# Parallel Grammar Documentation in Four Talodi Languages[1]

Russell Norton

Theological College of Northern Nigeria and SIL International

**Abstract**

This paper reports on a comparative survey of the main parts of speech (nouns, verbs, adjectives, demonstratives, pronouns, adverbs) and basic clause types of the Lumun, Tocho, Acheron, Dagik languages of Sudan, collected in parallel in a discovery workshop setting. Overall word order type is assessed, a list of diagnostic grammatical properties of Talodi languages is proposed, and the relative clustering of the four languages within the Talodi group is evaluated.

## 1. Preliminary remarks

### 1.1. The documentation process

<1> The data in this paper was obtained during a discovery workshop in April-May 2012 in Khartoum, Sudan, attended by mother-tongue writers from the following four Talodi languages: Lumun [lmd], Acheron [acz], Tocho [taz], and Dagik [dec]. The workshop participants created grammar booklets on their languages in 12 days by completing data tables for a different section of the survey each day. I then re-transcribed the data from all four languages in the International Phonetic Alphabet to enable linguistic comparison here. This documentation process was characterised by three particular methodological features which I will briefly review in turn: a language cluster approach, a parts of speech approach, and documenting languages with mother-tongue writers.

<2> A language cluster approach, as described by Lewis and Stalder (2010), conducts work on several languages on some common basis, whether similar logistics (operational basis), a high degree of linguistic similarity (linguistic basis), ethno-linguistic affinity that stimulates co-operation in reaching common goals (sociolinguistic basis), or a combination of these. The cluster approach is well-suited to the linguistic geography of Africa, which contains vast numbers of situations where sets of immediately related languages are spoken in physically adjacent communities. The present work adopted this perspective to discover the grammar of four Talodi languages, which were documented in parallel in the same time it could have taken to document one of the languages. The expectation of high linguistic similarity between the related languages informed the planning of the discovery process, as data tables to be filled in were customised to reflect paradigm structures reported in previous sources on Talodi languages, so that these structures could be checked in the four languages present. Documenting the languages in parallel then produced situations where a consistent property was discovered in most or all of the four languages on the same day. Typically, this is a common inheritance shared by the languages, and thus reinforces the reliability of the finding.

<3> A parts of speech approach involved collecting data in sections for different morphosyntactic word classes. This approach to grammar discovery is rooted in a typological perspective (Kröger 2012) and enables an assessment of word order type to be made (Dryer 1992). On a

---

practical level, it takes advantage of the familiarity of parts of speech to the mother-tongue participants from their formal learning of English or other developed languages, which contributes to a discovery process that is achievable, understandable, and useable (Kröger 2012). However, it is worth emphasising that each part of speech is established by the evidence collected, not by imposing an English model. The English parts of speech are useful as a source of terminology, but word classes vary across languages (Munro 2007), and even in English they remain a matter of on-going research (Payne, Huddleston and Pullum 2010). A benefit of parts of speech research in the world's languages is that it provides a basis for dictionary construction (Munro 2007).

<4>     The third notable feature of the documentation process is the practice of documenting languages with mother-tongue writers. This option is increasingly possible and appropriate as the number of written languages in Africa (and the world) has increased in recent decades. It has the ethical advantage of enabling research to be shared immediately with the language communities, which was achieved by the writers keyboarding their data each day to be printed as a booklet to take away at the end of the workshop. There are also linguistic advantages of working with mother-tongue writers, due to their ability to provide accurate phonemic representations that are not vulnerable to the hearing errors of a transcriber from outside the community. To ensure phonemic accuracy, languages represented in the workshop were required to have existing phonemic orthographies, and writers who were competent in using those orthographies.[2] More specifically, writers' data can be assumed to conform to the lexical level of phonological representation, prior to the application of post-lexical phonological changes that apply across words below speaker awareness (Mohanan 1986). This is not always the same level of transcription as used in other sources on these languages,[3] but the lexical level is arguably the most cognitively accessible level of phonemic representation for the speakers of a language, and hence both the optimal choice for, and often spontaneously reflected in, orthographies (Mohanan 1986, Snider 2014). I thus consider it a theoretical advantage as well as a practical one that writers' data provides a cognitively realistic representation of the language.

<5>     Working with writers also raises problems of word boundaries and tone, however. Regarding word boundaries, pioneer writers of a language sometimes justify word boundary choices by appeal to the word boundaries used between equivalent morphemes in the developed language of wider communication. Thus, mother-tongue writers' intuitions on word boundaries in their own language seem less reliable (or are less reliably accessed) compared to their remarkable phonemic awareness. As a result, linguistic criteria for determining word boundaries come into consideration (Kutsch Lojenga 2014b). Tone presents a more serious problem: since tone is not marked in the orthographies of the languages in this survey, tone is also absent from the phonetic re-transcriptions of the writers' data in this survey. Talodi languages appear to fit a type of

---

[2]  From my own inspection I believe the data is highly accurate, including on the phonetically subtle distinctions that are difficult for outsiders to get right, in ATR in high vowels and between different rhotic consonants (Norton & Alaki 2015:79,102). In Dagik, however, there are some discrepancies in ATR with Vanderelst (2016), which unfortunately may be due to the pioneer writers not having fully adjusted to the use of umlauted vowels {ïü} for [+ATR] high vowels after umlauts had previously been tried for [-ATR] high vowels, although some of the disputed [+ATR] vowels actually correspond to [+ATR] vowels in Acheron (8.1). A separate issue is that the Lumun orthography has no symbol representing the phoneme /ə/ (Smits 2017:14), but the phonetic re-transcriptions of Lumun data in this paper were corrected for this.

[3]  Dagik orthography, as pointed out by Vanderelst (2016:235-7), employs a later level of phonological representation than that used in the grammar of Vanderelst (2016). Thus, Dagik writing includes transitional approximants /w/ and /y/ derivable from an insertion rule, and distinguishes voicing which Vanderelst derives from an underlying geminate/nongeminate distinction. However, lengthening is "not always audible" in the reported geminates (Vanderelst 2016:29), and there is evidence for the lexical status of voicing due to the preservation of voicelessness under variable degemination in Dagik, Acheron, and other Talodi languages (Norton & Alaki 2015:95). Furthermore, writers of the languages documented here claimed awareness of the voicing differences, affecting judgement of word boundaries in Tocho and Lumun (sections 2.2, 8.4). I therefore assume voicing is a lexicalised feature in these four languages, which is consequently represented in the transcriptions in this paper.

African language in which tone has a low functional load in the lexicon, where the case for exhaustively representing tone in the orthography is unpersuasive (Kutsch Lojenga 2014a:63).
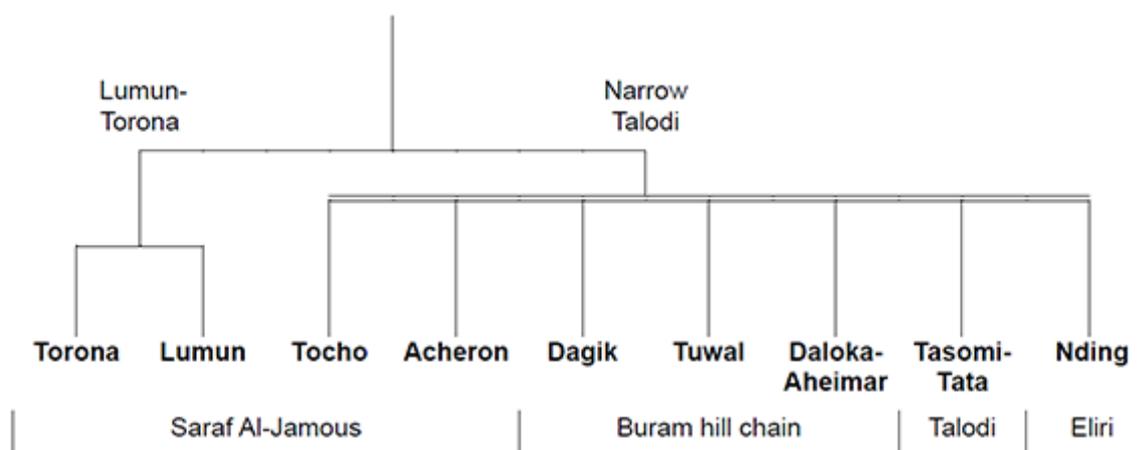


Figure 1. Talodi language tree, with locations of geographical sub-clusters underneath (Norton & Alaki 2015)

Even if writers were to accept training to add tone marks, it could not be expected to be fully reliable (Bird 1999). However, this absence of tonal data is disadvantageous for grammatical research, because the question of functional load in the lexicon is orthogonal to the question of how tone functions in the grammar (Kutsch Lojenga 2014a:62). I therefore noted homographs in the writers' data that may conceal grammatical tone contrasts and as such may need other forms of research.[4]

### 1.2. Comparative analysis

<6> A comparative lexical study in Norton & Alaki (2015) using word lists collected at the same workshop confirmed that the four varieties in this study are separate languages, out of a total of nine Talodi languages spoken in communities in the south-eastern Nuba Mountains. That study also classifies Lumun in a **separate** sub-branch from Tocho, Acheron, and Dagik of the Narrow Talodi sub-branch, and the present grammatical survey provides an immediate opportunity to test this branching on additional data.[5]

<7> When starred reconstructions are used in this paper to refer to certain morphemes shared by the languages, the reconstructions are based on the sound correspondence tables for Talodi languages given in Norton & Alaki (2015). Reconstruction to proto-Talodi requires that cognates are present in both sub-branches, and thus present in both Lumun and in at least one of Tocho, Acheron, or Dagik. However, there is a possibility that Tocho and Acheron may have acquired some structures from Lumun due to contact across their adjacent settlements at Saraf Al-Jamous, as already found in basic lexicon in Norton & Alaki (2015). Hence, the safest reconstructions here are those for cognates present in (at least) Lumun and Dagik.

---

[4] For example, homograph corpus research (Roberts 2010). There is also, of course, a risk in written data that grammatical tone may be missed if a writer selects a near-synonymous non-tonal strategy to express a given grammatical distinction.

