible. A few examples of grammar descriptions based solely or mostly on Bible translation are grammars of Iwal (Bradshaw, 2001), Kara-Lemakot (Dryer, 2013) and Wala (Lovegren, Mitchell, & Nakagawa, 2015). In some respects, the method even has some advantages in comparison with traditional field work: the quality of Bible translations is generally high as the translators usually have good knowledge of both target and source languages (Lovegren, Mitchell, & Nakagawa, 2015, p. 1), This could prevent the problem of potential misunderstanding between the linguist and the informant resulting in erroneous conclusions.

The English version that has been used for this study is primarily the American Standard Version, along with the Bible translations into other languages familiar to me. Which Bible version was used for the original translation into Matal is unknown to me, other than it seems to have been written in French (see 3.8.2). It is known, however, that the work was carried out by a team rather than by a single translator (SIL International, personal communication, 2017).
One particular characteristic of the Bible translations into previously unwritten languages must be mentioned shortly. Not all Bible verses have the same degree of suitability for direct comparison and analysis, at least at initial stages. Some verses roughly correspond to their English equivalents in length, while others are much longer, or differ considerably in semantics. For example, they might convey the meaning analogous to one formulated in a single English clause or sentence by several such in Matal. They can also convey the sense of a concept by several others. A concrete example of this is that the English verb *divorce* is translated into Matal as the phrase *kuɗək mis* ‘to expel a woman/wife’. This means an analysis of verses containing this concept is difficult without at least recognizing *kuɗək* as a verb and knowing that *mis* means ‘wife’. Compare a somewhat extreme example below. First, a verse in is given English, then a corresponding Matal verse follows, and at last, a rough translation of the same verse back into English:

But to those who are called, both Jews and Greeks, Christ is the power of God and the wisdom of God. (1 Cor. 1:24)

<table>
<thead>
<tr>
<th>English</th>
<th>Matal</th>
</tr>
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<tbody>
<tr>
<td><em>But people who God has called,</em></td>
<td><em>Ama azladza uwana Zazagala atatsamani ata.</em></td>
</tr>
<tr>
<td>they are whoever they are,</td>
<td>kà atà aŋa magay azlaaŋha kà,</td>
</tr>
<tr>
<td>no matter if they are Jews,</td>
<td>amiyaka tadagay azla Yahuɗiya,</td>
</tr>
<tr>
<td>no matter if they are non-Jewish people,</td>
<td>amiyaka tadagay azlatsaŋh azla Yahuɗiya aw bay,</td>
</tr>
<tr>
<td>those, whose mouth is not empty,</td>
<td>kà aŋatà kà, gay uwanay kà gay deyday aw,</td>
</tr>
<tr>
<td>so that they know</td>
<td>kà uwana tasol</td>
</tr>
<tr>
<td>that Jesus Christ showed the power of God</td>
<td>kà Yesu Kristu kà apɔŋha ndzɔɗa aŋa Zazagala</td>
</tr>
<tr>
<td>and his wisdom as well.”</td>
<td>la matsihila aŋha ala babay.</td>
</tr>
</tbody>
</table>

This has to do with the “foreignizing/nativizing” strategies in Bible translations (De Vries, 2007, p. 150). Because the Bible is a collection of texts composed in an entirely different linguistic and cultural context compared to that of its contemporary readers, their languages might not possess the necessary concept apparatus and stylistic toolkit found in the Bible text. Translators must therefore make a principal decision on how to handle these differences. One option is to aim at preservation of grammatical and stylistic structures of the source text by calquing and importing alien concepts by plain borrowing rather than translating with several words, thus foreignizing the text for the readers. A foreignized text might interfere with smooth readability. The second option is to give up the pursuit of highest resemblance to the source in order to reduce the gap between the text and the reader, that is, nativizing it. Naturally, both approaches might be used to different degrees. Clearly, Matal translators chose a nativizing approach, resulting in longer sentences compared to English and thereby increased the distance to the corresponding English verses.

This approach makes itself evident particularly in verses containing abstract concepts, verbs with complex or metaphorical senses and complex clause structures. As the Bible generally contains many abstract concepts, large portions of the text become unsuitable for analyzing linguistic structures at the initial stage, when the researcher’s familiarity with overall structure of Matal is still only emerging and the researcher’s understanding of its vocabulary is still limited. Therefore, it is necessary to rely on clauses which contain few abstract concepts and have simple structure, therefore demonstrating maximal resemblance in both texts at a first approximation. On the other hand, the nativizing approach provides us with a text that hopefully reflects language use in Matal better than would be the case with a foreignizing approach. Furthermore, as the familiarity with the language increases and heavy reliance on the translation gives way to more intuitive understanding, this becomes an asset, as it adds to the total size of analyzable body of text.
3.2. Procedure

Linguists carrying out language research based on Bible translations usually do not describe the method in detail. Thus, Dryer (2013, p. 2) only mentions a few limitations inherent to it in the introductory part to a Bible-based grammar of Kara-Lemakot, among them the probability of calques and non-inclusion of constructions present in the language into the translation. Lovegren, Mitchell, & Nakagawa (2015, p. 3) only give a short description of programming tools used to build a trilingual corpus, access and process the relevant data, but do not further go into the procedures behind the analysis itself.

The overall process of analyzing a language through the Bible text can be described as using the source text as a set of clues about properties of linguistic units and their internal relations in the target language, or “using English-language Bible translations as the underlying semantics for a passage in the target language” (Heider, Hatfield, & Jennifer, 2011, p. 52). For example, in a hypothetical sentence “Peter came to Jesus” translated into an unfamiliar language, some elements apart from the proper nouns must correspond to the sense “come” and some other must encode spatial-motional relations such as goal, source, etc. This information can be encoded by e.g. case endings, prepositions, word order and so on.

Hence, to investigate how an unfamiliar language is structured, traditional morphological analysis which has been developed by American structuralists as described in Nida (1949) and used in many textbooks on grammar analysis, such as Kroeger (2005), can be employed. Describing its steps, the process was divided into the following stages: identifying morphemes and assessing their lexical or grammatical status; analyzing the overall relationship of the morphemes to one another; and identifying the meaning of the grammatical morphemes. Analysis of the relationship between morphemes includes identifying possible number of grammatical morphemes and their position in relation to the lexical ones; for example, this could include the position of affixes in relation to the stem, minimal and highest possible number of affixes and their co-occurrence (ibid. 12-22).

Certain clues about possible structures also follow logically from the nature of all human languages: for example, all languages have ways of expressing negation. Negation is also frequent and therefore useful for analysis. Most languages also have lexical categories based on opposition between nouns and verbs. Moreover, every language has ways of posing questions and almost always possesses “pronominal categories involving at least three persons and two numbers” (Greenberg, 1963, p. 90). Such universal or nearly universal properties of languages could be expected to be found in Matal.

The practical part of the procedure was carried out using a text editor. Both Matal and English New Testament texts were merged into one file so that the corresponding Bible verses came below one another. For this purpose, Microsoft Word was used, which supports useful search functions (see § 3.2.1.).

3.2.1. Identifying the morphemes

Heider, Hatfield, & Jennifer (2011) describe a project of building a multilingual Bible corpus available for future research and outlined some general principles for computationally oriented analysis, which is broadly adequate also for the current study. The process follows the steps of pre-processing the text, building an easily identifiable basic lexicon, and analyzing morphosyntactic properties. As an example of what such analysis could look like, they mention lining up words that were recognized as nouns, for instance setting out with easily identifiable proper names, and subsequently discerning nominal suffixes present in the language in question. With the help of these suffixes, more nouns can be searched for (ibid. p 57). This “bootstrapping”, i.e. identification of grammatical morphemes by lexical ones and subsequently identifying other lexical morphemes by grammatical ones reflects...
much of how morphosyntactic properties of Matal were analyzed. However, I did not pre-process data, since a normalized Bible text was available online\(^3\). The stage of building a basic lexicon was also facilitated by my supervisor Bernhard Wälchli, who provided an automatically extracted wordlist. The procedure of automatized vocabulary extraction is described in Wälchli (2012).

In order to proceed with the morphological analysis of larger linguistic units, it is necessary to “identify the smaller parts from which they are formed and the patterns that determine how these parts should be arranged” (Kroeger, 2005, p. 7). When applying this procedure on Matal, it was established that many words were composed of several morphemes, certain of which were grammatical affixes attaching to many different stems, whereas others were unique lexical stems. Some of them occurred only on words denoting actions, while others attached exclusively to words referring to entities. This demonstrated that Matal certainly does distinguish between verbs and nouns, as expected for most languages. It also became evident in the process that it has relatively little nominal morphology in comparison to the abundance of the verbal morphology. Therefore, verbs received much more attention than other lexical categories initially.

In similar way, along with the identification of verbs and nouns, evidence was found for such categories as modifiers, prepositions and particles, around which this study largely unfolds. Once some lexical stems and affixes were identified, a simple albeit useful technique for identifying more morphemes could be employed.

The wildcard character search function supported in the text editor Microsoft Word allows searching for specific strings of characters by using special commands. It has similarities with regular expressions, but is simpler. For example, the command \([\!]\) is used to exclude strings. The search terms \(<\ gə[! ]\>\) and \(<\ a[! ]\>\) can be translated into natural language as “search for any words starting but not ending with \(gə\)- or \(a\)-”. These search terms can be used for searching for verbs, with \(gə\)- and \(a\)-being obligatory person prefixes (§4.1.2). Similarly, \(<\ dāh[!/,.,.]\>\) matches all affixes of the verb \(dāh\) ‘to do’, as the command forbids the search engine to return strings starting or ending in a space or a dot. Several search terms can be combined into one: thus, \(<\ d[aà]h[!/,.,.]\>\) lists the affixes of both \(dāh\) and its PST/PFTV variant \(dûh\).

3.2.2. Morphological analysis

Once major lexical categories were established and affixes roughly discerned from lexical stems, the work centered around exploring the grammatical functions of the former. First, all potential verb suffixes were listed and checked for co-occurrence with other verbs, to ensure that they were not in fact parts of lexical stems. Ideally, an individual frequent verb that demonstrated as many verb forms characterized by agglutination of different affixes as possible had to be found, which would allow for the conclusion that they really are distinct morphemes and not, for instance, morpho-phonological variants of a single affix. If a hypothetical string of letters occurred on its own with the stem, it was evident that it was a morpheme; on the contrary, if it always co-occurred with other potential affixes, it indicated no independent morpheme status. An example of a verb stem that this procedure was applied to is \(nən\) ‘to see’. The table below lists some occurrences of this verb with its affixes.

<table>
<thead>
<tr>
<th>Table 1. Some of the affixes attached to (nən)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (gə-nən)</td>
</tr>
</tbody>
</table>

\(^3\) Available at http://listen.bible.is/MFHWYI/Matt/5
For example, the prefix in row 5, *ka-*, can safely be deemed to be a separate morpheme, because it occurs as the only affix on the word. We can also conclude that it constitutes one prefix, *ka-*, rather than two separate prefixes, *k* and *-a-*, because the former never occurs without the latter. However, the element *-aw* in row 6 never occurs without *ka*- also prefixed to the same lexical root, thus never yielding a form *nəŋ-aw*. It is therefore clear that the morpheme in question is a circumfix *ka-...-aw*, rather than two distinct affixes.

In the same manner, we can find instances of suffixes *-a*, *-aŋ*, *-əŋ*, *-la*, and *-al* (Table 2), which are all the only distinguishing features of the various verb forms of *nəŋ*. In other words, these forms constitute minimal pairs, safely indicating their morphemic status and suggesting different grammatical functions. Minimal pairs are defined as contrasting elements that “(i) can occur in the same environment(s), and (ii) replacing one with the other creates a difference in meaning” (Kroeger 2005, p. 8). When listing suffixes, it is useful to use the third person singular inflected form of the verb (prefixed by *a-*), since the narrative nature of the Bible text provides many contexts where verbs occur in third person.

Table 2. Some of the suffixes attached to a-ŋə, 3SG inflexion of ŋə

<table>
<thead>
<tr>
<th>a-ŋə-a</th>
<th>a-ŋə-ŋə</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-ŋə-əŋ</td>
<td>a-ŋə-la</td>
</tr>
<tr>
<td>a-ŋə-al</td>
<td>a-ŋə-aw</td>
</tr>
</tbody>
</table>

The same approach was applied in investigating indicated tone, that is, verb forms that have a vowel marked by the diacritical mark `<◌̀>`/. Minimal pairs were found in identical verb forms, with indicated tone being the only contrastive feature.

Table 3. Variants of the stem ŋə with indicated tone, prefixed by personal affixes

<table>
<thead>
<tr>
<th>ga-ŋə</th>
<th>ga-ŋə</th>
</tr>
</thead>
<tbody>
<tr>
<td>ma-ŋə</td>
<td>ma-ŋə</td>
</tr>
<tr>
<td>ta-ŋə</td>
<td>ta-ŋə</td>
</tr>
<tr>
<td>a-ŋə</td>
<td>a-ŋə</td>
</tr>
<tr>
<td>ka-ŋə</td>
<td>ka-ŋə</td>
</tr>
<tr>
<td>ka-ŋə-aw</td>
<td>ka-ŋə-aw</td>
</tr>
</tbody>
</table>

After the form of the most frequent grammatical morphemes had been established, the next step was to formulate hypotheses about their meaning based on the semantics of the sentence. Unlike the previous step, we here aim at identifying same affixes on different verb stems. The basic principle behind this is identifying “recurring elements of form which correlate with recurring elements of meaning, which is referred to as the method of recurring partials with constant meaning” (Kroeger, 2005, p. 9). That is, if same grammatical meaning is found in glosses of other verbs affixed by same elements, it provides information that strengthens or weakens the hypothesis. Initially, preference was given to transitive and ditransitive verbs, as they often provide more context for comparison by having up to three arguments.