[5] The term "Narrow Talodi" (due to Schadeberg 1981) is sometimes interpreted more broadly as referring to the total cluster of Talodi languages other than a controversial outlier Tegem (Lafofa) (Smits 2017:8, Glottolog 3.3 https://glottolog.org/resource/languoid/id/narr1279, accessed 7 Sept 2018). The significance of limiting the term further to the second sub-branch only, as here, is that when we actually do comparative-historical analysis, the Narrow-Talodi-oriented reconstructions proposed in Schadeberg (1981) can only be taken into consideration for the second sub-branch, because they do not take into account the languages of the other more recently identified sub-branch, Lumun-Torona.
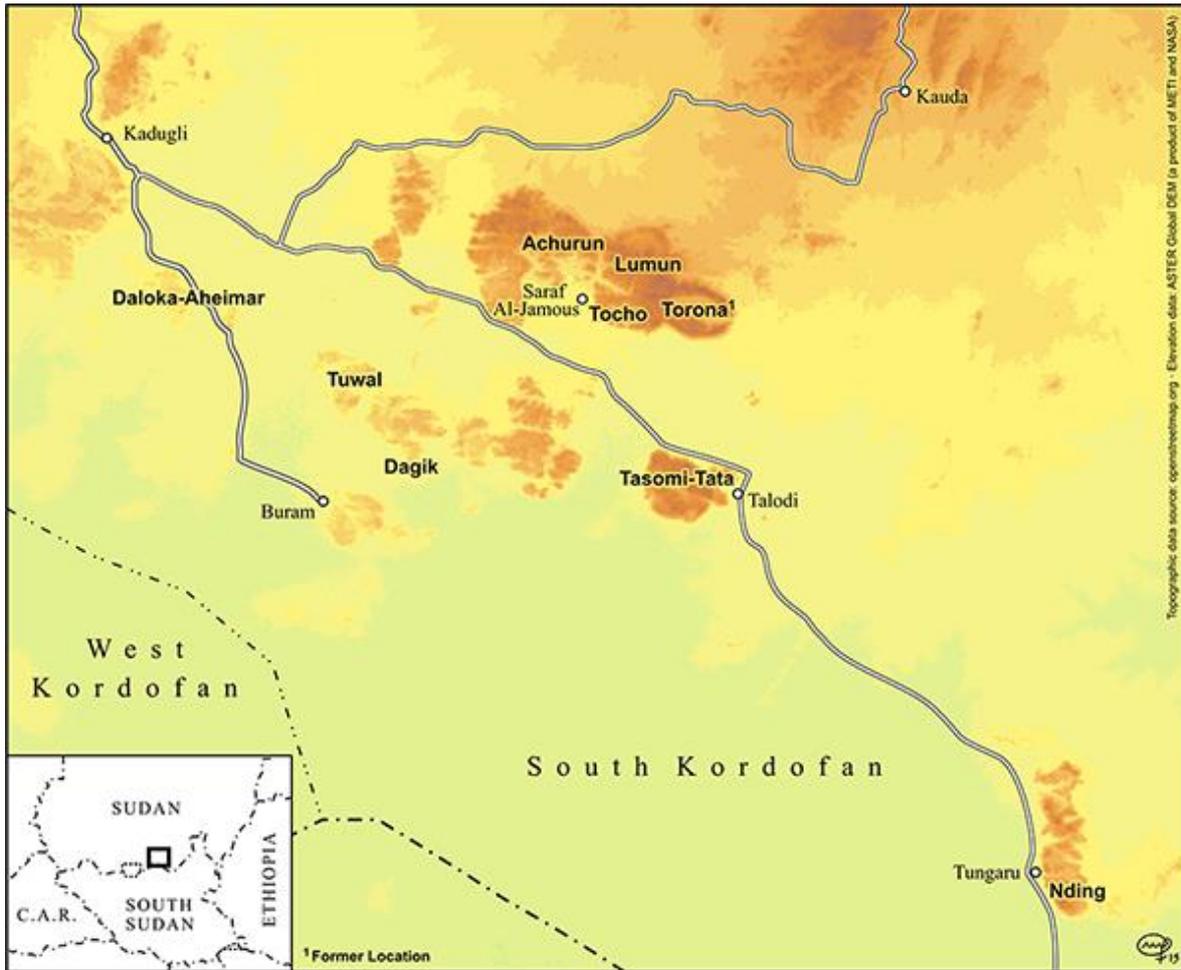
Figure 2. Map of Talodi languages

## 2.  Ethnology

<8>  As first noted in a Talodi language in Stevenson (1956:101), the four languages surveyed all use related terms for people, person, language, and homeland, for both themselves and other Talodi communities (where no terms were obtained for a given people, the cells are left empty):

| gloss | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| 'Lumun people' | a-rʊ | a-rʊ | wa-məŋ | (=Tocho people) |
| 'Lumun person' | pa-rʊ | pa-rʊ | bʊ-məŋ | |
| 'Lumun language' | ka-rʊ | ka-rʊ | gə-məŋ | |
| 'Lumun homeland' | tɔ-rʊ | tɔ-rʊ | yɔ-məŋ | |
| 'Tocho people' | a-ppɔ | a-ccɔ | wa-sɔ | a-sɔ |
| 'Tocho person' | pa-ppɔ | pa-ccɔ | ba-sɔ | pa-sɔ |
| 'Tocho language' | ka-ppɔ | ka-ccɔ | ga-sɔ | ða-sɔ |
| 'Tocho homeland' | tɔ-ppɔ | tɔ-ccɔ | yɔ-sɔ | tɔ-sɔ |
| 'Acheron people' | ə-ɽɛmɛ | a-rəmmɛ | wa-rəmɛ | (=Tocho people) |
| 'Acheron person' | pə-ɽɛmɛ | pə-rəmmɛ | bə-rəmɛ | |
| 'Acheron language' | kə-ɽɛmɛ | kə-rəmmɛ | gə-rəmɛ | |
| 'Acheron homeland' | tɔ-ɽɛmɛ | tɔ-rəmmɛ | yɔ-rəmɛ | |
| 'Dagik people' | ɲa-kkɪ | a-kkɪ | wa-kkɪ | a-rʊwa |
| 'Dagik person' | pa-kkɪ | pa-kkɪ | ba-kkɪ | pa-rʊwa |
| 'Dagik language' | ka-kkɪ | ka-kkɪ | ga-kkɪ | ða-rʊwa |
| 'Dagik homeland' | tɔ-kkɪ | tɔ-kkɪ | yɔ-kkɪ | tʊwa |

4

| gloss | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| 'Tuwal people' | (=Dagik people) | (=Dagik people) | (=Dagik people) | a-gɔsɪlɔ |
| 'Tuwal person' | | | | pa-gɔsɪlɔ |
| 'Tuwal language' | | | | ða-gɔsɪlɔ |
| 'Tuwal homeland' | | | | tɔ-gɔsɪlɔ |
| 'Torona people' | a-ɽɔnɔ | a-ɲanʊŋ | wa-rɔnɔ | |
| 'Torona person' | pa-ɽɔnɔ | pa-ɲanʊŋ | ba-rɔnɔ | |
| 'Torona language' | ka-ɽɔnɔ | kaccɔ ka a-ɲanʊŋ | ga-rɔnɔ | |
| 'Torona village' | tɔ-ɽɔnɔ | tɔ-ɲanʊŋ | dɔ-rɔnɔ | |
| 'Talodi town people' | ʊl wɔ-balɛdɪ | ʊ: wɔ t̪ɔrɛdi | wa-yɛd̪ɪ, w-əlad̪ɪ | a-llad̪ɪ |
| 'Talodi town person' | pʊl pɔ-balɛdɪ | pʊ: pɔ t̪ɔrɛdi | ba-yɛd̪ɪ, b-əlad̪ɪ | pa-llad̪ɪ |
| 'Talodi language' | karʊ kɔ-balɛdɪ | kaccɔ kɔ t̪ɔrɛdi | ga-yɛd̪ɪ, g-əlad̪ɪ | ða-llad̪ɪ |
| 'Talodi town' | palɛdɪ | t̪ɔrɛdi | dɔ-yɛd̪ɪ, dɔ-b-əlad̪ɪ | ðɔ-llad̪ɪ |
| 'Tata people' | attan | | w-attaŋ | |
| 'Tata person' | p-attan | | b-attaŋ | |
| 'Tata language' | k-attan | | g-attaŋ | |
| 'Tata village' | t-attan | | d̪-attaŋ | |
| 'Daloka people' | | ʊ: wɔ t̪ɔllɔkka | wa-lɔka | |
| 'Daloka person' | | pʊ: pɔ t̪ɔllɔkka | ba-lɔka | |
| 'Daloka language' | | kaccɔ kɔ t̪ɔllɔkka | g-əlɔka | |
| 'Daloka village' | | t̪ɔllɔkka | d̪-əlɔka | |

Most of the examples use the prefixes in the following table. The first vowel /a-/ of the people term is often preserved in the person and language terms, but not in the homeland term. Two alternative locative prefixes are used for homelands up on the hills or down on the plains in Tocho, Acheron and Dagik, as also found on place adverbs (9.2):

| prefix | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| people *a- | a- | a- | wa- | a- |
| person *p- | p- | p- | b- | p- |
| language *k-[6] | k- | k- | g- | ð- |
| location *tɔ- (up), *t̪ɔ- (down) | tɔ- | tɔ-, t̪ɔ- | yɔ-, d̪ɔ- | tɔ-, ðɔ- |

<9>  The languages also use four related terms for people, person, language, and homeland for other nearby ethnic groups living in the south-eastern Nuba Mountains that are not part of the Talodi family. Although the latter three terms use the same prefixes as for Talodi settlements, several of the people terms for non-Talodi peoples use initial consonants *l,k,m* not found in terms for Talodi peoples:[7]

---

6  Reconstruction of a velar prefix for language could be unsafe without a cognate in Dagik, except that it is also used in other Narrow Talodi communities: *ga-ttaŋ* 'Tata language', *ga-ɟʊmaŋ* 'Tasomi language' (Stevenson 1956:101).