The process of formulating and testing a hypothesis about the grammatical meaning of an individual morpheme can be illustrated by the prefix *ma-*. First, following the procedure described above, I ensured that it is a distinct morpheme and not a part of the lexical stem. Then, based on the semantics of the sentences in which it occurs, an observation was made that it frequently occurs in same contexts as English infinitives. This allowed me to form a hypothesis that *ma-* is a morpheme
that yields verb forms similar in function to those of English infinitives. If correct, I would not expect to find a verb form in which ma- co-occurs with personal prefixes. Upon searching for all occurrences of ma-, this held true. Finally, after consulting literature on neighboring languages, it became evident that several of them have morphemes similar in form and meaning. For example, Moloko verbs have nominalized verb forms prefixed by /m-/ (Friesen, 2017, p. 249). This furtherly strengthened the hypothesis.

Overall, the process of describing a language by analyzing a parallel text has certain similarities with second language acquisition: the further one advances, the smaller does the necessity of rigorous reliance on the translation become. As morphological and syntactic features along with basic vocabulary become internalized by the analyst, the role of the parallel text becomes increasingly reduced to providing translation of those unfamiliar words that are crucial for understanding the context. To facilitate this process, I created a small publicly available wordlist on Wiktionary with roughly one hundred fifty basic terms, whereof a majority is found in the extended Swadesh-list, where I also included pronunciation transcriptions for words found in Rossing (1978) along with etymological information and example sentences from the Bible text. This basic vocabulary list was used when investigating the grammar and the lexicon.

As the work with grammar progressed, I decided to include a section about the lexicon and loan words, as I came across them. I did not specifically search for borrowed items at first, but some words just looked unmistakably Arabic. Similarity in form and meaning often indicates lexical borrowing, and in order to verify them as such, I looked up the same words in dictionaries of major (but not necessarily related) languages in geographical proximity of Matal, mainly Hausa (Greenberg, 1947), Kanuri (Jarrett, 2007), Fulfulde (Pohlig, Haman, & Nouhou, 1991). I also classified the words into broad semantic categories and investigated other words in those categories for possible borrowed status, which made it possible to detect more loan words. It is beyond any doubt that closer familiarity with other languages in the region would yield many more such discoveries.

3.2.3. Cross-Linguistic Comparison

Initially, I familiarized myself with the grammars of several Chadic languages in the region, most notably Wandala (Frajzyngier, 2012), Podoko (Jarvis & Lagona, 2003; Swackhammer, 1991), Wuzlam (Kinnaird & Kinnaird, 1998), Moloko (Friesen & Mamalis, 2008; Friesen, 2017) in order to be able to compare structures identified in Matal with those in related languages early on. Comparisons with neighboring Central-Chadic languages provided a quick overview in order to identify as many features as possible prior to going further into particularities of grammar. In general, structural similarities can be expected due to language contact, inheritance, and parallel development. Even in related languages that have diverged long time ago, they can be expected because of tendencies that were present already in a shared ancestor language (Alkhenvald, 2006, ss. 1-2, 9). All this allows using language comparison as support for formulated hypotheses about various phenomena in the analyzed language. In similar way, Lovegren, Mitchell, & Nakagawa (2015, p. 3) pointed out that their Bible-based description of Wala was helped by guidance of published descriptions of related languages.

To name a few examples of features that were compared to those in related languages, I initially investigated which verb-object word order Matal had, whether there was gender distinction in third singular personal pronouns, whether the recipient was marked by case endings or free morphemes, whether verbs were inflected for person and whether the person inflections generally were obligatory. All this information could be easily accessed via simple, short sentences featuring salient proper nouns, typically person names. This quick investigation of relatively easily identifiable features could then be compared with the patterns of neighboring languages and showed that Matal was

4 The vocabulary list can be found at https://en.wiktionary.org/wiki/Category:Matal_lemmas
structurally similar to them. For the purposes of such cross-linguistic comparison, existing grammatical descriptions of other languages in the region were consulted. At later stages of the work, investigation of more complex topics was also facilitated by cross-linguistic comparison. For example, it became evident that body concepts were used with verbs in a way that completely changed the meaning of the verb (see §3.2.6.). The analysis of this phenomenon was facilitated by the description of similar constructions in Moloko.

Similarly, inquiries based on comparison with phenomena that are typologically common in the languages of the world, and not only in related or geographically close languages, were made. I used World Lexicon of Grammaticalizations (2004) to search for the frequent sources of grammaticalization in languages of the world, subsequently investigating the possibility of finding grammaticalized forms in Matal. This proved to be a useful method, especially when analyzing the grammaticalized meanings of body concepts in complex adpositions (§3.7.2.). For example, if ‘stomach’ was listed as a frequent source of the meaning ‘inside’ in World Lexicon of Grammaticalizations (2004), I identified the noun ‘stomach’, hud in Matal, searched for occurrences of the sense ‘inside’ and alike in the English text, and investigated whether hud occurred in the corresponding verse. Then I continued searching for similar constructions in neighboring languages to furtherly support the hypothesis. The reversed order of the steps in this procedure was also employed: searching for any non-adpositional senses of the terms forming the adpositional phrases, I formed a hypothesis for grammaticalization of the non-adpositional sense into the adpositional one, subsequently comparing it with common patterns of grammaticalization in World Lexicon of Grammaticalizations (2004).

3.3. Glossing

The examples in the result section are glossed largely in accordance with the Leipzig Glossing Rules\(^5\). The general structure of glossed examples consists of a line representing a sentence in Matal, where the individual words where divided into morphemes; a line with morpheme-by-morpheme gloss, where grammatical morphemes and pronouns are abbreviated and capitalized, whereas lexical morphemes are given unabbreviated and in normal letter case; and finally, a translation line. Examples not fitting in one line are divided into two lines, as shown in the example below (corresponding to example (8b.) in §2.4.2):

<table>
<thead>
<tr>
<th>Original sentence</th>
<th>Uwana ta-nɔŋ Yesu adà ̣ awṭāy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphemic gloss</td>
<td>REL 3PL-see‘PST Jesus 3SG-come.PST GOAL near</td>
</tr>
<tr>
<td>Original sentence (cont.)</td>
<td>à slaka aja-tà</td>
</tr>
<tr>
<td>Morphemic gloss line (cont.)</td>
<td>GOAL place POSS-3PL</td>
</tr>
<tr>
<td>Translation line</td>
<td>‘As they saw Jesus approaching them’</td>
</tr>
</tbody>
</table>

I added a few features not listed in the Leipzig Glossing rules. Grammatical categories that are expressed suprasegmentally and indicated by grave accent <◌̀> are glossed using the same diacritical mark, for example verb.stem‘PST or verb.stem‘IMP, which usually means that the stem vowel(s) carry an orthographically indicated tone.

Some morphemes are glossed differently in different examples depending on their function, which should not to be interpreted as analysis of them as distinct entities. For example, the simple preposition la is glossed either as SOURCE or as LOC, depending on its locational/motional meaning. In

\(^5\) The list of glossing rules can be found at [http://www.eva.mpg.de/lingua/resources/glossing-rules.php](http://www.eva.mpg.de/lingua/resources/glossing-rules.php)
some cases, several words were glossed as one, because the exact meaning of the individual words was not established, but the meaning of the word-group as a whole nonetheless clear and corresponding to the gloss (cf. ex. 28b.). Most examples contain a marking of the focus feature in bold characters.

All examples are provided with the reference to the New Testament book, as well as chapter and verse number, for example “(Mark 10:1)”. The translation line generally represents an attempt of a literal translation of the Matal verse used back into English, rather than the English text itself. As mentioned in §2.1, they can differ quite a lot in wording due to the apparent need of translators to paraphrase the source text to convey the same meaning. In a few cases, there are two translation lines, one reflecting more literal translation and a second, giving the lexicalized sense (cf. ex. 16).

3.4. Orthography

The text of the Bible translation into Matal that has been used for this study uses a spelling system that is fairly similar to those used for other languages in the area. It is for example used for descriptive purposes in studies on Central Chadic languages, e.g. Wandala or Marghi (Frajzyngier, 2012, pp. 632-697; Hoffman, 1963, p. 4). It is a writing system based on Latin alphabet, albeit with an additional set of the following characters also used in International Phonetic Alphabet: <ŋ, ɗ, ɓ, à, è, à> and <á>. At the same time, it does not use <q, j, c> and <x>. As far as accent marks on the vowels denoting letters are concerned, only grave accent marks are used in the Bible text, suggesting that it denotes the tone that is marked. It is common for Chadic languages to reflect tonal variation only partially or not at all in conventional writing. For example, no tonal variation is reflected in Hausa, and only some is reflected in Podoko. In specialized literature, however, all vowels are usually marked for tone with either grave or acute accent marks.

A quick comparison with the phonological description provided by Rossing (1978, p. 43) allows us to make several relevant observations regarding the relationship between the spelling system employed in the Bible text and the phonology of Matal.

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6 See the Bible text in Podoko for comparison: http://worldbibles.org/language_detail/sw/h/pbi/Podoko
Table 5: Summary of correspondences between the phonological notation (Rossing, 1978) and the spelling system used in the Bible text.

<table>
<thead>
<tr>
<th>Phonological notation</th>
<th>Example</th>
<th>Matal Bible text</th>
<th>Example from Bible text</th>
</tr>
</thead>
<tbody>
<tr>
<td>/â/</td>
<td>/âlâh/</td>
<td>&lt;à&gt; or &lt;a&gt;</td>
<td>alâh, paŋâw</td>
</tr>
<tr>
<td>/i/</td>
<td>/bìžâ/</td>
<td>&lt;i&gt;</td>
<td>bòzi</td>
</tr>
<tr>
<td>/ü/</td>
<td>/dûvâts/</td>
<td>by preceding &lt;d&gt;</td>
<td>dûvats</td>
</tr>
<tr>
<td>/ü/</td>
<td>/wûyân/</td>
<td>by doubling following &lt;y&gt;</td>
<td>wûyûññ</td>
</tr>
<tr>
<td>/u̯/</td>
<td>/tûwâñ/</td>
<td>&lt;u&gt;</td>
<td>tuwâñ</td>
</tr>
<tr>
<td>/ê/</td>
<td>/bêzal/</td>
<td>&lt;a&gt;</td>
<td>bòzal</td>
</tr>
<tr>
<td>/ê/</td>
<td>/tsâh/</td>
<td>&lt;a&gt; or &lt;a&gt;</td>
<td>tsûh, pàhâw</td>
</tr>
<tr>
<td>/ê/</td>
<td>/âgûwây/</td>
<td>&lt;e&gt; (i.e. any vowel with unmarked tone)</td>
<td>agûwây</td>
</tr>
<tr>
<td>/l/</td>
<td>/lûštûli/</td>
<td>&lt;sl&gt;</td>
<td>slesliû</td>
</tr>
<tr>
<td>/d/</td>
<td>/dûlûgâm/</td>
<td>&lt;zl&gt;</td>
<td>zûlagâm</td>
</tr>
<tr>
<td>/c/</td>
<td>/tûcîlìny/</td>
<td>&lt;ts&gt;</td>
<td>tûtsîlnîy</td>
</tr>
<tr>
<td>/g/</td>
<td>/jûm/</td>
<td>&lt;dz&gt;</td>
<td>dûzûm</td>
</tr>
</tbody>
</table>

As mentioned above, certain graphemes representing vowels may be marked for tone by means of grave accent marks. At the same time, although the lack of such accent marks over a letter might suggest that it does not carry marked tone, this is not necessarily the case. For example, the numeral ‘three’ is spelled <mâkar> in the Bible text. However, Rossing employs a phonological notation which represents the same word as /mûkûr/ (ibid. p. 44). As we see, both vowels are not indicated orthographically for tone in the Bible text.

This allows us to draw the conclusion that the orthography of the Bible text generally does not mark tone unless there is a risk of ambiguity that may not be resolved by the context. In this case, orthographically marking the tone becomes important for smooth reading and correct interpretation. This is especially true for verbs, which often encode grammatical information by means of tonal change (see §3.2. below). Nouns, numerals and adjectives, on the other hand, lack most of inflectional morphology of verbs, and therefore rarely mark tone in spelling. However, a noun that has been deemed to need a clarifying tonal accent mark will have invariant spelling in all contexts throughout the entire Bible text. This holds true with a few reservations, outlined in the following two paragraphs.

First, the monosyllabic preposition â and the particle kà are always written accented; they are also two of the most frequent words in the Bible text. Second, tonally marked <ê> is virtually absent from the Bible text, although it is present in a few items in Rossing’s word list. The vowel that it represents, [e], is actually ascribed no phonemic status within the five-vowel system, unlike /a/ (ibid. 52). Unfortunately, no further investigation of which underlying phoneme [e] could be an allophone of is provided. The only occurrence of a marked /ê/ which has an equivalent in the Bible text is /bêzal/ ‘to get’, spelled as bazal. The situation is very similar for the tonally marked vowels /i/ and /o/. Although /i/ is present in the Bible text, it only occurs in verbs, mostly indicating tense change (see §3.2.3. below). The marked /i/ in Rossing’s word list corresponds to <a> and <e> in the Bible text: /bìzi/ ‘little, child’ → bòzi. Although /o/ is ascribed phonemic status, it is a very rare phoneme and there is no lexical item with /û/ in the word list that also occurs in the Bible text.
Third, indicated tone carried by the vowel /u/ is never shown by accent mark in the Bible text - instead it is marked by one of the following ways. Tonally marked /u/ can be shown by doubling the following letter (/wùyāŋ/ 'sand' is written as wuyyaŋ). Another way is by showing the indicated tone of the vowel /u/ by preceding grapheme <ɗ>, that in this case receives the phonetic value of [d] along with indicating the markedness of the following <u> (/dùváts/ 'sickness' → duvats). Finally, orthographic indication of /u/-vowel’s tone is often simply omitted (/zùwáy/ 'fly' → zuway).