7  A reviewer points out that terms for non-Talodi peoples are a domain where borrowings are likely. This potentially includes new plural noun class prefixes acquired from neighbouring Niger-Congo languages. Thus, initial *l* in the Lumun people terms is widely attested as a prefix on people terms in neighbouring Heiban languages (Stevenson 1956:98-100), and the term 'Lumun' itself is another example of this (Norton & Alaki 2015:115). Although the lateral does not function as a prefix in Lumun *lamparən* 'Moro people' as it is not dropped in the homeland term *tɔ-lamparən* (nor, apparently, in the term 'Lumun'), the lateral does indeed function as a prefix in Lumun *l-ʊttʊɽʊ* 'Otoro people' and *l-ʊkkʊrʊŋkʊ* 'Krongo people'. The prefix is also productive in the Lumun data in its novel application to the Krongo people,

| gloss | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| 'Moro people' | lamparən | kəmmɔɽɪŋ | wa-nsɔrəŋa, …əma | məɽa |
| 'Moro person' | p-amparən | c-əmmɔɽɪŋ | ba-nsɔrəŋa, …əma | p-əɽa |
| 'Moro language' | k-amparən | k-əmmɔɽɪŋ | ga-nsɔrəŋa, …əma | ð-əɽa |
| 'Moro homeland' | tɔ-lamparən | tɔ-kəmmɔɽɪŋ | yɔ-nsɔrəŋa, …əma | tɔ-məɽa |
| 'Tira people' | məɽa | məra | məɽa | |
| 'Tira person' | p-əɽa | p-əra | b-əɽa | |
| 'Tira language' | k-əɽa | k-əra | g-əɽa | |
| 'Tira homeland' | tɔ-p-əɽa | tɔ-ɟaɽɪŋ | yɔ-məɽa | |
| 'Otoro people' | l-ʊt̪t̪ʊɽʊ | | w-ʊt̪t̪ʊɽʊ | |
| 'Otoro person' | ʊt̪t̪ʊɽʊ | | b-ʊt̪t̪ʊɽʊ | |
| 'Otoro language' | k-ʊt̪t̪ʊɽʊ | | g-ʊt̪t̪ʊɽʊ | |
| 'Otoro homeland' | tɔ-ʊt̪t̪ʊɽʊ | | yɔ-t̪t̪ʊɽʊ | |
| 'Krongo people' | l-ʊkkʊrʊŋkʊ | ʊː wɔ kʊrʊŋkʊ | | kaðinti |
| 'Krongo person' | ʊkkʊrʊŋkʊ | pʊː pɔ kʊrʊŋkʊ | | p-aðinti |
| 'Krongo language' | k-ʊkkʊrʊŋkʊ | kaccɔ kɔ kʊrʊŋkʊ | | ð-aðinti |
| 'Krongo homeland' | tɔ-ʊkkʊrʊŋkʊ | kʊrʊŋkʊ | | tɔ-gaðinti |
| 'Shatt people' | | | | kasa |
| 'Shatt person' | | | | p-asa |
| 'Shatt language' | | | | ð-asa |
| 'Shatt homeland' | | | | ðɔ-gasa |

<10> As with Talodi peoples, if the settlements are known to speakers then four terms are generated; no incomplete paradigms were collected for any settlement. The most widespread pattern across both tables is that the people term is the base term, and the person and language prefixes preserve the first vowel of the people term when the initial consonant is replaced (Lumun lamparən / p-amparən / k-amparən). The homeland prefix is not replacive and may be added to the front of the entire people term (Lumun tɔ-lamparən) or replace the productive people prefix if it occurs (Acheron yɔ-nsɔrəŋa < wa-nsɔrəŋa). For some groups, however, the person term is a base preserved in other terms (Lumun ʊt̪t̪ʊɽʊ, ʊkkʊrʊŋkʊ), or periphrastic phrases are built from a placename for the homeland.[8]

## 3. Nouns

<11> Nouns distinguish singular and plural by various means (3.1) and they occur as both heads and dependents of genitive constructions (3.2). Several parts of speech agree with nouns usually by alliteration of the noun's initial prefix consonant: verbs (4.,10.,11.), adjectives (5.), numerals (6.), demonstratives (7.), possessive pronouns (8.2) and dependent genitive nouns (3.2). These findings extend to the present four languages similar observations made on this language family in Stevenson (1957:35-43) and Tucker & Bryan (1966:270-288).

---

who are not a Heiban people. Initial *k*, in contrast, does not look like a recent borrowing, because it is used in both Tocho and Dagik, and because it has a plausible internal source, the language prefix *k-* which has been replaced by *ð-* in Dagik. This produces a homograph in Tocho *kə-mmɔɽɪŋ* 'Moro people, Moro language', possibly carrying an undetected tone contrast.

[8] A reviewer proposes that person and language prefixes need not be analysed as replacing the initial base consonant if the initial consonant of the people term is analysed as a prefix. In fact, people terms are formed by a longer CV- prefix in both Dagik (*ka-sa* 'Shatt people', where *sa* is phonologically adapted from original *ʃat*) and Tocho (*kə-mmɔɽɪŋ* 'Moro people'). This V does not disappear in other terms but is preserved when person and language prefixes replace the initial consonant (*ka-sa → p-a-sa, ð-a-sa*). They contrast with homeland prefix which augments the base rather than replacing part of it (*ka-sa → ðɔ-ga-sa*). On replacive vs. augmentative morphology in other African languages, see Norton (2012).

### 3.1. Singular and plural

<12> Most nouns alternate in the initial consonant between singular and plural:

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'person / persons' | p-ʊl / ʊl | p-ʊː / ʊː | b-ʊr / w-ʊr | p-ʊr / ʊr |
| 'eye / eyes' | c-it / k-it | c-ik / k-ik | z-ik, ð-ik / g-ik | s-ɪgɪ / k-ɪgɪ |
| 'heart / hearts' | c-igit / m-igit | c-əgik / m-əgik | z-əgik, ð-əgik / m-əgik | s-igi / m-igi |
| 'nose / noses' | k-ɪɲcɛ / ɪɲcɛ | k-əɲcɛ / n-əɲcɛ | g-ənzɛ / n-ənzɛ | k-əsɛ / n-əsɛ |
| 'rope / ropes' | t̠-ɔɾak / l-ɔɾak | t̠-ɔrək / l-ɔrək | d̠-ɔrək / r-ɔrək | ð-ɔrək / r-ɔrək |

As previously documented in several Talodi languages by Schadeberg (1981), some nouns alternate in the first vowel as well as the initial consonant:

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'belly / bellies' | ca-rək / kə-rək | ca-rək / kə-rək | za-rək, ða-rək / gə-rək | sa-rək / kə-rək |
| 'meat SG / meat PL' | ɔ-ba / kə-ba | a-bək / kə-bək | wa-bək / gə-bək | wa-bɪ / kə-bɪ |
| 'husband / husbands' |  | pə-rɛk / a-rɛk | bə-rɛk / wa-rɛk | pə-rɛ / a-rɛ |
| 'sheep SG / sheep PL' |  | t̠ʊ-ŋgak / lə-ŋgak | d̠ʊ-ŋgak / rə-ŋgak | ðʊ-ŋga / rə-ŋga |
| 'hair SG / hair PL' |  | kʊ-gəŋ / nə-gəŋ | gʊ-gəŋ / nə-gəŋ |  |

Some nouns have completely different roots for singular and plural:

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'goat / goats' | ɪmmɪt / lɪɟɔk | ŋumik / ləɟɔk | wumik / rəssɔk | umi / rəsɔ |
| 'cow / cows' | waɪ / kɪɛ | wɛɛ / kɪɛ | waɪ, waɪŋ / gɪyɛ | waɪ / arəgu |
| 'leg / legs' | wɛk / taɟɔk |  |  |  |
| 'man / men' |  |  |  | pat̠ɪ / ʊrɪ |

Kinship terms use a suffix in the plural:

|  | **Lumun** | **Acheron** | **Tocho** | **Dagik** |
|---|---|---|---|---|
| 'my father' | ɔŋappa / ɔŋappa-n | ɔbəd̠ɛŋ / ɔbəd̠ɛŋ-ɛŋ | ɔt̠t̠ɛŋ / ɔt̠t̠ɪŋ-ɛŋ | kəðɪbɪ / kəðɪbɪy-ɛ |
| 'my mother' | ɔɪaɪa / ɔɪaɪɪ-n | ɔbənɛŋ / ɔbənɛŋ-ɛŋ | ɔnɛŋ / ɔnɛŋ-ɛŋ | kənɪbɪ / kənɪbɪy-ɛ |
| 'my sibling' | ɔbaŋkɪn / ɔbaŋkɪŋ-ɔn | ɔbaŋ / ɔbaŋ-ɛŋ | ɔpat̠t̠ɔnɛŋ / ɔpat̠t̠ɔnɛŋ-ɛŋ | ŋgɔgənɪbɪ / ŋgɔgənɪbɪy-ɛ |
| 'my uncle' | ɔrɛɪn / ɔrɛɪŋ-ɔn | ɔlɛŋ / ɔlɛŋ-ɛŋ |  | ŋɔlɛŋɪ / ŋɔlɛŋɪy-ɛ |

Some mass nouns do not distinguish singular and plural:

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'ash' | mʊɟʊk | məɟuk | məðuk, məzuk | wɛga |
| 'smoke' | kʊɟʊk | kuɟuk | guðuk, guzuk | usu |
| 'wind' | kanaŋ | kɪɟɔ | gɪðɔ, gɪzɔ | kɛsu |
| 'rain' | kabɪk | pənnɛ | gabɪk | pənnɛ |
| 'fog' | pʊrʊɟɛ | pʊrɟɛ | bəðʊyɛ, bəzʊlɛ | pəsʊllɪ |

### 3.2. Genitive construction

<14> In the genitive construction that expresses an association between two nouns, the consonant of the head noun is repeated with a vowel *ɔ before the second noun, although /ɛ/ may be used in western (W) Acheron.

|  | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| 'bottom of the pot' | cʊɾɛ cɔ-gʊmmʊk |  | d̪ɔzəgɛŋ d̪ɔ-gəbɛ | sʊɾɛ sɔ ŋəppaɪ |
| 'well of my father' | tɔk tɔ-bappa |  | yɔk yɔ-d̪ad̪a |  |
| 'calabash of water' | cattak cɔ-ɪɾɪ | tarrʊk tɔ ŋɪː | gəttarʊ gɔ-ŋɪr (E) | saɾɔ sɔ ŋɛrək |
|  |  |  | gəttarʊ gɛ-ŋɪrək (W) |  |
| 'young of (animal)' |  | ŋagʊ ŋɔ t̪aʊk | ŋəgʊr ŋɔ-wumik | ŋəmasɛ ŋɔ mað̪ɔ |
|  |  | 'young of dog' | 'young of goat' | 'young of elephant' |

<14> In the table above, the agreement consonant and the genitive vowel are provisionally analysed as joined to the second noun in Lumun and in Acheron, but as a separate genitive particle in Tocho and in Dagik. To decide word boundaries, one test is whether or not an initial plosive consonant on the second noun undergoes intervocalic voicing, because if voicing is a lexical property in these languages (footnote 4), intervocalic voicing would be triggered by affixation of the genitive vowel to the second noun. This test gave contrasting results in Lumun and Tocho: in Lumun, the initial consonant of the second noun is voiced, implying the genitive form /Cɔ-/ is affixed, whereas in Tocho, the initial consonant of the second noun remains voiceless, implying a separate genitive word /Cɔ/ between the two nouns. In Acheron, initial plosives are always voiced so this test does not help. However, the western dialect vowel /ɛ-/ also occurs within verbs as a relative prefix (9.4), implying that it is a prefix here also. In Dagik, voicing occurs (not in the parallel examples above, but in səŋɔ sɔ [b]urək p-abaɪ (singing GEN person female) 'singing of a woman'), but it applies across various words in Dagik sentences (9.4, 10, 11) so it does not establish wordhood in this language. The genitive marker is tentatively written separate from the noun here by analogy to locative markers, which are considered separate from their noun in Dagik (9.4).[9]

## 4. Verbs

<15> Verbs in the four languages take inflections for imperative, past (or perfective), habitual, progressive, future (or prospective) and negation. These inflections were surveyed on 11 verbs which were chosen to cover different syntactic classes and different stem-final vowels.