Furthermore, the Bible orthography does not maintain the distinctions between /š/ and /s/ (/plíš/ 'horse' → plis) and between /ž/ and /z/ (/žíl/ 'man' → zil) (ibid. p. 48). However, the lack of distinction between the latter pair of consonants is no surprise, since they seem to be near-allophones in complementary distribution. Namely, they almost never occur in the same contexts in Rossing’s word list: /ž/ appears in positions adjacent to /i/, whereas /z/ appears in all the other contexts. Tonal distinctions do not seem to play any role in allophonic distribution. There is only one exception to this, /nážàk/ ‘heron, gray’, where /ž/ occurs in a context different from that formulated above.

At last, Rossing makes a two-way distinction between the pairs of palatal stops /c/ and /ɟ/ in his analysis (ibid. p. 43), and dental affricates /dz/ and /ts/ (ibid. p. 47), which are indeed very close to each other in place of articulation. However, the Bible orthography does not maintain such distinction. Hence, both /cécìlíŋ/ ‘star’ and /tsàftsáf/ ‘north’ are spelled tsetsiliŋ and tsaftsaf using the digraph <ts> in the Bible text; both /jím/ ‘hundred’ and /dzá/ ‘person’ are spelled as dzim and dza respectively.

The voiceless dental and lateral fricative /tl/ and voiced dental and lateral fricative /dl/ represent the sounds that are usually denoted as [ɬ] and [ɮ] in the IPA and are analyzed as a part of the phonemic inventory (ibid p. 43.). In Bible orthography, they are represented by the digraphs <sl> and <zl> respectively, yielding correspondences as /tlètlíɓ/ ‘saliva, spittle’ → slesliɓ and /dlàgám/ ‘fence’ → zlagam.

Of course, the accuracy of correspondences between the Bible text orthography and the Matal phonology depends to a certain degree on several factors, such as accuracy of the phonologic analysis presented by Rossing (1978), the stability of the sound system during the time period between the conduct of the study and the Bible translation, and, finally, the absence of dialectal discrepancy between the two.

### 3.5. Limitations

The present study does not aim at a complete description of the topics discussed. This limitation applies especially to the description of verbal suffixes. It has to do with the difficulty of identifying their function with the help of the New Testament text. Some verbs occur with their suffixes in contexts for which the translation is identical to other occurrences of the same verbs, where they do not occur with the same suffixes. Compare the following examples:

(1) a. dza uwana a-woya-ŋ deda aŋ-ha kà
    person REL 3SG-love-? brother POSS-3SG TOP
    ‘a person who loves his brother’ (1 John 4:7)

   b. dza uwana a-woya deda aŋ-ha aw kà
    person REL 3SG-love-∅ brother POSS-3SG NEG TOP
    ‘a person who doesn’t love his brother’ (1 John 3:15)
As can be seen, the contexts in the two sentences are nearly identical, with the negation being the only distinguishing feature. Since negation cannot be attributed the triggering factor for the suffix -ŋ which is present in (1a.) but not in (1b.), the exact function of the suffix cannot be explained solely with support of the parallel text.

In addition, elaborate study on tense and aspect falls outside of this study. These categories belong to the more intricate parts of the grammars of Central-Chadic languages, which is demonstrated by Swackhammer (1991) in the study of Podoko verbs. Expressing tense and aspect involves various prosodic phenomena which cannot be studied satisfactorily through a text which does not fully account for the tonal distinctions in the language.

Furthermore, in a similar study, the problem of analyzing a language lacking written traditions is discussed (Svärd, 2013). The language of the Bible text might in such cases not fully represent the variety as it exists in the speech community. This limitation applies to current study to the same degree.

4. Results

This section starts with a description of the orthography in Matal New Testament along with a comparison with the phonological notation used by Rossing (1978). Shedding light on the differences and correspondences between the orthography used in Matal Bible and Rossing’s phonological notation helps to clarify the underlying phonetic foundation of the dataset used for the current study.

The subsections which follow are largely structured around analysis of the lexical categories that were identified. First, different characteristics of verbs, which are the lexical category with the most complex morphology, are presented. Second, an account for properties of pronouns, nouns, modifiers and prepositions is given. After the description of these lexical categories, some syntactic phenomena which include word order, topicalization and negation, are presented. At last, lexicology of Matal, as to its native vocabulary and lexical borrowings, is discussed.

4.1. Verbs

Matal verbs demonstrate various forms formed by attaching affixes with various grammatical meanings to the stem. The basic order of the verbal affixes is characterized by both prefixation and suffixation. Matal verbs inflect for person, number, tense/aspect, mood and object agreement. The basic order of morphemes in a Matal verb is typical for Central Chadic languages: it is, for instance, very similar to the order of the constituents in a Mofu verb phrase (bracketed elements are non-obligatory):

$$\text{VP} \rightarrow \text{SUBJ (PROG/HAB) (TENSE) verb (OBJ) (PERF) (COMPL)}$$

(adapted from Hollingsworth, 1991, p. 241)

As can be seen, the only obligatory elements in the Mofu verb phrase are the verb and the subject prefix. This is standard in Central Chadic languages. Although no morphological marking of progressive/habitual or the perfective within the verb has been identified in Matal, the order of grammatical categories is the same. Compare with the sequence of the affixes in Matal verb gadàvòl,
‘I will give to him’. The sequence of the grammatical categories expressed by the morphemes in the verb is \textit{SUBJECT--TENSE/ASPECT--stem TENSE/ASPECT--INDIRECT.OBJECT}:

\begin{verbatim}
(2)  go-\textit{dà-và-ł}  
    1SG-FUT-give'FUT-3SG.IO
    I will give to him
\end{verbatim}

The question arises whether to analyze the bound morphemes of the verbs other than stems in Matal as affixes or clitics. A clitic is defined as a syntactically free but phonologically bound element (Kroeger, 2005, p. 317). The relevance of the question is furtherly increased by the fact that in many Chadic languages generally, and in the closely related Wandala and Margi particularly, tense and subject pronouns are analyzed as attached clitics that can be separated from the stem, rather than proper affixes (Frajzyngier, 2012, p. 181; Hoffman, 1963, p. 151). The orthography of the Matal Bible treats those morphemes as bound morphemes. However, even “if the bound forms are always attached to the verb, they could be either clitic pronouns or agreement markers” (Kroeger, 2005, p. 326). Furthermore, the orthography of the Matal Bible is not always entirely consistent, regarding different orthographical treatment of plural prefixes.

Certain morphemes found in the text, such as \textit{ala} ‘away’ are written separately, thus suggesting interpretation of them as separate words by native speakers, although morphemes similar in form and meaning that are found in neighboring languages are analyzed as verbal extensions and parts of the verbal complex, cf. Swackhammer (1991, p. 107). Generally, an important tool in determining the wordhood of morphemes in Chadic languages is the analysis of the morpho-phonological process of prosody palatalization and whether it spreads across morpheme boundaries, see Friesen & Mamalis (2008). As no such analysis is aimed at here, we will simply accept the orthographical conventions of the New Testament text and analyze verbs as only affixed with morphemes expressing subject, tense/aspect, mood, indirect object, and the suffixes \textit{-V̱} and \textit{-la}.

\subsection*{4.1.1. Verb stems}

Matal verb stems are mostly monosyllabic, with C(C)V(C) structure, though disyllabic stems are also possible, cf. \textit{kudak} ‘to expel’. Disyllabic stems are also common when the verb is formed by reduplication, such as \textit{tsutser} ‘to write’. However, the vast majority of the verb stems are monosyllabic. The stem vowel is subject to tonal change associated with tense/aspect, albeit it remains constant if tense/aspect is expressed morphologically by the prefix \textit{-da/-dà}. There is an alternation between the stem vowels \textit{<a>} and \textit{<ə>}, which also occurs in other parts of the verb.

\subsection*{4.1.2. Subject prefixes}

The first affix in the linear structure of a Matal verb in a simple declarative sentence is generally the subject prefix. There are six subject prefixes. Their grammatical function is indicating subject person and number. A distinction in first plural exclusivity/inclusivity has not been observed, although clusivity is a common feature in Central-Chadic languages.

Use of subject prefixes is compulsory for all personal verb forms in a clause and not only on the first one, but they do not occur on non-finite verb forms formed by \textit{ma-} (see §4.2.5) and second person imperative. Subject prefixes cannot be dropped even if the referent is represented by a noun or proper name in the clause. The subject prefixes correspond partially to the independent personal pronouns (see §4.2). The subject affixes can be summarized in the table below.
Table 6: Pronominal subject prefixes

<table>
<thead>
<tr>
<th>Person</th>
<th>Affix</th>
<th>Person</th>
<th>Affix</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>gə-</td>
<td>1PL</td>
<td>mə-</td>
</tr>
<tr>
<td>2SG</td>
<td>ka-</td>
<td>2PL</td>
<td>ka-.aw</td>
</tr>
<tr>
<td>3SG</td>
<td>a-</td>
<td>3PL</td>
<td>ta-</td>
</tr>
</tbody>
</table>

The second person plural is formed by a circumfix, as illustrated by the verb nəŋ ‘see’ in the example (3) below.

(3) *Baŋa ka-nəŋ-aw tatak uwaga*
    if 2PL-see-2PL thing DEM
    ‘if you see these things’

When the suffix of the 2PL circumfix that follows the verb stem is followed by indirect object and other suffixes, the morpheme-final semivowel /w/ is geminated yielding forms like -awwal and -awwaŋ.

Generally, the pronominal subject prefixes that are used ubiquitously eliminate the need for using independent pronouns (see §4.2), which are normally dropped. However, they can appear right before their affixed counterparts, for instance when focused by negation:

(4) *Mapəhay uwaŋay kà gi gə-pəh aw*
    law REL TOP 1SG 1SG-speak NEG
    ‘The law, which is commanded not by me (but by God)’ (1 Cor 7:10)

Pronominal affixes are also used for the purposes of expressing the equivalent of English passive voice. In such constructions, the third person plural, indicated by the corresponding verb subject prefix ta-, is made the subject of the clause:

(5) *Uwana ta-yəỳà la Masəndōk uwaga Masəndōk*
    REL 3PL-give.birth PST source DEM spirit
    ‘What is born from Spirit, is Spirit’ (John 3:6)

The personal affixes of Matal have corresponding cognate subject pronouns in Wandala. The subject pronominal systems of both languages differ mainly in the first singular demonstrating no immediate resemblance and presence of distinctions in inclusivity for first plural and second plural in Wandala:

Table 7: Wandala subject pronouns (Frajzyngier, 2012, p. 181):

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 yə/yə</td>
<td>mà     (INCL)</td>
</tr>
<tr>
<td></td>
<td>myà    (INCL)</td>
</tr>
<tr>
<td></td>
<td>nà     (EXCL)</td>
</tr>
<tr>
<td>2 kà</td>
<td>kwà</td>
</tr>
<tr>
<td>3 à</td>
<td>tà</td>
</tr>
</tbody>
</table>

Furthermore, the apparent cognates of the personal affixes of Matal are analyzed as subject pronouns and not as prefixes. The fact that the subject pronouns, on the one hand, can be used together with non-verbal predicates and, on the other hand, can be separated from the verb by other words, is used to show this. (ibid. p. 182). This analysis might also be adequate for Matal, although the compulsory use of the person prefix on all verbs in a clause speaks in favor of analyzing
them as part of verbal morphology rather than independent morphemes. No cases of the separation of the subject prefixes are found in the text.

4.1.3. Verbal suffixes

Matal verbs have both prefixes and suffixes, and while the former are mandatory in most forms of the verb (except for the imperative), suffixes do not occur in all verb forms. That is, subject prefix and the verb stem constitute the minimal necessary verbal morphology in Matal. The total number of suffixes that do occur, however, is rather large and cannot be determined with greater precision without a more extensive study of the vowels in them. It is for instance not clear whether the suffixes containing <a> and <ə> are allomorphs or morphemes with distinct function.

Despite this, we can distinguish between three large groups of suffixes, which are the most frequently occurring. They are -əl, -əŋ and -ə. Some of the examples include a-gə́d-əl from gə́d ‘to tell, say’, zə́b-ə́wə́w-əl from zə́b ‘to take’, a-tsə́n-əŋ from tsə́n ‘to hear/understand’ a-deh-əŋ from deh ‘to do’ and ta-ŋə́-lə from ŋə́ ‘to see’.

Central Chadic languages in the region often have suffixes or enclitics for indirect objects in the same position, which seems to be a widespread areal feature. Thus, Podoko and Moloko have both suffixes in the immediate post-stem position that express “the recipient, or beneficiary, and for some verbs a patient”, (Friesen & Mamalis, 2008, p. 21; Swackhammer, 1991, p. 111).