### 4.1. Imperatives

<16> Verbs may or may not take a suffix in the imperative; two imperative suffixes *-ʊ,*-ɪ both occur in Acheron and in Dagik, but in Lumun and Tocho, surveyed verbs other than 'eat', 'sit', or 'cook' lack suffixes. The imperative plural (that is, second person plural) is always marked by an affix, in Lumun a 2PL prefix (8.2) added to the citation stem not the imperative form, and in Tocho, Acheron, and Dagik a 2PL suffix added to the imperative form:

|  | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| 'vomit' | ʊttɛ | uttɛ | uttɛ | utɛ |
| imperative | ʊttɛ | uttɛ | utt-ɪ | utɛ |
| imperative plural | n-ʊttɛ | utt-ɪ-ɔŋ | utt-ɪ-nɔŋ | utɛ-nɔ |
| 'eat' | ɔɾgɔ | ɔrgɔ | ɔ-rəgɔ | rəgɔ |

---

9 The tentative separation of Dagik genitive markers seems to be strengthened by more recent evidence that a locative marker can intervene between the genitive marker and the noun (Vanderelst 2016:75).

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| imperative | ɔɽg-ʊ | ɔrg-ɪ | rəg-ʊ | rəg-ʊ |
| imperative plural | n-ɔɽgɔ | ɔrg-ɔŋ | rəg-ʊ-nɔŋ | rəg-ʊ-nɔ |
| 'say' | ɪɽɛ | ɔmma | ɔmɔ | sɛmɔ |
| imperative | ɪɽɛ | ɔmma | ɔm-ʊ | sɛm-ʊ |
| imperative plural | n-ɪɽɛ | ɔmma-ɔŋ | ɔm-ʊ-nɔŋ | sɛm-ʊ-nɔ |
| 'be' | ɔga | ɔnt̪ɔga | ɔga | kaga |
| imperative | ɔga | ɔnt̪ɔga | ɔga-wʊ | kag-ɪ |
| imperative plural | n-ɔga | ɔnt̪ɔga-ɔŋ | ɔga-wʊ-nɔŋ | kag-ɪ-nɔ |
| 'have' | ɔnc | ɔna | ɔna | tɔnna |
| imperative | ɔnc | ana | ɔna-wʊ | tɔnn-ɪ |
| imperative plural | n-ɔnc | ana-ɔŋ | ɔna-wʊ-nɔŋ | tɔnn-ɪ-nɔ |
| 'know' | ɪna | ənna | ɪnna, ənna | ʊnəgɪkɔ |
| imperative | ɪna | ənna | ɪnna-wʊ | ʊnəgɪk-ɪ |
| imperative plural | n-ɪna | ənna-ɔŋ | ɪnna-wʊ-nɔŋ | ʊnəgɪk-ɪn-nɔ |

In all four languages, 'go' and 'come' have suppletive imperatives:

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'go' | ɛɔ | akɔ | ɔnɔ | taʊ |
| imperative | ŋkɔ | əŋkɔ | əŋkɔ | ag-ʊ |
| imperative plural | n-ɛɔ | əŋk-ɔŋ | əŋkɔ-nɔŋ | ag-ʊ-nɔ |
| 'come' | aɔ | aɟɔ | ad̃ɔ, azɔ | tasɔ |
| imperative | aɽɪk | arɛ-k | arɛ-k | ŋgarɛ |
| imperative plural | n-aɔ | ar-ɪ-ɔŋ | arɛ-nɔŋ | ŋgarən-nɔ |

<17> In the following verbs, the imperative has another suffix *-d̪ɛ which appears in addition to the imperative suffix if there is one, and which replaces a stem-final consonant (-t/-k) if there is one ('give' is more idiosyncratic, being invariant in Lumun and suppletive in Acheron):

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'cook' | ɔkkɔ-t | akkɔ-k | akkɔ-k | rɔkɔ |
| imperative | ɔkkɔ-d̪ɛ | akk-ɪ-d̪ɛ | akk-ʊ-d̪ɛ | rɔk-ʊ |
| imperative plural | n-ɔkkɔ-t | akkɔ-d̪-ɔŋ | akk-ʊ-d̪ɛ-nɔŋ | rɔk-ʊ-nɔ |
| 'sit down' | ɪkkɔ-ɪk | ɔrəŋɔ cɪk | rəŋɔ-k cɪk | nəŋa sɪ |
| imperative | ɪkk-ɪ-k | ɔrəŋ-ɪ-d̪ɛ cɪk | rəŋ-ʊ-d̪ɛ cɪk | nəŋa-nt̪ɛ sɪ |
| imperative plural | n-ɪkkɔ-ɪk | ɔrəŋɔ-d̪-ɔŋ cɪk | rəŋ-ʊ-d̪ɛ-nɔŋ cɪk | nəŋa-nt̪ɛ-nɔ sɪ |
| 'give' | ɛd̪ɛt | ɔɟɛ-k | ɪɟɛ-k, ɪzɛ-k | ɪsɔ |
| imperative | ɛd̪ɛt | ɔɟɛ-d̪ɛ | ənd̪ɛ | ɪs-ʊ |
| imperative plural | n-ɛd̪ɛt | ɔɟɛ-d̪-ɔŋ | ənd̪ɛ-nɔŋ | ɪs-ʊ-nɔ |

Acheron is the only language that has either an imperative suffix or suppletive imperative for all 11 verbs surveyed, and Dagik has these for 10 of the 11 verbs. In Lumun and Tocho, few of the 11 verbs take an imperative suffix, leading to homography in several verbs between

9

imperative and citation stem. The possibility that these contain undescribed tone changes is confirmed for Lumun imperatives in Smits (2017:339-341).

## 4.2. Past

<18> In most of the 11 verbs, past is marked on the stem by -t in Lumun (Smits 2017:355) or -k in Tocho and in Acheron (Alamin 2003), though no cognate suffix appears on the verbs in Dagik. In certain verbs, the suffix *-ḏɛ is used instead, replacing a stem-final consonant (-t/-k) if there is one as first observed by Alamin (2003) in Acheron, and as also seen on imperatives in 4.1 (in this and subsequent data tables, initial *p-* or *b-* marks subject agreement with a *p/b*-initial subject noun or a singular pronoun):[10]

|            | **Lumun**   | **Tocho**    | **Acheron**   | **Dagik**      |
|------------|-------------|--------------|---------------|----------------|
| 'vomited'  | p-ʊttɛ-t    | p-uttɛ-k     | b-uttɛ-k      | p-utɛ-ɔ        |
| 'ate'      | p-ɔɽgɔ-t    | p-ɔrgɔ-k     | b-ɔrəgɔ-k     | pɔ-rəgɔ        |
| 'said'     | p-ɪɽɛ-t     | p-ɔmma-k     | b-ɔmɔ-k       | pɔ-sɛmɔ        |
| 'was'      | p-ɔga-t     | p-ɔnt̪ɔga-k   | b-ɔga-k       | pɔ-kaga        |
| 'had'      | p-ɔna-t     | t-ana-k      | b-ɔna-k       | pɔ-tɔnna       |
| 'went'     | p-ɛɔ-t      | p-a-k        | b-ɔnɔ-k       | p-agɔ          |
| 'came'     | p-a-t       | p-aɟɔ-k      | b-aðɔ-k       | p-asɔ          |
| 'knew'     | p-ɪna-t     | p-ənna-k     | b-ɪnna-k      | p-ʊnəgɪkɔ-t̪ɛ   |
| 'sat down' | p-ɪkkɔ-t cɪk | p-ɔrəŋɔ-ḏɛ cɪk | b-ɔ-rəŋɔ-ḏɛ ðɪk | pɔ-nəŋa-t̪ɛ sɪ |
| 'cooked'   | p-ɔkkɔ-ḏɛ   | p-akkɔ-ḏɛ    | b-akkɔ-ḏɛ     | pɔ-rɔkɔ-t̪ɛ     |
| 'gave'     | p-ɛḏɛt      | p-ɔcɛ-ḏɛ     | b-ɪɟɛ-ḏɛ      | p-ɪsɔ-t̪ɛ       |

## 4.3. Habitual

<19> Habitual aspect is expressed in Dagik by an auxiliary verb /a/, while the other languages have a prefix /a-/, and the auxiliary/prefix distinction is sustained in forthcoming subsections, where further inflections are added to the auxiliary in Dagik, or added to the verb containing /a-/ in the other languages. Tocho and Lumun habituals show an additional pattern of pluractional marking by internal reduplications, extensions, and suppletions relative to the citation stem shown in brackets (also in 4.6, 11.2 and Smits 2017:461ff).

|          | **Dagik**   | **Acheron**  | **Tocho**          | **Lumun**             |
|----------|-------------|--------------|--------------------|-----------------------|
| 'vomits' | p-a utɛ     | p-a-uttɛ     | p-uttəttɛ (uttɛ)   | p-uttuttɛ (uttɛ)      |
| 'eats'   | p-a rəgɔ    | b-a-rəgɔ     | p-a-rəttɛ (ɔrəgɔ)  | p-a-ɽəttɛ (ɔɽəgɔ)     |
| 'says'   | p-a sɛmɔ    | b-a-mɔ       | p-a-məma (ɔma)     | p-ɪɽɪllɛ (ɪɽɛ)        |
| 'goes'   | p-a raʊ     | b-a-nɔ       | p-akkəkkɔ (agɔ)    | p-a-ɪnɟɪccɛ (ɛɔ)      |
| 'comes'  | p-a rasɔ    | b-aðɔ        | p-aɟəkkɔ (aɟɔ)     | p-a-ukkukkwɔ (aɔ)     |
| 'knows'  | p-a ʊnɛkɔ   | b-ɪnna       | p-əŋkənna (ənna)   | p-ɪnɪna (ɪna)         |
| 'gives'  | p-a ɪsɔ     | b-a-ɪɟɛk     | p-a-ɟɪkkɛk (ɔɟɛk)  | p-ɪgɪkkɛt (ɛðɛt)      |
| 'cooks'  | p-a rɔkɔ    | b-akkɔk      | p-akkəkkɔk (akkɔk) | p-a-kkattɛt (ɔkkɔt)   |
| 'sits'   | p-a nəŋa sɪ | b-a-rəŋɔk cɪk | p-a-rəŋɔk cɪk (ɔrəŋɔ) | p-ɪgɪkkɔ-ɪk (ɪkkɔ-ɪk) |

## 4.4. Progressive

<20> In all four languages, progressive aspect is expressed by an auxiliary verb before the main verb. In three of the languages, the auxiliaries show locative extensions /-rɪ,-ɟɪk,-ɪk/ on the base /a/ as used for habitual aspect in Dagik.

---

[10] The unmarked Dagik verbs have a past reading but are analysed as perfective stems by Vanderlelst (2016:113). The function of -ɔ in Dagik 'vomited' is unknown.

| | Dagik | Acheron | Tocho | Lumun |
|---|---|---|---|---|
| 'is vomiting' | p-a-ɾɪ utɛ | b-ɔga uttɛ | p-a-ɟɪk uttɛ | p-a-ɪk p-ʊttɛ |
| 'is eating' | p-a-ɾɪ rəgɔ | b-ɔga ɔrəgɔ | p-a-ɟɪk ɔrgɔ | p-a-ɪk p-a-ɾgɔ |
| 'is cooking' | p-a-ɾɪ rɔkɔ-t̪ɛ | b-ɔga akkɔk | p-a-ɟɪk akkɔk | p-a-ɪk p-a-kkɔt |
| 'is giving' | p-a-ɾɪ ɪsɔ-t̪ɛ | b-ɔga ɲɟɛk | p-a-ɟɪk p-a-ɟɛk | p-a-ɪk p-ɛd̪ɛt |

The suffix *-d̪ɛ appears on certain verbs in the progressive in Dagik only. The additional use of the prefix /a-/ on main verbs in Tocho and Lumun, also used for habitual (4.3) or prospective (4.5), is presumably expressing a more complex inflection.

### 4.5. Future

<21> To express future time, Dagik uses an auxiliary verb with a different extension /-nta/, while the other three languages again have the prefix /a-/ giving it a broader prospective or incompletive meaning. Acheron and Tocho have additional prefixes, but in Lumun the /a-/ prefix alone gives a prospective reading. None of the additional morphemes /ɪɣ-/, /d̪-/, /-nta/ are cognate so they are likely to have different underlying source meanings.

| | Dagik | Acheron | Tocho | Lumun |
|---|---|---|---|---|
| 'will eat' | p-a-nta rəgɔ | b-ɪɣ-a-rəgɔ | p-a-d̪-ɔrgɔ | p-a-ɾgɔ |
| 'will cook' | p-a-nta rɔkɔ | b-ɪɣ-a-kkɔk | p-a-d̪-akkɔk | p-a-kkɔt |

### 4.6. Negation

<22> Imperative verbs can be negated in all four languages by a negative auxiliary verb, which takes the imperative plural marking. In Lumun, the different stem-final vowel of the negative auxiliary in the imperative plural reflects the earlier observation that the Lumun imperative plural uses the citation stem and not the imperative stem. The Acheron data use prefixation (which recalls the use of prefixation for imperative plural in Lumun), but Acheron participants reported afterwards that they also have a negative auxiliary /d̪əma/ cognate with that of Dagik.

| | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| stem 'vomit' | ʊttɛ | uttɛ | uttɛ | utɛ |
| negative imperative | kərənn-ɪ ʊttɛ | ma uttɛ | b-əd̪-a-uttɛ | ð̪əma utɛ |
| negative imperative plural | n-ɔkərənnɔ ʊttɛ | ma-ŋɔŋ uttɛ | d̪-əd̪-a-uttɛ | ð̪əma-nɔ utɛ |

<23> In declarative sentences, the strategies are more varied. Lumun uses incorporation of the negative auxiliary in reduced form, Tocho uses a postverbal negative particle, Acheron uses a negative verbal prefix, and Dagik uses the same auxiliary as with negative imperatives, with inflection expressed on a following dependent copula verb /ka/:

| | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| negative past | p-a-kənn-ʊttɛ | p-uttɛ-k t̪ɪ | b-əd̪-a-uttɛ-k | p-ɔ-ð̪əma utɛ |
| neg. present habitual | p-a-kənn-ʊttʊttɛ | p-uttəttɛ ɾɪ | b-əd̪-a-uttɛ | p-ɔ-ð̪əma ka utɛ |
| negative future | p-a-kənn-ʊttɛ | p-a-d̪-uttɛ ɾɪ | b-əd̪-ɪɣ-a-uttɛ | p-ɔ-ð̪əma ka-nta utɛ |
| negative present progressive | p-aɪk p-a-kənn-ʊttɛ | p-aɟɪk uttɛ ɾɪ | b-əd̪-a-ga uttɛ | p-ɔ-ð̪əma ka-ɾɪ utɛ |

<24> In both Lumun and Acheron, the negation marker co-occurs with the incompletive prefix /a-/ (4.3-4.5) in declarative verbs. The Lumun data uses a reduced form kənn- of the negative auxiliary ɔkərənnɔ, and past is not distinguished as the past suffix appears neither after the

incorporated auxiliary kənn- nor after the main verb root. This contrasts with Acheron where the past suffix does occur at the end of the verb, b-əd̪-a-uttɛ-k̲.

<25> There are recurrent forms for negation across the Narrow Talodi languages. The Dagik negative auxiliary ðəma and its Acheron cognate d̪əma (reported afterwards by the participants) have the form of the Acheron negative prefix d̪- plus the Tocho negative auxiliary ma, both of which were previously reported by Stevenson (1957:39) in the Narrow Talodi language Masakin Tuwal (prefix t̲-, auxiliary maa).. The post-verbal negation particle tɪ in Tocho (becoming flapped ɾɪ after a vowel) was also reported in Masakin Tuwal (Stevenson 1957:39), and subsequently in Dagik (Vanderelst 2016:124). Thus, three negative morphemes *t̲-,*ma,*tɪ all occur in at least three or four Narrow Talodi languages, and these languages use multiple negation strategies. In place of Narrow Talodi *ma, Lumun employs a different verbal stem ɔkə́rənnɔ 'let, abstain' (Smits 2017:423ff) with negation as an extended meaning.

### 4.7. Prominence of imperative and past

<26> *Imperative* is especially prominent in Talodi languages in the sense of Bhat (1999) as it shows extensive morphologisation: suppletive imperatives, two imperative vowel suffixes that replace final stem vowels, a plural suffix for imperatives, and negative auxiliaries that are used only with imperatives. It is also reported elsewhere that imperatives are marked by tone changes as well (Vanderelst 2016:108-109, Smits 2017:339-341).

<27> *Past* is quite prominent as well in Lumun, Tocho, and Acheron, with two suffixes marking past for different verb classes, and these also appear pervasively in published Lumun narrative texts (Smits 2007a, Stirtz 2012). At the same time, the prominence of past is limited in that Lumun does not use the past suffix on 'give' or on negated verbs, and the suffix *-d̪ɛ, though required by some verbs such as 'cook' or 'sit' as the only expression of past, is required in other inflectional categories as well, and Smits (2013) has analysed this suffix as a locative-applicative extension. Like the other prominent category of imperative, past is grammaticised by suffixation, in contrast to other inflections that are found before the verb root in prefixes and auxiliaries.

## 5.   Adjectives

<28> The four languages have adjectives as a distinct word class that occurs after inflected copula verbs in predicates (5.1). They have certain adjectives that alternate in meaning between size and quantity in singular and plural (5.2). Adjectives can be modified by intensifying adverbs (5.3), and are used in comparative constructions (5.4).

### 5.1. Predicative and attributive use

<29> In all four languages, adjectives follow the noun and agree with the noun in the initial consonant in both predicative and attributive use. In predicative use, adjectives come after a copula verb that inflects like other verbs. The same copula verb root *ga occurs in all four languages, but is left out in the unmarked present tense in Tocho, Lumun, and Dagik:[11]

---

[11] A reviewer queries whether the copula+adjective construction is a calque. However, Acheron (where the copula is used in present tense) has the same construction in data from natural text:

| ɔbayɪ | na | b-ɔmɔ-d̪-ɔk | na | ɲ-əzawʊ | ɲ-ɔga | ɲ-ɔttɛŋ |
|-------|-----|------------|-----|---------|--------|---------|
| wife | TOP | SG-say-LOC.APPL-3SG | COMP | CL-asida | CL-be | CL-few |

'His wife said to him, "The asida is little."'

Furthermore, by documenting the languages in parallel we discover that a cognate copula verb inflects consistently before adjectives in four languages. This degree of recurrence across speakers of multiple languages is highly unlikely to be due to calquing, and is more plausibly explained as a common inherited construction.

|  | Acheron | Tocho | Lumun | Dagik |
|---|---|---|---|---|
| 'is strong' | b-ɔga b-ɔbɔrɔk | p-ɔbɔrɔk | p-ɔnt̪ɔmat | p-ɔsʊrək |
| 'was strong' | b-ɔga-k b-ɔbɔrɔk | p-ɔnt̪ɔga-k p-ɔbɔrɔk | p-ɔga-t p-ɔnt̪ɔmat | p-ɔ-kaga p-ɔsʊrək |
| 'will be strong' | b-ɪya-ga b-ɔbɔrɔk | p-ad̪-ɔnt̪ɔga p-ɔbɔrɔk | p-a-ga p-ɔnt̪ɔmat | p-a-nta kaga p-ɔsʊrək |
| 'be strong!' | ɔga-wʊ b-ɔbɔrɔk | ɔnt̪ɔga p-ɔbɔrɔk | ɔga p-ɔnt̪ɔmat | kag-ɪ p-ɔsʊrək |

<30> Predicative adjectives in present tense ('the goat is black', 'the goat is big') occur after a copula verb in Acheron but are unmarked in Tocho, Lumun and Dagik. Attributive adjectives ('black goat', 'big goat') are unmarked in eastern Acheron, but in other languages are marked by relative prefixes, western Acheron -ɛ- (before a consonant), Tocho ɔN-, Lumun and Dagik ɪ-. So these attributive constructions can be interpreted as nouns modified by relative clauses containing an adjective predicate ('goat which is black', 'goat which is big'):[12]

|  | Acheron | Tocho | Lumun | Dagik |
|---|---|---|---|---|
| 'the goat is black' | wumik w-ɔga w-ɔɲi | ŋumik ŋ-ɔɲi | imit w-ɔɲɪ | umi w-ɔn̪i |
| 'black goat' | wumik w-ɔɲi (E) <br> wumik w-ɛ-ɲi (W) | ŋumik ɔŋ-ŋ-ɔɲi | imit ɪ-ɔɲɪ | umi ɪ-w-ɔn̪i |
| 'the goat is big' | wumik w-ɔga w-uyik | ŋumik ŋ-uttik | imit w-ɪttɪk | umi w-ɔgɔ |
| 'big goat' | wumik w-uyik | ŋumik ɔŋ-ŋ-uttik | imit ɪ-ttɪk | umi ɪ-w-ɔgɔ |