For most transitive verbs in simple declarative sentences, the direct object follows immediately after the verb stem, without any suffixes:

(6) a. Ta-zə́b və́kə́ əŋə́ Yesu
   3PL-take’PST body POSS Jesus
   ‘They took the body of Jesus’ (John 19:40)

   b. Azə́-anik ta-kə́s azə́-mə́gə́mə́ rə́gə́ha ta-kə́d’ azə́-anik
   PL-other 3PL-take’PST PL-slave and 3PL-kill’PST PL-other
   ‘The others seized slaves and killed them’ (Matt 22:6)

Transitive verbs are suffixed by the suffix -(V)ŋ in some contexts. In simple declarative clauses, -(V)ŋ serves as direct object, especially for non-human objects. It such clauses, it appears in similar contexts as the English impersonal pronoun ‘it’:

(7) a. Suʃə́l a-woya-ŋ
   lord 3SG-want-DIR.OBJ
   ‘Lord wants it’ (Luke 19:31)

Suffixation by -(V)ŋ also occurs in relative clauses introduced by the relativizer uwana when the suffixed verb refers back to an earlier introduced noun phrase in the semantic role of patient. In (8a.), -(V)ŋ is suffixed to naŋ ‘to see’ and indicates direct object, replacing the anaphoric pronoun masla. In (8b.), the suffix appears in the verb woyə́ ‘to love’, which constitutes the relative clause introduced by uwana. The third person singular prefix a- on the verb refers back to Zazagala ‘God’, which is the subject in the main clause and -ŋ refers back to dəzə́ ‘person’, which is the indirect object in the main clause. In both sentences, the noun that -(V)ŋ refers back to has the semantic role of patient.

(8) a. Suʃə́l uwana a-mə́tə́w-əy aw, dəzə́ a-naŋə́-əŋ aw
   king REL 3SG-die-? NEG person 3SG-see-? NEG
   ‘The King who doesn’t die, who people don’t see’ (1 Tim. 1:17)
b. Zzazagola a-wula matsihila kà á dza uwana a-woya-ŋ
   God 3SG-give wisdom TOP GOAL person REL 3SG-love-ŋ?
   ‘God gives wisdom to a person that he loves’ (Heb. 12:6)

By the contrast, in (9a.) woya is not suffixed by -(V)ŋ despite also being the predicate in a relative clause introduced by the relativizer uwana. The verb is not suffixed with -(V)ŋ because it does not refer to an earlier introduced noun phrase in the semantic role of patient. The latter, Zzazagola ‘God’, follows directly after the verb instead. The suffix that appears in verbs in relative clauses can be replaced by the anaphoric pronoun masla, as in (9b.) if -(V)ŋ could be expected in (9a.), it would be in the verb sal ‘to know’, replacing the anaphoric pronoun masla. However, sal does not occur suffixed by -(V)ŋ anywhere in the text.

(9) a. Dza uwana a-woya Zzazagala kà, Zzazagala a-sól masla
   person REL 3SG-love God TOP God 3SG-know 3SG.ANPH
   ‘A person who loves God is known by him’ (1 Cor. 8:3)

b. Dza uwana a-da-v lov ay-ha à Kristu, ŋgaha a-woya masla
   person REL 3SG-PST-give heart POSS-3SG GOAL Christ and 3SG-love 3SG.ANPH
   ‘A person who gave his heart to Christ, loves him’ (1 Tim. 4:12)

However, the suffix does occur in relative clauses in which the direct object is overtly present immediately after the verb as well. In (10), the syntactic environment in which -(V)ŋ appears is essentially the same as in (9a.), in which it does not occur.

(10) Dza uwana a-woya-ŋ deda ay-ha kà masla, kona aŋa Zzazagola
   person REL 3SG-PST-? brother POSS-3SG TOP 3SG.ANPH son POSS God
   ‘A person who gave his heart to Christ, loves him’ (1 Tim. 4:12)

The -(V)ŋ suffix is inflected for person and probably number. However, the only variant of the suffix that was identified is -gaŋ for first person singular:

(11) a. batem uwana ta-dâ-dâh-gaŋ
    baptism REL 3PL-FUT-do-1SG.
    ‘the way they baptized me’ (Mark 10:39)

As we have seen, -(V)ŋ is a frequent suffix in transitive verbs, often used to refer back to mark the patient. Another suffix, -(V)l, is also very frequent and indicates the indirect object, mostly in the semantic role of recipient. Generally, the suffix seems to be in complementary distribution with the goal preposition à that follows the unsuffixed verb stem and does not co-occur with it. Verbs such as va ‘to give’ often have noun phrases in the semantic role of recipients as their arguments. For such verbs used in relative clauses, -(V)l is obligatory if the recipient is introduced in the main clause. In (11a.), the suffix refers back to the proper noun Samon ‘Simon’, which is syntactically the head of the matrix clause. In the simple clause in ex. (11b.), the suffix is not used, because its function is fulfilled by the goal preposition à.

(12) a. Samon uwana Yesu a-và-l slom Piye
    Simon REL Jesus 3SG-give.PST-IO name Peter
    ‘Simon, who Jesus named Peter’ (Mark 3:16)
Jesus named them Boanerges (Mark 3:17)

Table 8: Person and number inflections of the indirect object suffix -(V)l

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<td>2</td>
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<td>-akul</td>
</tr>
<tr>
<td>3</td>
<td>-al</td>
<td>-ah</td>
</tr>
</tbody>
</table>

b. Yesu a-và à atà sləm Bowanergès

‘Jesus named them Boanerges’

In the neighboring languages which have suffixes similar in function, there is a set of suffixes for all persons. In Matal, at least the indirect object –(V)l has a set for 2nd and 3rd persons, whereas the first person uses periphrastic constructions with preposition à:

Table 8: Person and number inflections of the indirect object suffix -(V)l

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<td>-akul</td>
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<td>3</td>
<td>-al</td>
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Some verbs which usually do not have arguments in semantic roles of beneficiaries/recipients, still take the suffix -(V)l which then expresses source. This does not alter the meaning of the word or the syntax of the verb phrase, as the direct object is not overtly present. Consider the example (14) below featuring zab ‘take’. This reminds of how dative pronouns in German can denote movement away from the object when used with verbs that do not provide recipience in their basic meaning, cf. man hat ihm sein Spielzeug genommen ‘he’s been deprived of his toy’. The example below demonstrates also how all three suffixes discussed in this section may be combined within the same word:

(14) b. ama kà ta-zàb-al-la-ŋ ala à abà bəzi-ga

‘the little will be taken away from them’ (Luke 8:18)

Third suffix discussed in this section is the suffix -la.

There are contexts in which transitive verbs take on the suffix -la despite their direct object being overtly present and following immediately afterwards. Just like in the example above, this seems to be connected to semantic constraints on their basic sense. Nəŋ ‘see’ usually does not have an argument with the role of beneficiary/recipient, but rather one of patient. In this case, enhancing the verb with the suffix -la alters the meaning completely, giving it the sense ‘supervise’, ‘guard’. If the verb had been used in its basic sense, the clause would look the same but not contain -la. Compare the clauses below:

b. Yesu a-và à atà sləm Bowanergès

‘Jesus named them Boanerges’ (Mark 3:17)
The two object suffixes usually come in the order given in the examples (14-15). However, the reversed order is also possible if the verb is prefixed by the tense/aspect morpheme \(-d\text{-}\)/\(-dà\):

\[(16)\]
\[
ka\text{-}dà\text{-}pak\text{-}aww\text{-}ag\text{-}la
\]
2PL-FUT-make-2PL-?-?
‘you will make it to’

### 4.1.4. Tense and aspect

It is unclear whether tense and aspect can be separated from one another in Matal. In many Chadic languages, such as Moloko (Friesen & Mamalis, 2008, p. 26), verbs are mainly marked for perfectivity and not for tense. The comparison of the parallel Bible text with its Matal translation gives way to the observation that the past tense in English corresponds rather well to the marked tense/aspect feature of Matal. Probably, there is no clear-cut tense marking that can be separated from aspect in Matal, similarly to its neighbor languages, but I will analyze morphological changes associated with past tense in English text as tense in Matal as well\(^7\). Generally, tense is associated with the marked tone denoting past tense/perfective in Matal. As mentioned in §4.2.1, marked tone is denoted by grave accent mark over the vowel. Present tense is unmarked.

The prefix \(-d\text{-}\) indicates past tense/perfectivity, whereas the same prefix with marked vowel, \(-dà\)-indicates future tense/imperfectivity. As will be seen below, past tense can also be marked by tonally marking the verbal stem vowel(s), without involving the \(-d\text{-}\)-prefix.

\[(17)\]
\[
dì\text{-}gw\text{-}aaw\text{-}al\quad gòl\quad vòk\quad kà\quad ka\text{-}dà\text{-}bòz\text{-}aw\text{-}wàl
\]
believe IMP-2PL-3.SG.IO head body TOP 2PL-PFV-find-JO
‘believe that you have received it’ (Mark 11:25)

\[
ka\text{-}dà\text{-}daw\quad á\quad makoray\quad Zòzogòla\quad aw
\]
2PL-FUT-go GOAL realm God NEG
‘You will not enter Gods heaven’ (Matt 18:3)

Similar systems are present in Wandala (Frajzyngier, 2012, crp. 390), Podoko (Swackhammer, 1991, p. 105), and Mofu (Hollingsworth, 1991, p. 246), where morphemes similar in form, \(dà\) and \(da\) respectively, are in use for same purposes. In such cases, it is a grammaticalized form with a former lexical meaning ‘go’, which is generally a frequent source for grammaticalized future tense (Heine &

\(^7\) It should be kept in mind, that this is merely a simplification made for the sake of first approximation and that future field-work with native speakers could clarify the relation between tense and aspect in Matal. Among other things, it could reveal a rather complicated aspectual (rather than temporal) system akin to that in Podoko, which possesses an intricate tone-based system distinguishing between perfective, imperfective, and aorist aspects combining with several additional mood categories (Swackhammer, 1991, p. 102).
Kuteva, 2004, p. 161). Matal has a similar verb stem with the meaning ‘go’, *day*, which allows us to suppose that it is the source for the grammaticalized future tense also in Matal:

(18) *Ka-da-w* aw  
2PL-go-2PL NEG  
‘Don’t go!’

Beside indicating future tense, defined as the tense localizing events that lie “ahead” of the speech situation in time (Kroeger, 2005, p. 148), the prefix *-da-* is also used to encode imperative mood. This is often the case if the verb in question follows another verb used in imperative mood, realized in morphologically unmarked, i.e. affixless, form and can be viewed as an instance of lexical, rather than morphological, imperative.

(19) *Dàw, ka-dà-pɔh-aw*  
go 2PL-FUT/IMP-speak-2PL  
‘Go and tell’ (Luke 17:14)

The most common way of past tense formation, however, is not by prefixation, but rather by changing the last stem vowel from unmarked to tonally marked.

(20) a. *Gulǝf a-nọ́g* à żagóla a-gód-ǝl  
blind 3SG-see PST GOAL heave 3SG-say’PST-3SG.IO  
‘The blind looked up and said’. (Mark 8:24)

b. *ŋgaha a-nọ́g* à lig kà  
and 3SG-see GOAL back TOP  
‘and he looks back’ (Luke 9:62)

However, if the verb is enhanced with object suffixes or the 2PL-suffix, the marked tone is realized “to the right”, i.e. to the non-stem morphemes in the word, whereby the stem vowel loses it. There may be up to three suffixes carrying tense/aspect-associated tone, would they all be in the same word: -2PL, direct object/subjunctive and indirect object suffixes.

(21) *ka-tsɔ̀n-āw-âŋ*  
2PL-hear-2PL PST-DIR.OBJ PST  
‘you heard’

In the example above, the root *tsɔ̀n* ‘to hear/understand’ does not receive the indicated tone in spite of the verb form expressing past tense/perfective aspect, because the tone has shifted to the right onto the second person plural suffix and the pronominal object suffix -(V)ŋ.

4.1.5. Infinitives

As mentioned above, Matal verbs can come unprefixed, when used in certain imperative forms. In other cases, they always are prefixed. The vast majority of verb prefixes are pronominal subject prefixes. However, there is a non-personal verb form marked by the prefix *ma-*. In many ways it behaves like infinitives in many Indo-European languages and co-occurs in sentences which translate the English infinitives verb marker ‘to’, with a few differences. The *ma*-prefix can be included into possessive constructions with *aŋa*, that is, become a part of the nominal phrase. Often, *ma*-prefixed forms can be analyzed as verbal nouns. Second, many instances of action nouns that have related verbs or are derived from them with help of various derivational suffixes in English (‘prayer’ or ‘death’) are derived with *ma*-prefix and -ay-suffix in Matal: *mamatsay* ‘death’ from the verbal stem
mats ‘to die’ or mahabay ‘song’ from hab ‘to sing’. Actually, this is a very common way to derive nouns in Matal. Finally, verbal nouns can take the same object suffixes and aspect prefixes as the finite verbs.