## 5.2. Plural adjectives

<31> In all four languages, the size adjective roots 'small' and 'big' take quantity meanings 'few' and 'many' in the plural except when reduplicated, as first reported in Tocho by Schadeberg (1981:132,148) (reduplicated forms are connected by '~' following the Leipzig Glossing Rules, instead of the usual morpheme boundary symbol '-'):[13]

|  | Acheron | Tocho | Lumun | Dagik |
|---|---|---|---|---|
| 'the goat is small' | wumik w-ɔga w-ɔttɛŋ | ŋumik ŋ-ɔttɛŋ | imit w-ɔttɛ-ɪk | umi w-ət̪ɛ |
| 'the goats are few' | rəssɔk r-ɔga r-ɔttɛŋ | ləɟɔk l-ɔttɛŋ | lɪɟɔk l-ɔttɛ-ɪk | rəsɔ r-ət̪ɛ-mɛ |
| the goats are small' | rəssɔk r-ɔga r-ɛtt~ɛttɛŋ, r-ɔttɛŋ~r-ɔttɛŋ | ləɟɔk l-ɔttɪŋ~l-ɔttɪŋ | lɪɟɔk l-ɔttɔ~l-ɔttɛ-ɪk | rəsɔ r-ət̪ɛ~r-ət̪ɛ |
| 'the goat is big' | wumik w-ɔga w-uyik | ŋumik ŋ-uttik | imit w-ɪttɪk | umi w-ɔgɔ |
| 'the goats are many' | rəssɔk r-ɔga r-uyik | (ləɟɔk l-ɔd̪ʊbɔk) | (lɪɟɔk l-ɔppɔt) | rəsɔ r-ɔgɔ |

---

[12] A reviewer queries whether relative prefixes are diagnostic of verbs, so that an adjective class can be ruled out in these languages. Relative prefixes are not diagnostic of verbs, for several reasons. First, relative prefixes also appear on genitive nouns (3.2) and ordinal numerals (6.2) in some languages. Second, although adjectives take several affixes typical of verbs – relative prefixes, noun class agreement prefixes, frequent stem-initial *ɔ- and some extensions (footnote 13, also Norton & Alaki 2015: 147-151), adjectives nevertheless fail to take verbal TAM inflections. This failure to inflect is not because they are all defective verbs, either, as TAM inflections are still required in the clause on a copula verb preceding the adjective (5.1), a fact that makes the adjectives like co-verbs (they contribute lexical meaning to complex predicates) rather than verbs. Third, while adjectives share some morphology with verbs they also share some morphology with nouns as well, specifically the markers of adverb derivation (9.3, 9.4). Other sources likewise distinguish an adjective class in various Talodi languages (Stevenson 1957, Tucker & Bryan 1966, Crocker 1982, Alamin 2003, Vanderelst 2016, Smits 2017, Norton & Alaki 2017).

[13] This table shows a number of minor variations in particular languages within the stated pattern. In Lumun and Tocho, 'many' is expressed by another root although 'big (PL)' is still reduplicated. Acheron -uttiy-aða 'big (PL)' is distinguished by gemination of the root consonant *tt* as a minimal form of reduplication (switched in another language Jomang (Tasomi), b-ʊ́ttik/y-ʊ́ʊ̯ɽik 'big (SG/PL)' in Schadeberg 1981:20), and -aða 'body' is added forming a compound adjective. Dagik -ət̪ɛ-mɛ 'few' probably shows similar compounding with -mɛ 'bone'. Lumun -ɔttɛ-ɪk 'small' has a locative adverbial extension that also occurs on the copula verb, -a-ɪk (3.3, 9.2).

|  | **Acheron** | **Tocho** | **Lumun** | **Dagik** |
|---|---|---|---|---|
| 'the goats are big' | rəssɔk r-ɔga r-uttiy-aða | ləcɔk l-uttik~l-uttik | lɪcɔk l-ɪtt~ɪttɪk | rəsɔ r-ɔgɔ~r-ɔgɔ |

Although adjectives have been reported to reduplicate regularly in the plural in one Talodi language, Tuwal (Stevenson 1957:39, Crocker 1982), this does not happen in the four languages surveyed here, outside of the size adjectives already shown:

|  | **Acheron** | **Tocho** | **Lumun** | **Dagik** |
|---|---|---|---|---|
| 'the goats are black' | rəssɔk r-ɔga r-ɔɲɪ | ləɟɔk l-ɔɲɪ | liɟɔk l-ɔɲɪ | rəsɔ r-ɔn̠i |
| 'the goats are heavy' | rəssɔk r-ɔga r-immən | ləɟɔk l-immən | liɟɔk l-immin | rəsɔ r-imək |
| 'the goats are good' | rəssɔk r-ɔga r-ɔrɪŋ | ləɟɔk l-ɔrɪŋ | liɟɔk l-ɔpɔrɔt | rəsɔ ccɛ r-ɔrɪ |

### 5.3. Intensifiers

<32> Adjectives can be modified by an intensifier word after the adjective in all four languages; in some cases the intensifier is derived from the adjective itself ('good'); another intensifying strategy is partial reduplication ('black') which, though missing in Dagik in this survey, is now reported there too (Vanderelst 2016:147):

| 'the goat is' | **Acheron** | **Tocho** |
|---|---|---|
| 'very big' | wumik w-ɔga w-uyik gəttiŋ | ŋumik ŋ-uttik cannaŋ |
| 'very 'good' | wumik w-ɔga w-ɔrɪŋ d̠-ɔrɪɲ-a | ŋumik ŋ-ɔrɪŋ ɪ-llɪŋ |
| 'very black' | wumik w-ɔga w-ɔɲi~ɲi | ŋumik ŋ-ɔɲi~ɲi |

| 'the goat is' | **Lumun** | **Dagik** |
|---|---|---|
| 'very big' | imit w-ɪttɪk cannan | umi w-ɔgɔ manɪkɔ |
| 'very 'good' | imit w-ɔbɔrɔt cannan | umi w-ɔrɪ manɪkɔ |
| 'very black' | imit w-ɔɲɪ~ɲɪ | umi w-ɔɲi manɪkɔ |

The intensifier words that modify adjectives are recognisable as adverbs (section 9.) because: 1. like adverbs they do not inflect for agreement in their initial consonant, 2. their initial consonants *g,c,m* are typical of the initial consonant classes of adverbs in these languages, 3. specific adverbs (Tocho ɪ-llɪŋ) can modify both adjectives and verb phrases.

### 5.4. Comparatives

<33> In comparative sentences, the adjective is unmarked in all four languages and the pivot (P) and standard (S) of comparison come after the adjective (A). Acheron and Dagik both show double pivot marking, by both a pivot word (ɔkkɔ/na) and a locative prefix (nɔ-/ɪ-) on the standard of comparison (see 9.4):

|  | 'This goat | is blacker | than that (goat).' |
|---|---|---|---|
| **Tocho** | ŋumik ŋ-ɪɔŋ | ŋ-ɔɲi$_A$ | ənnaŋ$_P$-əlɛ$_S$ |
| **Lumun** | imit ɛnɪ | w-ɔɲi$_A$ | nɔ$_P$-imit$_S$ ɛnɛɾɛ$_S$ |
| **Acheron** | wumik i-ww-i | w-ɔga w-ɔɲi$_A$ | ɔkkɔ$_P$ nɔ$_P$-wumik$_S$ w-ərɛ$_S$ |
| **Dagik** | umi w-i | w-ɔn̠i$_A$ | na$_P$ ɪ$_P$-w-əna$_S$ |

## 6. Numerals

<34> The four languages have numerals used in cardinal expressions (6.1) and in ordinal expressions (6.2), with ordinal number also encoded in birth order noun systems. The numeral 'ten', and in some languages 'twenty', are used as bases for higher numerals (6.3). The four languages also have a collective quantifier which is morphologically similar to some base numerals (6.4).

### 6.1. Cardinal numerals 1-10

<35> In all four languages the numerals 1,2,3 agree with the noun in the initial consonant as first noted in a Talodi language by Tucker & Bryan (1966:270-288), although this persists to further numerals in particular languages. The numerals 6,7,8,9 are built from various root combinations in Lumun and Tocho as first documented in Lumun by Smits (2007a), whereas in Acheron and Dagik they are built by adding 1, 2, 3, 4 to a base 5 after the conjunction nə- as first documented in Dagik by Schadeberg (1981). However, in all four languages the numeral 9 is expressed as the sum of 5 and 4.[14]

| | Lumun | Tocho | Acheron (E) | Dagik |
|---|---|---|---|---|
| '1 day' | caʈɪ c-ʊllʊkkʊ | caʊŋ c-ʊllʊk | zəŋki z-ʊllʊk | sawɪ s-əllʊ |
| '2 days' | maʈɪ m-ɛɾa | maʊŋ m-ɛrak | məŋki m-ɛɾak | mawɪ m-ɛɾa |
| '3 days' | maʈɪ m-əɾabʊrʊk | maʊŋ m-ət̪t̪ək | məŋki m-ət̪t̪ək | mawɪ m-ət̪ək |
| '4 days' | maʈɪ m-ɔɟɔʈɪn | maʊŋ mɔ-brandɔ | məŋki brandɔ | mawɪ mɔ-pɾandɔ |
| '5 days' | maʈɪ m-ʊgʊllʊk | maʊŋ mɔ-gʊɲcʊrʊk | məŋki zəgʊnzʊlʊk | mawɪ mɔ-sɪsəllʊ |
| '6 days' | maʈɪ m-əɾa-kkʊrʊk | maʊŋ pət̪t̪ək~pət̪t̪ək | məŋki zəgʊnzʊlʊk na-z-ʊllʊk | mawɪ mɔ-sɪsəllʊ na-s-əllʊ |
| '7 days' | maʈɪ m-əɾa-m-əɾabʊrʊk | maʊŋ m-ɛrɛk mɔ-brandɔ a-m-ɛrɛk m-ət̪t̪ək | məŋki zəgʊnzʊlʊk na-m-ɛɾak | mawɪ mɔ-sɪsəllʊ na-m-ɛɾa |
| '8 days' | maʈɪ mɔrmɔr | maʊŋ prandɔ~prandɔ | məŋki zəgʊnzʊlʊk na-m-ət̪t̪ək | mawɪ mɔ-sɪsəllʊ na-m-ət̪ək |
| '9 days' | maʈɪ ʊgʊll-a-ɟɔʈɪn | maʊŋ cəgʊŋ c-ʊllʊk a-mɔ-brandɔ | məŋki zəgʊnzʊlʊk na-bɾandɔ | mawɪ mɔ-sɪsəllʊ na-mɔ-pɾandɔ |
| 10 days | maʈɪ attʊl | maʊŋ attu | məŋki gʊrrʊŋ | mawɪ mɔ-n̪ɪpɾa |

When we compare the root combinations in Lumun and Tocho, Lumun 6 (2-5) and 7 (2-3) do not correspond to Tocho 6 (3-3) and 7 (4-3). Instead, Tocho 6 and 7 match Tira [tic], a Heiban language also present in the Saraf Al-Jamous language cluster:

| | Tira (Alaki 2008) | Tocho |
|---|---|---|
| 1 | kɛ̀nːɛ | caʊŋ c-ʊllʊk |
| 2 | kìʈɪcàn | maʊŋ m-ɛrak |
| 3 | kìʈɪcɪ́n | maʊŋ m-ət̪t̪ək |
| 4 | maɬɾò | maʊŋ mɔ-brandɔ |
| 5 | ðɛ́nɛ̀ | maʊŋ mɔ-gʊɲcʊrʊk |
| 6 | ʈìcɪ́n~ʈìcìn (3~3) | maʊŋ pət̪t̪ək~pət̪t̪ək (3~3) |
| 7 | maɬɾò-kìʈɪ́cìn (4-3) | maʊŋ m-ɛrɛk mɔ-brandɔ a-m-ɛrɛk m-ət̪t̪ək (4-3) |
| 8 | ɔ́bbɔ̀ | maʊŋ prandɔ~prandɔ (4~4) |
| 9 | ðɛ́nɛ̀-n̪-maɬɾò (5-4) | maʊŋ cə-gʊŋ c-ʊllʊk a-mɔ-brandɔ (5-4) |
| 10 | ʊ́rrì | maʊŋ attu |

<36> Under influence from Tira, then, Tocho deviates from other Talodi languages, in particular from the base 5 strategy found in the other two Narrow Talodi languages Dagik and Acheron, which is also reported in other Narrow Talodi languages apart from Tocho (Schadeberg 1981: 45) and

---

[14] Some of the Tocho expressions have a more elaborate syntax:

| m-aʊŋ | m-ɛrɛk | mɔ-brandɔ | a-m-ɛrɛk | m-ət̪t̪ək | '7 days' |
|---|---|---|---|---|---|
| PL-day | AGR-INDEF | AGR:GEN-four | CONJ-AGR-INDEF | AGR-three | |

| m-aʊŋ | c-əgʊŋ | c-ʊllʊk | a-mɔ-brandɔ | | '9 days' |
|---|---|---|---|---|---|
| PL-day | SG-hand | AGR-one | CONJ-AGR:GEN-four | | |

is thus the original system for that sub-branch. The Lumun system is different and more opaque. Lumun root compounds for 6 (-əɽa-kkʊrʊk 2-5) and 7 (-əɽa--əɽabʊrʊk 2-3) are not transparent sums or products of their component roots, despite Lumun 3 (-əɽa-bʊrʊk 2-1) being a transparent sum, so -əɽa is functionally opaque or polysemous in Lumun. In Lumun 6 (2-5), -əɽa functions as 'successor', thus 6 = 'successor-5'. A successor etymology in Lumun 7 (2-3) would imply 'successor-3', which could be an opaque rendering of 'successor-three[s]' = 'successor-6' = 7. Another possible analysis is that 7 (2-3) is an abbreviation of 2-2-3 = 7 (Smits 2017:295). Thus, of the three numeral systems found in these four languages, we have two historic systems of opaque compounding in Lumun and the base 5 strategy in the Narrow Talodi sub-branch, plus the Tocho system which resembles neighbouring Tira instead.

**6.2. Ordinal numerals 1ˢᵗ-10ᵗʰ**

<37> Ordinal numerals are formed in various ways that appear to support definiteness of the noun they are modifying. Tocho adds a prefix a- also seen with a definite nominal function in Dagik in 8.2, Acheron uses genitive prefixation (3.2) where the relative prefix -ɛ- is used in western Acheron, and Lumun and Dagik use a relative prefix ɪ- (10.4). Special forms are used for the lowest ordinals in Acheron and Lumun, discussed below. In languages other than Tocho, the expressions for 'second' onwards are unexpectedly plural ('days of four'?, 'days that are four'?), but function as ordinal:

|  | Tocho |  | Acheron (E) | Acheron (W) |
|---|---|---|---|---|
| '1ˢᵗ chair' | pɔrɔk a-p-ʊllʊk | '1ˢᵗ day' | zəŋki zɔ-nɔd̪ɔŋ | ðəŋki ð-ɛ-nɔd̪ɔŋ |
| '2ⁿᵈ chair' | pɔrɔk a-p-ɛrak | '2ⁿᵈ day' | məŋki m~a-m-ɛɽak | məŋki m-ɛ~y-ɛɽak |
| '3ʳᵈ chair' | pɔrɔk a-p-ət̪t̪ək | '3ʳᵈ day' | məŋki m~a-m-ət̪t̪ək | məŋki m-ə~y-ət̪t̪ək |
| '4ᵗʰ chair' | pɔrɔk a-pɔ-brandɔ | '4ᵗʰ day' | məŋki mɔ-bɽandɔ | məŋki m-ɛ-bɽandɔ |
| '5ᵗʰ chair' | pɔrɔk a-pɔ-gʊɲcʊrʊk | '5ᵗʰ day' | məŋki mɔ-zəgʊnzʊlʊk | məŋki m-ɛ-ðəgʊnsʊk |
| '6ᵗʰ chair' | pɔrɔk a-pət̪t̪ək~pət̪t̪ək | '6ᵗʰ day' | məŋki mɔ-zəgʊnzʊlʊk na-z-ʊllʊk | məŋki m-ɛ-ðəgʊnsʊk na-ð-ʊllʊk |
| '7ᵗʰ chair' | pɔrɔk a-p-ɛrɛk pɔ-brandɔ a-p-ɛrɛk pət̪t̪ək | '7ᵗʰ day' | məŋki mɔ-zəgʊnzʊlʊk na-m-ɛɽak | məŋki m-ɛ-ðəgʊnsʊk na-m-ɛɽak |
| '8ᵗʰ chair' | pɔrɔk a-prandɔ~prandɔ | '8ᵗʰ day' | məŋki mɔ-zəgʊnzʊlʊk na-m-ət̪t̪ək | məŋki m-ɛ-ðəgʊnsʊk na-m-ət̪t̪ək |
| '9ᵗʰ chair' | pɔrɔk a-cəgʊŋ-cʊlʊk a-pɔ-brandɔ | '9ᵗʰ day' | məŋki mɔ-zəgʊnzʊlʊk na-bɽandɔ | məŋki m-ɛ-ðəgʊnsʊk na-bɽandɔ |
| '10ᵗʰ chair' | pɔrɔk attu | '10ᵗʰ day' | məŋki mɔ-gʊrrʊŋ | məŋki m-ɛ-gʊrrʊŋ |

|  | Lumun | Dagik |
|---|---|---|
| '1ˢᵗ day' | caɽɪ cɔ-nɔd̪ɔn | sawɪ ɪ-s-əllʊ |
| '2ⁿᵈ day' | maɽɪ ɪ-m-ɛɽa | mawɪ ɪ-m-ɛɽa |
| '3ʳᵈ day' | maɽɪ ɪ-m-əɽabʊrʊk | mawɪ ɪ-m-ət̪t̪ək |
| '4ᵗʰ day' | maɽɪ ɪ-m-ɔɟɔɽɪn | mawɪ ɪ-mɔ-bɽandɔ |
| '5ᵗʰ day' | maɽɪ ɪ-m-ʊgʊllʊk | mawɪ ɪ-mɔ-sɪsəllʊ |
| etc. | | |

<38> Acheron and Lumun share a root for 'first' which appears to have the etymology *nɔ-t̪ɔn 'on-mouth'. This etymology supports an analysis with genitive prefixation /Cɔ-/ before *nɔ-t̪ɔn, which is also evident from the use of /ɛ-/ on this item in western Acheron, which appears in the genitive construction (3.2). Acheron has special forms for 'second' and 'third' as well, derived differently in the eastern and western dialects. The eastern dialect forms (m~a-m-ɛɽak, m~a-m-ət̪t̪ək) have the prefix /a-/, which is productive in Tocho ordinal numerals, with a reduplicated agreement consonant in front of it. The western dialect forms (m-ɛ~y-ɛɽak, m-ə~y-ət̪t̪ək) have a reduplicated root vowel and an internal plural prefix /y-/ that is also found in two irregular

plural adjectives /b-a-b-arək, w-ɪ-y-arək/ 'male (SG, PL)', /b-a-b-ayɪ, w-ɪ-y-ayɪ/ 'female (SG, PL)'.