The ma-prefix is also used in a similar way to the English present participle:

(22) a. azla-môna ma-zâb hadama la azla-môna ma-zâb zil.
    PL-person PTCP-take tax and PL-person PTCP-take man
    ‘those taking taxes and those taking men’
    That is, ‘tax collectors and prostitutes’ (Matt. 21:31)

b. Azla-malika ta-dâ-sa â ahôŋ kà
   PL-angel 3PL-PUT-come GOAL down in.order.to
   ma-vâh azlamawisig ala la azladelga
   INF-give PST-3PL.IO PL-bad-ADJ away SOURCE PL-good-ADJ
   ‘Angels will come down to separate the bad from the good’ (Matt. 13:49)

Verbal nouns can also be interpreted as active participles. When functioning as such, they follow the head noun and precede the noun complement. Cf. the following example:

(23) azla-môna ma-pâh-la wakîtà
    PL-person PART-speak PST-IO book
    ‘People showing books’, (i.e. scribes) (Matt. 5:20)

4.1.6. Body-part verbs and light verb constructions

Matal has a way to form complex verbs that is also present in many other Chadic languages and which Friesen & Mamalis (2008) call ‘body-parts verbs’. They remind of light verb constructions in Turkic or Iranian languages. In Turkic languages, the meaning of a light verb construction is often hardly predictable from the separate senses of the light verb and its non-verbal element. For example, the Azerbaijani light verb construction başa düşmak, literally ‘to fall on head’, means ‘to understand’. In Matal and other Chadic languages, the main difference between light verb constructions and body-part verbs is that the noun in the latter can serve as object if the “real” object having the semantic case role is not overtly present. These constructions are very similar to those in Moloko, differing from them by the set of the body part nouns used. In Matal, these nouns are mainly vok ‘body’, gal ‘head’ gay ‘mouth’ and slam ‘ear’. The examples (24 b,c) demonstrate the basic use of the verb slala ‘to send’ and the body-verb construction with vok ‘body’ (24 c.), turning it to the complex verb ‘to be able’. The verb is found almost exclusively with this derived sense throughout the Bible text.

(24) a. uwâ a-diŋ gal â gay gami â vok uwâ?
    who 3SG-VERB8 head GOAL word 1PL.POSS GOAL body who
    ‘Who believes our words?’ (John 12:38)

b. uwana a-slâlâ-h kà atâ â way gesina
   REL 3SG-send-3PL.IO TOP 3PL GOAL DIR all
   ‘all those that he sends to them’ (Luke 13:34)

8 The basic meaning of this verb could not be established, since it is only used within the body-part-construction.
The body-part verbs often have senses very different from the ones expressed by their corresponding basic verbs. Thus, tsən ‘to hear’ forms the sense ‘to discuss, to decide’ when combined with vok ‘body’ and gay ‘mouth’, showing that more than one body-part concept can participate in the formation of a single body-part verb construction. All body-part concepts in body-part verb constructions also form grammaticalized complex prepositions (see §4.6). However, prepositional phrases formed by these concepts as complex prepositions are analyzed as a distinct phenomenon, since they do not convey fixed idiomatic senses as in the case with individual body-part verbs.

There is another type of verb constructions that can be analyzed in terms of light verb constructions. They differ from the above mentioned body-part verbs in that the noun precedes the verb and does not function as the pronominal object. This type of construction involves body part concepts with metaphorical meanings as well, cf. ləv va, ‘to be amazed’, lit. ‘to give heart’.

4.1.7. Mood

Mood is defined as “grammatical reflection of the speaker’s purpose in speaking”, with major mood categories being declarative, imperative and interrogative (Kroeger, 2005, p. 163). Indicative mood, roughly speaking, reflects statements and is usually unmarked, just as the Matal verbs do not mark indicative in any special way. The two moods that are expressed by the means of verbal morphology and prosody are imperative and subjunctive.

Imperative is generally associated with indicated tone in root vowels. The otherwise obligatory personal prefixes are not used in second person singular imperative. For 2PL, -aw, the second part of 2PL person circumfix ka-...-aw is suffixed to the verb. Person suffixes are used for first person plural and correspond to the English construction ‘let us’ followed by a verb.

(25) a. Bās à an məvisiga uwana mə-ðəh-ŋ gesina
forgive* IMP GOAL 1PL missdeed REL 1PL-do?: all
‘Forgive us the misdeeds that we have done’ (Matt. 6:12)

b. Mə-kədf masla
1PL-kill* IMP 3SG.ANPH
‘Let us kill him!’ (Matt. 21:38)

Interestingly, different rules apply for the formation of the negative imperative. First, indicated tone only appears on the verbal suffixes, if any. If the negated verb in the imperative mood is unsuffixed, its root vowels do not receive an indicated tone. Second, all verbs are obligatory prefixed with person prefixes.
(26) a.  
\[
\text{Ka-ɗəh-ŋ} \quad \text{kiya uwaga} \quad \text{aw} \\
\text{2SG-do-IMP that} \quad \text{NEG} \\
\text{Don’t do that! (Rev. 19:20)}
\]

b.  
\[
\text{Ka-kəɗ} \quad \text{dza} \quad \text{aw} \\
\text{2SG-kill that person} \quad \text{NEG} \\
\text{Don’t kill people (Rom. 13:19)}
\]

Subjunctive/conditional is encoded by the suffix -a/ə. Some verbs occurring in relative and subordinate clauses are only found suffixed with this morpheme. This is most salient in sentences where these verbs are introduced by the relative conjunction uwana ‘which’ and baŋa ‘if’.

(27) a.  
\[
\text{Dza uwana a-nəŋ-a gi, a-nəŋ-a dza uwana a-səŋl gi} \\
\text{person REL 3SG-see-SUBJ 1SG 3SG-see-SUBJ person REL 3SG-send-PST 1SG} \\
\text{‘Whoever sees me, sees the one who sent me’ (John 12:35)}
\]

b.  
\[
\text{baŋa a-nəŋ-a kəɗa fəta} \\
\text{if 3SG-see-SUBJ dog wild} \\
\text{‘would he see a wolf’ (John 10:12)}
\]

4.2. Pronouns

Matal has six personal pronouns. Since grammatical gender is absent, there is no distinction between masculine or feminine third person singular, nor is the distinction maintained in any other person or number. Personal pronouns are used as subject as well as object forms, although independent object pronouns are generally dropped and substituted by pronominal verb suffixes.

Table 9: Independent personal pronouns

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. gi</td>
<td>anu</td>
</tr>
<tr>
<td>2. kak</td>
<td>kə</td>
</tr>
<tr>
<td>3. ə</td>
<td>ațə</td>
</tr>
</tbody>
</table>

When emphasis needs to be put on the 3SG referent, either object or subject, the anaphoric pronoun masla is used, probably because of the inconvenience of emphatic stress being put on the short independent pronoun ə:

(28)  
\[
\text{Gə-səŋl masla aw} \\
\text{1SG-know 3SG.ANPH NEG} \\
\text{‘I don’t know him’ (Matt. 10:33)}
\]

Possessive pronouns are listed below:

Table 10: Possessive pronouns

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ənəl</td>
</tr>
<tr>
<td>2.</td>
<td>əŋkəl</td>
</tr>
<tr>
<td>3.</td>
<td>əŋlətə</td>
</tr>
</tbody>
</table>
4.3. Nouns

Matal does not have much nominal morphology. This state of affairs is common among Chadic languages, cf. Moloko nouns, which usually only consist of a simple or reduplicated noun root (Friesen, 2017, s. 129). Nominal morphology in Matal consists largely of the plural prefix azla-. However, although the merged spelling of azla-prefixes does suggest that it is treated as a single phonological word together with the noun that it is attached to, sometimes it is written detachedly, typically this is the case when the pluralized referent is a proper noun.

Nominal morphology in Matal consists largely of the plural prefix azla-. However, although the merged spelling of azla-prefixes does suggest that it is treated as a single phonological word together with the noun that it is attached to, sometimes it is written detachedly, typically this is the case when the pluralized referent is a proper noun.

The plural prefix azla- may be used only once per noun phrase, normally on the first constituent, cf. azla-maŋ gudan, ‘large villages, towns’ azla-maŋ dza ‘big people, people in high positions’.

However, the main noun can be prefixed by the plural prefix as well if it is necessary to emphasize the number of it, cf. azlaslodzi aŋa azla Rom ‘Roman soldiers, lit. soldiers of Romans’.

Possessive phrases are formed by the possessive particle aŋa as in (29) or by simple juxtaposition of the phrase head and its dependent, as exemplified in (30):

(29) Azla-slodzi aŋa azla Rom
    PL-soldier POSS PL Rome
    ‘The soldiers of the Romans’ (Mark 15:39)

Possessive phrases which are formed by simple juxtaposition differ from constructions with the possessive particle aŋa in terms of relation of the head noun to the dependent noun. In the latter, the role of the dependent noun as a possessor is emphasized, while in juxtaposed compounds the dependent noun is a property of the head noun. Compare wakitā Zzagala ‘God’s book’, wakitā seriya ‘law’ (lit. ‘judgment book’) vs. wakitā aŋa Musa ‘book of Moses’, wakitā aŋa sifa ‘book of the life’ wakitā aŋa Mahabay, ‘book of the songs’ (i.e. Book of Psalms). However, juxtaposition of nouns can be used also when the dependent noun is a possessor of and not a general property of the head noun. Thus, possessive constructions of both types are found in expressions of the type mtɔa aŋa Samon and mtɔa Samon, both meaning ‘Simon’s house’.

4.4. Modifiers and determiners

Modifiers are adjuncts to nominal phrases. They are usually adjectives or adpositional phrases (Kroeger, 2005, p. 87). Determiners are lexical or grammatical elements that provide information about the noun phrase such as definiteness, number, distance from the speaker and, in some languages, gender (ibid. p. 89). In this section, some of the common modifiers found in Matal, adjectives and demonstratives, will be discussed. When discussing demonstrative, I will distinguish their attributive and pronominal use. Compare sentences where the demonstratives are used attributively (these people are well-educated) and pronominally: (These people are more educated than those).
4.4.1. Adjectives

Adjectives are described as a lexical category whose primary function is to modify the noun phrase. They can also be modified themselves, for example by an intensifier, usually an adverb. Adjectives are often derived from nouns, such as English *hungry* from *hunger*, but concepts that are derived from nouns in some languages may be derived from verbs in other, or be undervived. In some languages, adjectives can be distinguished as a lexical category with distinct morphological properties – as is quite typical of Indo-European languages – whereas in other languages they behave much like nouns or verbs. It is the similarity in syntactic function and meaning that allows us to single out adjectives as a distinct lexical category.

Due to this, adjectives may be more or less saliently distinguished from nouns or verbs in terms of morphosyntax, and it has been suggested by Dixon (2004, p. 12) that a distinct adjective class can be recognized for every language. He proposed a broad classification into two large categories: verb-like and non-verb-like adjectives. When functioning as intransitive predicates, they are classified as verb-like, whereas when functioning as copula compliments – as non-verb-like (ibid. p. 33). Applying these morpho-syntactic criteria to Matal adjectives, it becomes evident that they are noun-like in Matal.

One of the fundamental divisions that can be made cross-linguistically regards the position of the adjective phrase in relation to the noun. The dominant word order in West Africa is noun-adjective; this is also the case for most Chadic languages, such as Wuzlam. However, adjective-noun word order occurs as well. Yet other languages, such as Podoko, have no dominant word order within the noun phrase (Dryer, 2013). In Matal, adjectives generally follow the noun they modify:

(31) a. *Masla kà dža del-ga*
   
   3SG.ANPH TOP person good-ADJ
   
   ‘He is a good person’ (John 7:12)

There is a small group of adjectives in Matal that precede the nouns rather than follow them. At least two pairs of antonyms have been identified in this group: 1) *mànj ‘big, important’, cf. màn dža ‘important person’; bəzi ‘small’, cf. bəzi wakìtà ‘small book’, 2) *maw ‘new’, cf. maw tetavi ‘new way’, and cf. məviya ‘old’ məviya bebi ‘old snake’. This group of adjectives is furtherly discussed in the end of §3.5.1.

Certain derived adjectives are used in the argument position after transitive verbs, a position where we usually find nouns. Compare *delga ‘good* used as a noun modifier (32.a.) and direct object (32b.). Just as in *madah delga ‘to do good*, the derived adjective *mawisiga* can also be found in the seeming direct object position in *madah mawisiga ‘to do evil*.

(32) a. *Anu azla-dža del-ga*
   
   1PL PL-person good-ADJ
   
   ‘We are good people’ (Matt 23:28)

b. *Dža uwayne la masal […] masla a-dah del-ga*
   
   person REL LOC love […] 3SG.ANPH 3SG-do good-ADJ
   
   ‘Person who loves, does good (i.e. does good deeds)’ (1 Cor. 13:4)

After having discussed the word order in Matal adjectives, we will now turn to the adjectival suffixes. In the examples (31-32) above, *delga ‘good* has the suffix -ga. It is also found on most other adjectives, cf. *zilga ‘male* from *zil ‘man* and *misga ‘female* from *mis ‘woman*. It can be analyzed as an adjectivizer, defined as “a suffix which derives adjectives, either from verbal stems or from nouns”
The few adjectives that precede nouns can also be suffixed by -ga, in which case they move to post-nominal position, cf. bafta mănga ‘big cry’, from măng ‘big’. In fact, suffixed variants of the four adjectives that can precede the nouns are far more frequent than the unprefix ed ones.

Derivation of adjectives from verbal elements is also common: mawisiga ‘bad’ is derived from the verbal noun mawis, from wis ‘to destroy’. Adjectives with -ga may take on the plural prefix when they function as nominalized adjectives syntactically.

Adjectives preceding the noun may also take on the plural prefix azla-, cf. azla-măng guðan ‘large villages’. In such instances, the prefixation of the adjectives can be analyzed as a scope effect of the prefix azla-, which applies to the entire noun phrase rather than to individual constituents.

The adjectivizer -ga in delga ‘good’ is perhaps best analyzed as a fossilized suffix that has become inseparable from the root, as no un derived item *del without -ga can be found.

At last, we will put the four adjectives that precede nouns into the context of similar phenomena in African languages. In many languages on the continent, there exists a closed class of adjectives usually consisting of a small number of items that show distinct morphosyntactic properties. This class is often referred to as “true” or “primary adjectives” (Segerer, 2008, p. 3). A description given for Hausa “primary adjectives”, referred to as “morphologically simple adjectives”, is typical:

Adjectives are defined syntactically by their use as nominal modifiers or predicators and semantically by their meaning. Morphologically simple adjectives are generally indistinguishable from nouns (...) Adjectives can nevertheless be distinguished from nouns. First, there are some derivations (...) whose sole function is to create adjectives, not nouns. (...) Functionally, adjectives serve as noun modifiers rather than head words. (...). (Newman, 2000, p. 22)

In Matal, the four identified adjectives that precede nouns, mănga ‘big’ bazı ‘small’, maviya ‘old’ and maw ‘new’, behave much like the simple adjectives described for Hausa. Except for maviya ‘old’, which is derived by the prefix ma- from viya ‘old, customary, dated’, they are morphologically and (for bazı) semantically undistinguishable from nouns. The word bazı has two senses: the adjectival sense ‘small’ and the nominal sense ‘child’. Which of the two senses is the most basic or original is hard to say. Combination of these two senses is quite common in Africa, compare Wandala āgdźrè ‘child’ and gdźa ‘small/young’, where Frajzyngier (2012, pp. 102-103) proposes the derivation of the sense “child” from the sense ‘small’, although the direction of derivation is the opposite in many African languages (Bernd & Hün nemeyer, 1988, cited in Frajzyngier, 2012). It is only the capability of forming possessive phrases with the particle aŋa that distinguishes the adjectival use of bazı from the nominal: possessive phrases with aŋa in which the dependent word is bazı always have to the sense ‘child’ and never the sense ‘small’.

The closed classes of adjectives often form sets of antonyms in African languages; hence, ‘big’ is found as a primary adjective in 82% of languages in the sample of Segerer (2008, p. 7), ‘small’ in 78%, ‘new’ in 54%, ‘old’– in 24%.
4.4.2. Demonstratives

The most common demonstratives are *uwanay* ‘this’ and *uwaga* ‘that’. They are related to the interrogative pronoun *uwa* ‘who’ and the relativizer *uwana*. These demonstratives are similar to most adjectives in that they follow the noun and do not normally agree with the noun for number. They can also take the plural prefix *azla-* in pronominal use. Demonstratives serving as pronouns (cf. 34b.) are almost entirely represented by *uwaga* ‘that’.

A contraction of the third person plural pronoun *atà* and the demonstratives yields the compound demonstrative *uwàta*. Two contexts, in which it occurs deserve special attention. First, it is used as an anaphoric demonstrative of a possessed referent that has been introduced earlier, thus combining the functions of demonstrative and possessive pronoun. Generally, the noun phrase which *uwatà* refers back to can be interpreted as something further away from the deictic centre in comparison with constructions with *uwaga*. Second, it is used as a general distal demonstrative for referents without possessor. This is especially true for temporal referents, cf. *la zamana uwatà*, *la kaslà uwatà*, ‘in that time’ (see 34c.). Temporal referents are found with the other two demonstratives as well, but they are less frequent.

\[ (34) \]

\( \text{a. Azla-dza } \) \text{ uwanaay } \text{ ta-zla6 } \text{ gi } \text{ la } \text{ gay pòra} \\
\text{PL-person DEM 3PL-honour 1SG LOC mouth only} \\
\text{‘These people honor me only with the lips’ (Matt. 15:8)} \\

\( \text{b. } \) \text{ Faruna } \text{ a-šāl } \text{ kà } \text{ azla-uwaga } \text{ kà } \text{ hud’ } \text{ gay } \text{ aya } Yusuflu \\
\text{Pharaoh 3SG-know PST TOP PL-DEM.PRON TOP belly house POSS Joseph} \\
\text{‘Pharaoh got to know those in the house of Joseph’ (Act. 7:13)} \\

\( \text{c. } \) \text{ ta-và } \text{ à } \text{ atà } \text{ wakità } \text{ uwatà} \\
\text{3PL-give PST GOAL 3PL book DEM} \\
\text{‘They were given that book (of their)’ (Act. 15:30)} \\

This gives rise to the assumption that there exists an at least three-way distance contrast in Matal demonstratives: proximal, medial and distal. Such systems are found in 88 out of 234 languages in a sample by Diessel (2013). In languages where third person pronouns are related to demonstratives, a connection to all demonstratives is much more common than connection exclusively to remote demonstratives (Bhat, 2013), as is the case with *uwatà*. Wuzlam has two demonstratives similar in form: *ànē* ‘this’ and *ätu* ‘that’ (Kinnaird & Kinnaird, 1998, p. 11).

A common typological division of demonstratives into “accompanying a coreferential noun” and “substituting for a noun (phrase)” (Diessel, Pronominal and Adnominal Demonstratives., 2013) has implications for Matal as well. Compare the difference between two English imperative clauses: *don’t do this deed!* Vs. *don’t do this!* In the first sentence, the demonstrative is used pronominally, whereas in the second adnominally. English uses the same demonstrative for both purposes. By contrast, different stems are used in many languages.

In the examples (35a,c.) the demonstratives were used adnominally, and in the ex. (35 b.) it is used as a demonstrative pronoun with human referent. Pronominal demonstratives with non-human referents use the dummy noun *kiya* followed by *uwanay* ‘this’, *uwaga* ‘that’ and *uwatà* ‘that.distal’, the last one being relatively rare. They are usually not used without a dummy noun:
As we have seen, there is a small group of adjectives that behave differently from the major class of derived adjectives prefixed by -ga. Demonstratives show similarities with most adjectives as to morphology and syntax, and demonstrative determiners exhibit a three-way distance contrast. Adpositional and pronominal demonstratives use the same stems, but differ in that the latter require a dummy noun as a co-referent.

4.5. Syntax

4.5.1. Word order

Both verb-object and object-verb word order are present as the dominant order in Central Chadic languages. Podoko has the dominant word order of VSO and Wuzlam has SVO (Dryer, 2013); both languages are spoken in immediate geographical proximity of Matal. The word order in Matal is characterized by subject-verb-object. Adjuncts, as in examples below (‘out’, ‘by the hand’), are placed to the right.

(36) a. *Ṃa-da-nəŋ-əŋ diki diki kiyə aw*
   'IPL-PST-see-DIR.OBJ never this NEG
   ‘We have never seen this’ (Mark 2:12)

   b. *Ka-dəh-əŋ kiyə uwaga aw*
   '2SG-do-DIR.OBJ'IMP that NEG
   Don’t do that (Rev. 19:20)

   c. *Musə a-ponible ɑ akul kiyə uwatə*
   Moses 3SG-tell-PST GOAL 2SG.OBJ that.DIST
   Moses told that to you (Mark 10:5)

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(36) a. *baba aŋ-ha əsə ɑ uda*
   father 3-POSS 3-come-PST GOAL out
   ‘His father came out’ (Luke 15:28)

   b. *Yesu akəs bəzi əhəl*
   Jesus 3-come-PST child LOC hand
   ‘Jesus took the boy by the hand’ (Mark 9:27)

4.5.2. Particle *kə*

The particle *kə* is one of the most frequent free morphemes in the Bible text. Three main functions that have been identified are topicalization, introduction of complement clauses and purposive clauses.

The scope of the topicalization by the particle *kə* ranges from phrase to clause. The topicalized phrase is followed by *kə*. If the syntactic unit being topicalized is an entire clause, it can be marked by two discontinuous particles *kə* clause-initially and clause-finally.

(37) a. *Sufəl gami Yesu kə tekula*
   King 1PL.POSS Jesus TOP one
   ‘It is Jesus alone who is our king’ (Eph. 4:6)
Complement clauses are “clauses that occur as complements of a verb; in other words, they are required or licensed by the subcategorization features of the verb” (Kroeger, 2005, p. 219). The complement clause which is introduced by the particle kà typically follows a verb.

(38) a. Go-go’d kà anu azla Yahudiya
   1SG-say COMPL 1PL PL Judea
   ‘I say that we are Jews’ (Eph. 2:18)

b. Uwa azladza ta-go’d kà gi uwa?
   Who people 3PL-say COMPL 1SG who
   ‘Who do people say that I am?’ (Luke 9:18)

In the purposive use of the particle kà it often precedes a verb with the infinitive prefix ma-.

(39) a-sà à slaka Yuhana kà ma-dah-al-la batem
   3SG-come’ PST GOAL side John in.order.to INF-do-3SG.IO? baptism
   ‘He came unto John to be baptized by him’ (Matt 3:13)

Generally, topicalization is expressed morphologically in most if not all Chadic languages, in many of which it is multifunctional, just as in Matal. Kà also participates in the formation of several lexicalized subordinating conjunctions, such as kà uwana ‘because’.

4.5.3. Negation particle aw

Negation in Matal is formed most commonly by the particle aw that is usually placed sentence-finally. There are no constraints on several negation particles standing next to each other in negated embedded clauses. Cf. examples below:

(40) a. ta-sèl uwana Yesu a-pòh aw
   3PL-hear.PST REL Jesus 3SG-say.PST NEG
   ‘They did not understand what Jesus said’ (Luke 18:34)

b. [ka-daw bokuba ma-da-y aja [azla-dza
   2PL-go as PTCP-go-? POSS PL-human
   uwana ta-sèl tatak aw] aw]
   REL 3PL-know thing NEG NEG
   ‘Don’t walk the path of those who don’t know anything’ (Eph. 5:15)

4.6. Prepositions

4.6.1. Simple and compound prepositions

There are two prepositions in Matal that have very broad meanings and are used together with more specific locative adverbs and grammaticalized body concepts (see §4.6.2.) as complex prepositions to express more specific spatial, motional and temporal meanings, as well as to express other extended
semantic relations. These are *la*, serving as the general preposition with locative and with comitative meaning, and *à*, functioning as a general directional preposition.

When no spatial relations are involved between the subject and object, for instance when the indirect object has the semantic role of recipient or theme, the directional preposition *à* is normally used without additional locative adverbs:

(41) a. *Yesu a-gòd à atà*  
   Jesus 3-say PST GOAL 3PL  
   ‘Jesus said to them’ (Mark 10:36)

The preposition *la* is also used without any additional adverbs when the meaning of the prepositional phrase is locational or temporal and the dependent noun is an overt spatial or temporal referent rather than locative or temporal adverb:

(42) a. *la gudọ́ Betaniya la kay anja Simon*  
   LOC town Bethany LOC house POSS Simon  
   ‘in the town Bethany, in the house of Simon’ (Matt. 26:6)

Although this overall description holds true, *la* also functions as a general preposition expressing source or ablative, whereas *à* always is used to express direction towards an object, in the broadest sense. Locatives often are sources for temporal meanings (Heine & Kuteva, 2004, s. 205), which is also found in Matal, as can be seen in ex. (42 b.).

The two prepositions, or markers as Frajzyngier (2012, p. 293) analyzes equivalent morphemes in Wandala, are combined with the specific locative adverbs, some of which are listed below. The adverbs equivalent to ‘here’, ‘there’ etc., cannot be used without being compounded by *la* or *à*. Thus, the adverbs can be understood as entities syntactically functioning as nouns.

**Table 11: Locative adverbs**

<table>
<thead>
<tr>
<th>Locative adverb</th>
<th>Gloss</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>abà, abanay</em></td>
<td>here</td>
<td></td>
</tr>
<tr>
<td><em>abà, abatà, ahọ́</em></td>
<td>there</td>
<td></td>
</tr>
<tr>
<td><em>afik</em></td>
<td>up</td>
<td></td>
</tr>
<tr>
<td><em>ahọ́</em></td>
<td>down</td>
<td></td>
</tr>
<tr>
<td><em>uda</em></td>
<td>out</td>
<td></td>
</tr>
<tr>
<td><em>hud</em></td>
<td>in</td>
<td>&gt; <em>hud</em> ‘stomach’, see §3.7.2</td>
</tr>
<tr>
<td><em>lig</em></td>
<td>back</td>
<td>&gt; <em>lig</em> ‘back’, see §3.7.2</td>
</tr>
<tr>
<td><em>huma</em></td>
<td>front</td>
<td></td>
</tr>
<tr>
<td><em>anja</em></td>
<td>where (interrogative)</td>
<td>contraction of POSS <em>anja</em> + gen. preposition <em>la</em></td>
</tr>
</tbody>
</table>

The following examples show some of the compound prepositions that occur in the Bible text. Note that the compound prepositions allow distinguishing between path and location where equivalent English sentences translated with a single preposition. That is, there is a distinction that always is expressed between ‘to be in front of something’ and ‘to fall into the front of somebody’, as in ex. (43 e. and f.)
The examples above show that complex spatial meanings such as ‘down from up’ can be expressed by several prepositional phrases generally occurring clause-finally, with prepositions that express direction towards an object preceding prepositions that express direction away from an object. Within the prepositional phrase, the dependent noun phrase follows the complex preposition, as shown in (43f.). An adpositional phrase can also consist of a simple preposition, followed by a dependent noun phrase and a postposition, the latter precising the spatial meaning of the adpositional phrase as a whole (43e.). The pre- and postpositions used in such phrases can be analyzed as a complex circumposition, because they occur on both sides of the adpositional object.

4.6.2. Grammaticalized body-part prepositions

According to the Embodiment theory (Lakoff & Johnson, 1999), we use body concepts to conceptualize spatial relations. For example, such spatial relations as situatedness in space involves what Lakoff & Johnson call the “trajectory-landmark scheme”, in which an object (trajectory) must be located in a container (landmark). These relations are transferred from the domain of human body, which constitutes the most fundamental “container” and reference point in human experience; spatial relations between objects are projected onto the body parts and their relation to one another and to the external world. One of the fields where this becomes evident is adpositions, which often develop from nouns within body-domain and subsequently become grammaticalized.

Grammaticalization is defined as a process of “development from lexical to grammatical forms, and from grammatical to even more grammatical forms”, which often follows stages of “semantic bleaching, use in new contexts, loss of morphosyntactic properties and phonetic reduction” to a morpheme not any longer associated with any lexical meaning, such as affixes or particles (Heine & Kuteva, 2004, p. 2). The last two stages, loss of morphosyntactic properties and phonetic reduction, are not applicable to those “embodied” prepositions that we can easily observe in Matal. It could also indicate a relatively recent extension of the basic corporal meanings to the more general spatial ones.
It is common to refer to lexical items that were extended to new contexts and grammaticalized as to source entities and to the new grammatical meanings as target entities (ibid. 6). Some of the targets for grammaticalization with a source in the domain of human body are summarized in the table below (Heine & Kuteva, 2004):

Table 12: Common sources of grammaticalized spatial meanings originating in body concepts

<table>
<thead>
<tr>
<th>Body meaning</th>
<th>Spatial meaning</th>
<th>Temporal meaning</th>
<th>Other meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>head</td>
<td>FRONT, MIDDLE, UP,</td>
<td></td>
<td>INTEGRATIVE-REFLEXIVE,</td>
</tr>
<tr>
<td></td>
<td>ABOVE</td>
<td></td>
<td>REFLEXIVE</td>
</tr>
<tr>
<td>mouth</td>
<td>FRONT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>buttocks</td>
<td>BEHIND, DOWN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>face</td>
<td>UP, FRONT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>neck</td>
<td>ABOVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hand</td>
<td>LOCATIVE</td>
<td></td>
<td>AGENT, FIVE, POSSESSIVE</td>
</tr>
<tr>
<td>stomach</td>
<td>IN</td>
<td>IN</td>
<td></td>
</tr>
<tr>
<td>eye</td>
<td>FRONT</td>
<td>BEFORE</td>
<td></td>
</tr>
<tr>
<td>back (body part)</td>
<td>BEHIND, UP</td>
<td>AFTER, EARLIER,</td>
<td>CAUSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>THEN</td>
<td></td>
</tr>
<tr>
<td>lips</td>
<td>IN</td>
<td>IN</td>
<td></td>
</tr>
<tr>
<td>heart</td>
<td>IN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>body</td>
<td>MIDDLE</td>
<td></td>
<td>INTEGRATIVE-REFLEXIVE,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>REFLEXIVE, RECIPROCAL</td>
</tr>
</tbody>
</table>

Generally, the grammaticalized body concepts often function as complex prepositions, most frequently together with the general locative preposition la. Below follows a summary for grammaticalized body concepts in Matal:

<table>
<thead>
<tr>
<th>Word</th>
<th>Corporal meaning</th>
<th>Spatial meaning</th>
<th>Temporal meaning</th>
<th>Other meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>gal</td>
<td>HEAD</td>
<td>front</td>
<td></td>
<td>REFLEXIVE</td>
</tr>
<tr>
<td>gay</td>
<td>MOUTH</td>
<td>side, proximity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adi</td>
<td>FACE</td>
<td>front; up</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(directional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ahål</td>
<td>HAND</td>
<td></td>
<td></td>
<td>possession</td>
</tr>
<tr>
<td>hud'</td>
<td>STOMACH</td>
<td>inside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lig</td>
<td>BACK (body part)</td>
<td>back; after</td>
<td>after</td>
<td></td>
</tr>
<tr>
<td>vok</td>
<td>BODY</td>
<td></td>
<td></td>
<td>obligation,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reciprocal</td>
</tr>
</tbody>
</table>

The word lig ‘back’ occurs scarcely in the sense ‘the rear of the body’ in the Bible text, with the meanings like ‘turn back’ and alike being more frequent. The closest mention of the unmetaphorical sense of the word is found in the following verse:

(44) f. Atà la sìfa huma la lig aŋa-tà kà bà yewdi, yewdi gesina
3PL LOC life front and back POSS-3PL TOP ? eye eye all
literally: ‘they in life, before and back of them are eyes, all eyes’
‘Living creatures full of eyes in front and in back’ (Rev. 4:8)

Gal with the basic meaning ‘head’ is source for the grammaticalized reflexive pronoun ‘self’. Although not a preposition itself, it is often found together with the general locative preposition la. Whether gal is used with or without la seems to depend on whether the referent is actor or undergoer. In the latter case, gal is used very much as a third person object pronoun. Compare (45a.), where the reflexive pronoun refers to the actor (‘we ourselves’), (45b.) where it is used for patient referent, and (45c.), where both roles are present within the same sentence:
38

(45) a. Anu la gɔl gami kà mɔ-da-tən-ŋy
   1PL LOC REFL 1PL-POSS PART 1PL-PST-hear-
   ‘we ourselves have heard it’ (Luke 22:71)

b. Bɔlla gɔl aŋ-ak!
   save’IMP REFL POSS-2SG
   ‘Save yourself!’ (Luke 23:39)

c. Masla la gɔl aŋ-ha a-ɓəla gɔl aŋ-ha
   3SG.ANPH LOC REFL POSS-3SG 3SG-save REFL POSS-3SG
   ‘let himself save himself’ (Luke 23:35)

Just like in Wandala (Frajzyngier, 2012, p. 312) and Moloko (Friesen, 2017, p. 159) the body concept ‘belly, stomach’ serves as an indication of location within some space, both in direct spatial sense and in figurative senses, such as temporal position. Compare examples (43a-f.) featuring simple preposition la above with (46a-b.) below:

(46) a. atà kà la huɗ gài sufɔl
   3PL TOP LOC belly house’PL king
   ‘they are in the house of kings’ (Matt. 11:18)

b. la huɗ vɔɗ
   LOC belly night
   ‘during the night’ (John 21:3)

Adi ‘face’ (cf. Podoko di (Jarvis & Lagona, 2003, p. 58)) functions much in the same way and is used in similar sense to the seemingly underived term huma ‘front’ and afik ‘up’. The difference lies in that the former has additional meanings of ‘towards’ and ‘onto’, and is used mostly for indicating motion rather than situatedness. The grammaticalized term ‘face’ is used in a very similar way in Wuzlam (Kinnaird & Kinnaird, 1998) Because of the extensive use of grammaticalized meanings of the term, when the actual body part ‘face’ is referred to, a compound huɗ adi, ‘belly face’ is used instead.

(47) a. Azla-anik ta-dà ɗà atà à adi
   PL-other 3PL-come’PST GOAL 3PL GOAL face
   ‘others came towards him’ (Act. 17:34)

b. ta-faʃa’d-al ɗukut à adi
   3PL-pu’PST-I0 cloth GOAL face
   ‘others came towards him’ (Act. 5:6)

c. Sà ɗà ahɔŋ la ahàf la adi
   come’IMP GOAL down SOURCE tree/cross SOURCE face
   ‘Come down from the cross!’ (Mark 15:30)

As (47c.) demonstrates, the prepositional phrase la ahàf la adi ‘down from the cross’ can be analyzed as using a simple preposition la before the noun ahàf, followed by the compound la adi functioning as a postposition. The construction as a whole can thus be viewed as forming a complex compound adposition which has the form of a circumposition. As such, it consists of a preposition and a postposition that are placed on either side of the adpositional object. The prepositional part of this
complex circumposition demonstrates an agreement of the prepositions *la ahàf* and *la adi* for the simple prepositional elements *là* which is used as a separate head word in both prepositional phrases, rather than combining into single prepositional phrase, *la adi ahàf*.

Gay ‘mouth’ has the extended spatial sense of proximity outside an object. Its reference to the object usually occurs by simple juxtaposition rather than by the possessive particle *aŋa*. Note that the word gamagày ‘door/gate’ in the example below probably contains the same root gay.

(48) \[La \text{ gay} \] \[gamagày \]

LOC mouth door

‘others came towards him’ (Mark 1:33)

The compound preposition *la ahàl* ‘in the hand’ is used together with either the existential verb *ga* or, in past tense, existential particle *aya* to express possession (49a.). The possessor is marked by *aŋa* (49b.) or by a preceding personal pronoun (49c.). Because *la* has the sense of indicating source as well as location, this construction can also have ablative/elative meaning (49d.). It should be noted that the periphrastic construction with *ahàl* is only one among several ways for expressing predicative possession, with the verb *kor* ‘to have’ being another.

(49) a. Kilfi \[bə zi-\] \[ga \] \[la \] \[ahàl \] \[aŋa-tà \] \[aya \]

fish little-ADJ LOC hand POSS-3PL EXIST

‘They had a little fish’ (Mark 8:7)

b. \[Dza \] \[uwana \] \[a-woya \] \[deda \] \[an-\] \[ha \] \[aw \] \[kà],

[person REL 3SG-love brother POSS-3SG NEG TOP]

a-\[ga \] \[la \] \[ahàl \] \[aŋa \] \[seteni \]

3-exist LOC hand POSS devil

Person who does not love his brother, devil has him.’ (1 John 3:14)

c. \[La \] \[abana \] \[kà \] \[[kaf gay borsew zlo] \]

LOC here TOP [five loaves]

la \[[kilfi səla] \] \[pora \] \[a-ga \] \[anu \] \[la \] \[ahàl. \]

CONJ [two fishes] only 3SG-exist 1PL LOC hand

‘We only here five loaves and two fishes here’ (Matt 14:17)

d. təfə \[à \] \[anu \] \[la \] \[ahàl \] \[aŋa \] \[seteni \]

save’IMP GOAL 1PL SOURCE hand POSS devil

‘Save us from the devil’ (Matt 6:13)

The term for ‘body’, *vok* (cf. Dghwede *vaga* (Frick, 1972)⁹, Wandala *vwà* (Frajzyngier & Shay, 2012, p. 301)), is a source for a number of extended senses. Among them is the modal meaning for obligation where *vok* is used with general locative preposition *la*.

(50) \[Kak \] \[ma, \] \[mna \] \[a-ga \] \[kà \] \[la \] \[vok \] \[ma \]

2SG Q how.much 3SG-exist TOP LOC body Q

‘How much do you owe?’ (Luke 16:7)

As we have seen, body concepts are used in a number of grammaticalized ways. Some of them form compound spatial and directional prepositions, while others combine with simple prepositions to

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⁹ Cited in (Gravina, 2015)
express more abstract meanings, such as reflexivity, possessiveness and obligedness. An interesting feature is the preposition agreement in compound circumpositions, which involve body concepts.

4.7. Lexicology

4.7.1. Native vocabulary

Much of the basic lexical stock of the Matal Bible text is shared with other Chadic languages. Many basic terms are of very old origin and can be traced back to reconstructed Proto-Central-Chadic, Proto-Chadic and, by extension, Proto-Afroasiatic forms. Some of the reflexes of these inherited words have preserved sufficient resemblance with their etymons to be evident without elaborate study of sound correspondences. Many others are probably also cognate to the etymons in previous stages of the language, without being obviously related to them due to more complex phonologic changes and semantic shifts. An example of such semantic change that makes inherited items more difficult to associate with their reconstructed etymons is the development of the Proto-Chadic root *kd ‘tooth’ or *kd ‘to burn’ > kə’d ‘to kill’ in Matal (Jungraithmayr & Ibriszimow, 1994, p. 105). It is the well-preserved shape of the word in the latter that makes the link possible.

Some of the notable words that are evidently inherited ancient lexical roots are the numerals ‘two’ and ‘four’, verbs for ‘to die’, ‘give birth’ ‘know’, ‘drink’, terms for nature objects such as ‘moon’, ‘water’ and ‘sun’, and things having to do with the body and people – ‘eye’, ‘name’, etc. Some of the items listed above were at the core of the vocabulary that gave rise to the notion of Chadic languages, as their similarities proposed a shared origin (Jungraithmayr & Ibriszimow, 1994). Due to the profound temporal depth of the Chadic family and the resulting semantic shifts and other language change, some of the original items are absent from Matal while present in most other languages, e.g. ‘rat’, while others are present in Matal, but absent in other closely related Central Chadic languages, e.g. the verb ‘to see’ (ibid, pp. 11, 137 & 144). The table below summarizes a few basic lexical items showing the Chadic roots of Matal.

Table 13: Some of the basic lexical items found in the Bible text with their proposed etymologies.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>two</td>
<td>sala</td>
<td>*siwra₁</td>
<td>*sr</td>
<td>*tsan- / *can-</td>
<td>Numerals</td>
</tr>
<tr>
<td>three</td>
<td>makar¹⁰</td>
<td>*knɗ’</td>
<td>*xaynz-</td>
<td></td>
<td>Numerals</td>
</tr>
<tr>
<td>four</td>
<td>ufad’</td>
<td>*wipad’</td>
<td>*-pd’</td>
<td>*fâzw-</td>
<td>Numerals</td>
</tr>
<tr>
<td>seven</td>
<td>madof</td>
<td>*midip</td>
<td></td>
<td></td>
<td>Numerals</td>
</tr>
<tr>
<td>eye</td>
<td>yewdi</td>
<td>*hadaj</td>
<td>*ydn</td>
<td></td>
<td>Body</td>
</tr>
<tr>
<td>name</td>
<td>sl₃m</td>
<td>*limid’ᵣ₁</td>
<td>*s₃m</td>
<td>*s₃m- / *sᵣm-</td>
<td>People</td>
</tr>
<tr>
<td>water</td>
<td>yaw</td>
<td>*dijim</td>
<td>*ymn</td>
<td></td>
<td>Nature</td>
</tr>
<tr>
<td>moon</td>
<td>tala</td>
<td>*tira</td>
<td>*t-r</td>
<td></td>
<td>Nature</td>
</tr>
<tr>
<td>sun</td>
<td>afats</td>
<td>*pitsi</td>
<td>*p-t</td>
<td></td>
<td>Nature</td>
</tr>
<tr>
<td>to die</td>
<td>mats</td>
<td>*mîts</td>
<td>*mwt</td>
<td>*-maaw-</td>
<td>Verbs</td>
</tr>
<tr>
<td>to give birth</td>
<td>(a)ya</td>
<td>*wahaj</td>
<td>*yw/*wy</td>
<td></td>
<td>Verbs</td>
</tr>
<tr>
<td>to know</td>
<td>sal</td>
<td>*sin</td>
<td>*s-n</td>
<td></td>
<td>Verbs</td>
</tr>
<tr>
<td>to drink</td>
<td>sa</td>
<td>*s</td>
<td>*ś₃w-</td>
<td>*-ś₃w- / *-śᵣᵣ-</td>
<td>Verbs</td>
</tr>
<tr>
<td>to kill</td>
<td>kad’</td>
<td>*kd’(= to bite)</td>
<td>-k”₃̄d⁻̄</td>
<td>(=to bite)</td>
<td>Verbs</td>
</tr>
</tbody>
</table>

¹⁰ The initial syllable in this numeral is probably the frequently used derivational prefix ma- rather than part of the root.
4.7.2. Lexical borrowings

Some lexical items in the Bible text are evidently borrowed. A few items, predominantly Christian religious vocabulary, might have been borrowed directly by the translators, while others might have existed in the language as established loans when the translation was carried out. First, the phonetic shape of some of the proper names suggest that the original used for the translation of the Bible into Matal was in French: Piýer ‘Peter’, Yesu ‘Jesus’, Luka, ‘Luke’ and others. Second, the most revealing common noun witnessing about the French translation source is batem ‘baptism’, arguably from French baptême.

The largest layer of borrowed items are words ultimately originating from Arabic. It has been a source language for extensive lexical borrowing for many languages with which it had been in contact. Historically, many languages have seen a massive influx of borrowings from the sacred language of Islam, followed by its adoption. Although the speakers of Matal were primarily practitioners of traditional “animist” cults in recent past (Juillerat, 1971), with only a minor part of speakers of Matal being Muslim, according to one missionary-oriented Christian source (Joshua Project, 2017), they are nevertheless surrounded by Muslim peoples – for example, the Wandala. It is quite possible that Wandala has been the intermediate source of these borrowings. In the latter itself, words of Arabic origin came into the language via Kanuri, Hausa, and Fulfulde (Frajzyngier, 2012, s. 4). It cannot be excluded that the Arabic borrowings entered the lexicon of the North Cameroon languages either directly or via other languages than mentioned as well, since one domestic variety of Arabic – Chadian Arabic, also called Shuwa, is spoken in the region itself, by more than 1.3 million people according to some sources (Ethnologue, 2017).

It is therefore fruitful to look for sources of lexical borrowings in Matal in these languages, as they have all served as lingua franca, i.e. languages of wider communication (LWC). Traditionally, Fulfulde has been used as a means of communications between speakers of different languages in much of North of Cameroon, despite only having 300 000-700 000 native speakers in this region, although its role of lingua franca has recently being supplemented by French in the whole country (Rosendal, 2008, s. 24). However, a pocket of northernmost territories of Cameroon, as many as five languages have been reported to function as lingua francas: Along with already mentioned Fulfulde, they are Kanuri, Wandala and Shuwa Arabic (Rosendal, 2008, s. 21).

Probably the most salient of the borrowings is the conjunction ama, from the Arabic مَّا اَّمَّا ‘ammā, which is one of the most frequent lexical items in the Bible text. It is also given as a loanword in Wandala (Frajzyngier, 2012, s. 20). It is possible that the word came into the lexicon of Biu-Mandara languages via Hausa, into which it was borrowed directly from Arabic (Greenberg, 1947, p. 95) or Kanuri, where it is also present (Jarrett, 2007, p. 6). The same goes with Marghi (Hoffman, 1963, p. 263) and probably other languages in the region. Overall, the conjunction ‘ammā has entered the lexicon of a great number of languages, which came into contact with Arabic, Turkic, Indo-Iranian and Caucasian languages, to mention a few.

The word palis ‘horse’ belongs to a well-known and early borrowing into Chadic languages from Arabic فَرَس (faras), found in all three branches of Chadic, which is a probable indication of the introduction of horses by Arabs around the year 1000 (Jungraithmayr & Ibriszimow, 1994, s. 95).

There is also a layer of religious vocabulary clearly borrowed from Arabic – malika ‘angel’ from Ar. مَلَك (malʾak) and seteni ‘devil’ from Ar. شَيْطَان (šayṭān). The latter is spelled with a minuscule rather with capital, which could suggest its interpretation as a common noun rather than proper name in Matal. Another, less obvious, nevertheless probable, borrowing is the verb dəv ‘to pray’ and the derived verbal noun madəv ‘prayer’, frequent in the compound gəy madəv kuɗa, ‘temple, prayer house’. The source item for this word is likely Ar. دُعَاء (duʿāʾ), which is also given as the source for
Hausa *addu’a*. (Greenberg, 1947, p. 94) Borrowings of Arabic religious terms like these are commonplace in languages spoken by peoples that adhere to Islam.

A third layer could be identified – abstract terms and high-styled synonyms. *Zamana* ‘time’ is one such notable term. In many languages, which have borrowed extensively from Arabic, native words often co-exist with Arabic borrowings, having different connotations and thus being used in different registers. The situation could be similar for Matal, which is suggested by the fact that some concepts are represented by different words in Rossing’s list than in the Bible text, words that are etymologically unrelated to Arabic. One such case of synonymy could be in place between /mûlû/ (Rossing, 1978, p. 49) ‘time’, vs. *zamana*. The former does not occur in the Bible text, whereas the latter does, and is also present in neighboring Wandala /zàmàné/ and Fulfulde ‘jamanu’ (Pohlig, Haman, & Nouhou, 1991).

However, certain Arabic borrowed items are terms denoting objects rather than abstract ideas – hence, *kursi*, likely from Ar. كِرْسِي (kursiyy), denotes both ‘chair’ and ‘throne’, just as in its source language. It is also tempting to see an Arabic borrowing in *wakità* ‘book, letter’ كَتَاب (kitāb), also present in Podoko (Jarvis & Lagona, 2003) and Muyang as *wakita*. (Smith, 2003) states the unclear origin of the word but suggests the possibility of a Mandara borrowing. In case of Arabic borrowing, it is not clear whether the word has been prefixed with wa-, as this derivational prefix is not found in Matal. It could be borrowed in this derived form; it could also be part of the root, in which case the word could be of other origin than Arabic and the resemblance in shape and semantic value merely a coincidence. The fact that most languages in the region seem to have borrowed the meaning ‘book’ from one of the two Arabic roots، كَتَاب (kitāb) (Hausa littafin, Kanuri kitawu) or دَفْتَر (daftar) (Fulfulde dewtere, Moloko dêtre etc.), could speak in favor of the possibility of borrowing from Arabic. Metathesis of Kanuri kitawu (Cyffer, 1994, p. 19) is yet another possibility.

Some other words originated from the religious sphere, but got into the language of the Bible text in a broader sense. This is a probable development for *seriya* ‘court, judgement’ < Arabic شريعة (šari‘a), possibly via Kanuri *sharâ* ‘judgement’ (Cyffer, 1994, p. 100).

Another interesting finding concerning the layer of abstract concepts is the word ‘tax’, *hadama*, as in the compounds *azlamana mazâb hadama* ‘tax collectors’ or *gây mazâb hadama* ‘tax booth/house’. It seems to have a cognate in Hausa *hàdâmâ* ‘greed, gluttony’ (Newman, 2007, p. 82). The word for tax in Hausa itself is *hârajî*, which is an Arabic borrowing (Greenberg, 1947, p. 93). Unless this is a coincidence, the lexical item must have been borrowed into Matal and undergone semantic change in either language since. Despite both being Chadic languages, Hausa and Matal belong to two different branches – West and Central (Biu-Mandara) Chadic respectively – and any eventual cognate word could not possibly retain such high degree of resemblance.

Along with the borrowings from Arabic, that were the most salient ones, *dokwtar* ‘physician’ can be identified as an example of few borrowings from European languages.
5. Conclusions

The analysis of the New Testament as the parallel text made it possible to identify verbs, pronouns, nouns, adjectives and prepositions as major lexical categories. Verbs proved to be the lexical category with the largest range of grammatical categories expressed morphologically, while nominal morphology only expresses number. The comparison of the syntactic patterns and grammatical categories expressed morphologically with those of related languages shows both similarities and differences.

Matal exhibits a verbal system with obligatory person prefixes in all verb forms except for the non-finite forms prefixed ma- and verbs in imperative, which only have person prefix in the second person. Basic word order is SVO, and changes of tense/aspect are indicated by a tone mark spelled out as ◈. Tense/aspect can also be expressed morphologically, by a verb prefix grammaticalized from the verb ‘to go’. More detailed inquiry of the means analyzed broadly as tense/aspect categories remains to be further disentangled by future research.

Verbs may also be suffixed with indirect object suffix -Vŋl. The function of the suffixes -Vŋ and -la is not entirely clear. However, all three abovementioned suffixes have sets of forms for three persons and two numbers. Rich verbal morphology is typical for Central-Chadic languages, and many languages possess verbal extensions which can indicate, among other things, causativity, transitivity, directionality, applicativity. Such morphemes are present in Matal as well, but belong to a broader verbal complex, rather than being direct parts of the verb morphology. Verbal nouns are derived by the very productive infinitive prefix ma- and the suffix -ay. There are special body-part constructions, also found in other Chadic languages, which are similar to light verb constructions in Turkic or Iranian languages. The body concepts function as broad semantic complement altering the meaning of the complex verb construction. The body term in such constructions may replace the object pronoun.

Nouns are characterized by sparse morphology, taking only the plural prefix. The nominal phrase can consist of several nouns: nominal compounds can be formed by simple juxtaposition or by linking the head noun with the dependent nouns by the possessive particle aŋa. Choice of the strategy for formation of compounds is dictated by the status of the dependent noun as either the possessor or the property of the main noun. Definiteness is not expressed morphologically but rather contextually.

The pronominal system includes simple personal pronouns as well as anaphoric pronouns used mainly in object position. No clusivity contrasts between first person inclusive and first person exclusive have been identified, which is unusual for Central-Chadic languages.

Adjectives are derived from nouns and verbs by the suffix -ga, and follow nouns, as do other modifiers. A small class of primary adjectives, which precede nouns rather than follow them, has been identified. There exists a three-way distance contrast in demonstratives.

There are two types of prepositions in Matal: simple and complex prepositions. Simple prepositions are the goal preposition á and source/location preposition la which have very broad spatial-directional meanings. To furtherly specify the meaning, these are compounded with numerous location words with basic meanings like ‘front’, ‘inside’, ‘up’ and so on. Grammaticalized body concepts actively participate in formation of complex prepositions, which is cross-linguistically common. The adpositional phrase may consist of both pre- and postpositions, thus forming complex circumpositions. The pre- and postpositions that are part of the adpositional phrase agree with each other for their simple prepositional element.
Negation is expressed by a sentence-final particle in Matal. There are no restrictions on using two negation particles after each other when negated clauses are embedded.

Matal makes extensive use of the topicalization particle ʙà that follows the topicalized constituent and introduces certain subordinate clauses. One particular use of the topicalizations particle is forming purposive clauses. Just as in Wuzlam, topicalized constituents are frequently fronted to sentence initial position. Equative clauses are characterized by zero copula.

The analysis of the lexicon of Matal showed that its basic lexical stock is essentially Chadic, at the same time as it contains numerous lexical borrowings. Most of the identified borrowings are ultimately Arabic. Based on the phonetic shape of some proper nouns, it could be concluded that the source for the New Testament translation into Matal was in French.

A few important areas for future research can be outlined. A more detailed study of the verbal complex and an investigation of the role of the verbal suffixes are needed. Furthermore, investigating the relationship between morphologically and tonally indicated tense and aspect can yield interesting results. Although the presented study demonstrates that the basic grammatical properties of Matal could be extracted using only the New Testament translation as a parallel text, published research on other Central-Chadic languages suggests that much of tense and aspect is expressed by intricate prosodic patterns, the exploration of which is not feasible by using a parallel text only.
Appendix: Matal wordlist on Wiktionary

Below follow screenshots of two of the Wiktionary entries created to facilitate the progress of this thesis. The entire list can be found under [https://en.wiktionary.org/wiki/Category:Matal_lemmas](https://en.wiktionary.org/wiki/Category:Matal_lemmas)