However, all four languages also have systems of birth-order terms in families. Here, ordinal number meaning is included in the noun, so ordinal numerals are not used in this culturally important domain:

| male | Lumun | Tocho | Acheron | Dagik |
|------|-------|-------|---------|-------|
| 'first born son' | kʊkkʊ | kʊkkʊ | gʊkkʊ | yaŋgʊ |
| 'second born son' | lɔttɪ | kɔdi | ŋɔsɪ-yaŋ, t̪-ibabu | ŋappɪ |
| 'third born son' | lallʊ | ŋallʊ | ŋallʊ | ðiya |
| 'fourth born son' | t̪ʊt̪t̪ʊ | ŋat̪t̪uŋ | ŋat̪t̪uŋ | ŋat̪u |
| 'fifth born son' | lɔccɔ | kumaŋ= | gummaŋ= | kuwa= |
| 'sixth born son' | kʊkkʊ+ | kakki= | kida= | kannʊ= |
| 'seventh born son' | lɔttɪ+ | lɔccɔ= | ŋɔðɔŋ, ŋɔzɔŋ= | kakɪ= |
| 'eighth born son' | lallʊ+ | ŋɔɟɔŋ= | nʊka= | yaŋgʊ+ |
| 'ninth born son' | t̪ʊt̪t̪ʊ+ | ŋɪraŋ= | gʊkkʊ+ | ŋappɪ+ |
| 'tenth born son' | lɔccɔ+ | ɔruɟuk= | ŋʊssʊ= | ðiya+ |

| female | | | | |
|--------|-------|-------|---------|-------|
| 'first born daughter' | kakka | kakka | gakka | kakaʊ |
| 'second born daughter' | nɛnnɪ | ŋani | nanɪ-yaŋ, n-ibabu | ŋɔt̪ɔ |
| 'third born daughter' | cɛccɛ | kɔccɛ | gɔssɛ | ŋɔsɛ |
| 'fourth born daughter' | ŋɔɽɪn | ŋɔrɪŋ | ŋɔɽɪŋ | ŋɔɽɪ |
| 'fifth born daughter' | kʊmaŋ | kumaŋ= | gummaŋ= | kuwa= |
| 'sixth born daughter' | kakka+ | kakki= | kida= | kannʊ= |
| 'seventh born 'daughter' | nɛnnɪ+ | lɔccɔ= | ŋɔðɔŋ, ŋɔzɔŋ= | kakɪ= |
| 'eighth born daughter' | cɛccɛ+ | ŋɔɟɔŋ= | nʊka= | kakaʊ+ |
| 'ninth born daughter' | ŋɔɽɪn+ | ŋɪraŋ= | gakka+ | ŋɔt̪ɔ+ |
| 'tenth born daughter' | kʊmaŋ+ | ɔruɟuk= | ŋʊssʊ= | ŋɔsɛ+ |

<39> Where a series terminates, the repeated terms are marked by '+'. Where son and daughter terms merge, they are marked by '='. Son and daughter series both terminate at the same number in each language, but this number differs in every language. Son and daughter terms merge to gender-neutral terms at the fifth-born child in the three Narrow Talodi languages Tocho, Acheron, Dagik.

## 6.3. Multiples of ten

<40> Acheron and Tocho use base 10, and Tocho has an alternate suppletive term for multiples of 10:

| | Acheron | Tocho | |
|-----|---------|-------|---|
| 10 | gʊrrʊŋ | attu | |
| 20 | gʊrrʊŋ g-ɛɽak | nat̪t̪ɪ n-ɛrak | (10x2) |
| 30 | gʊrrʊŋ g-ət̪t̪ək | nat̪t̪ɪ n-ət̪t̪ək | (10x3) |
| 40 | gʊrrʊŋ bɽandɔ | nat̪t̪ɪ nɔ-brandɔ | (10x4) |
| 50 | gʊrrʊŋ ðəgʊnsʊyʊk | nat̪t̪ɪ nɔ-gʊɲcʊrʊk | (10x5 etc.) |
| 60 | gʊrrʊŋ ðəgʊnsʊyʊk na gʊrrʊŋ g-ʊllʊk | nat̪t̪ɪ pət̪t̪ək~pət̪t̪ək | |
| 70 | gʊrrʊŋ ðəgʊnsʊyʊk na gʊrrʊŋ g-ɛɽak | nat̪t̪ɪ n-ɛrɛk nɔ-brandɔ a-n-ɛrɛk n-ət̪t̪ək | |
| 80 | gʊrrʊŋ ðəgʊnsʊyʊk na gʊrrʊŋ g-ət̪t̪ək | nat̪t̪ɪ prandɔ~prandɔ | |
| 90 | gʊrrʊŋ ðəgʊnsʊyʊk na gʊrrʊŋ bɽandɔ | nat̪t̪ɪ cəgʊɲ-cʊrʊk a-nɔ-brandɔ | |
| 100 | gʊrrʊŋ gɔ-gʊrrʊŋ (10x10), dummɛk | nat̪t̪ɪ attu (10x10) | |

Lumun and Dagik have base terms for both 10 and 20, where Lumun has a suppletive form for 10 added to 20 in higher multiples, and Dagik uses a pluralised phrase for multiples of 20:

|     | Lumun | Dagik | | | |
|-----|-------|-------|--|--|--|
| 10  | attʊl | n̠ɪ-pɾa | | | 'all hands' |
| 20  | arrɪal | k-asa-pɾa | | | 'all body' |
| 30  | arrɪal ana alkaɪrɛ | k-asa-pɾa na-n̠ɪ-pɾa | | | '20+10' |
| 40  | arrɪal w-ɛɾa | w-asa | wɔ-rək | y-ɛɾa | '20x2' |
|     |        | PL-body | AGR:of-person | AGR-two | |
| 50  | arrɪal w-ɛɾa ana alkaɪrɛ | w-asa wɔ-rək y-ɛɾa na-n̠ɪ-pɾa | | | '20x2+10' |
| 60  | arrɪal w-əɾabʊrʊk | w-asa wɔ-rək y-ət̠t̠ək | | | |
| 70  | arrɪal w-əɾabʊrʊk ana alkaɪrɛ | w-asa wɔ-rək y-ət̠t̠ək na-n̠ɪ-pɾa | | | |
| 80  | arrɪal w-ɔɟɔɾɪn | w-asa wɔ-rək yɔ-bɾandɔ | | | |
| 90  | arrɪal w-ɔɟɔɾɪn ana alkaɪrɛ | w-asa wɔ-rək yɔ-bɾandɔ na-n̠ɪ-pɾa | | | |
| 100 | arrɪal ʊgʊllʊk | w-asa | wɔ-rək | yɔ-sɪ-səllʊ | '20x5' |
|     |        | PL-body | AGR:of-person | AGR:of-hand-one | |

<41> Since Dagik and Acheron also use 5 as a base for 6,7,8,9, the four languages are all different in which base numerals they use, although all four languages have 10 as one of their bases - and none report a stable term for 'hundred':

| Base | Tocho | Lumun | Acheron | Dagik | |
|------|-------|-------|---------|-------|--|
| 5  |  |  | zəgʊn-zʊlʊk ~ ðəgʊn-sʊyʊk | sɪ-səllʊ | 'one hand' |
| 10 | attu; nat̠t̠ɪ | attʊl; alkaɪrɛ | gʊrrʊŋ | n̠ɪ-pɾa | 'all hands' |
| 20 |  | arrɪal |  | kasa-pɾa; | 'all body' |
|    |  |  |  | wasa wɔ-rək … | |

<42> Base numerals and other higher numerals behave like nouns in Talodi languages in a number of ways. First, as originally noted by Schadeberg (1981:45,154), the numeral 'five' has a noun phrase etymology 'one hand', and in Dagik higher multiples are transparent noun phrases that imply similar counts of fingers and toes. Second, in Dagik, to some extent in Tocho, and on ordinal numerals in Acheron, higher numerals take genitive marking, as in Dagik mawɪ mɔ-n̠ɪpɾa 'ten days'. Third, when a base numeral is modified by another numeral, the modifier agrees with the head numeral in the initial consonant, as in Acheron gʊrrʊŋ g-ɛɾak '20' *lit.* 'two ten'. Note, however, that the Acheron the base numeral 10 does not pluralise, nor the Lumun base numeral 20 as in arrɪal w-ɛɾa *lit.* 'two twenty' – a departure from the expected behaviour of nouns (unlike Tocho which has a suppletive plural nat̠t̠ɪ 'tens', and Dagik where representation of multiples of 20 use the pluralised noun 'bodies'). Fourth, higher numerals that do not take genitive marking have no agreement at all with their head noun, thus appearing as a dependent noun as in Acheron məŋki gʊrrʊŋ 'ten days', unlike the adjective-like lower numerals that agree with the noun they modify in the initial consonant. Fifth, Tocho and Lumun base numerals have an initial /a-/ which can be interpreted as a plural nominal prefix, also found in people group nouns (1. Ethnology), in some other nouns (2.1), and in the collective quantifier immediately below (5.4). Sixth, two Lumun base numeral terms are borrowed Arabic nouns: alkaɪrɛ 'ten' refers to the former Sudanese coin of ten piasters (Smits 2017:62), borrowed with the Arabic article *al-* retained, and a-rrɪal 'twenty' adds the plural prefix /a-/ to the Arabic monetary term *riyal* (Smits 2017:296).

### 6.4. Collective quantifier
<43> All four languages have a collective quantifier:

|  | Dagik | Lumun | Tocho | Acheron |
|---|---|---|---|---|
| 'all the eggs' | muwi a-pɾa | mɪn a-ppɪk | mɪŋ a-m-ʊk | mɪŋ a-m-ʊk |
| 'all the dogs' | n̪aʊ a-pɾa | lʊk a-ppɪk | laʊk a-l-ʊk | rawʊk a-r-ʊk |

The quantifier in Dagik and Lumun behaves like some base numerals as it appears as a second noun with an initial plural prefix *a- and no agreement with the head noun. The quantifier in Tocho and Acheron is not, or is no longer, a noun because it agrees with the initial consonant of the head noun. Since reconstruction is safe when based on Dagik and Lumun (1.2), the collective quantifier can be reconstructed as a noun in the proto-Talodi ancestor language. The nominal plural *a- is preserved in all four languages, but with agreement with the head noun developing in some languages.


## 7. Demonstratives
<44> In all four languages, there is an interrogative demonstrative, and a 3-way distinction between proximal, medial, and distal demonstratives first documented by Smits (2007a) for Lumun:

|  |  | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|---|
| interrogative | 'which egg?' | cɪn c-ɹad̪a | cɪŋ c-ɪɣad̪ɪ | zɪŋ z-aɣɪzʊŋ | suwi s-iga |
| proximal | 'this egg' | cɪn ɛn-c-ɪ | cɪŋ c-ɪyɔŋ | zɪŋ i-zz-i | suwi s-i |
| medial | 'that egg (near)' | cɪn ɛn-c-ərik | cɪŋ c-ɛŋ | zɪŋ z-ɛ~z-ɛ | suwi s-əri |
| distal | 'that egg (far)' | cɪn ɛn-c-əɾɛ | cɪŋ c-əllɛ | zɪŋ z-ərɛ | suwi s-ərri |
| 2nd person | 'that egg by you' |  |  |  | suwi s-ɛ |

Dagik also has a 2nd person demonstrative, but the other languages would use a medial demonstrative in this situation. The Dagik 2nd person demonstrative root /-ɛ/ contrasts with the phonetically similar 2nd person possessive root /-a/ (8.1).


## 8. Pronouns
### 8.1. Personal pronouns
<45> All four languages distinguish eight personal pronouns, as first documented by Smits (2007a) in Lumun. The eight pronouns are generated by the presence or absence of speaker, hearer and augmentation. This gives three singular pronouns, one dual pronoun (speaker and hearer), and four augmented pronouns above singular or dual number, together constituting a "minimal/augmented" pronoun system (Thomas 1955):[15]

---

[15] A reviewer points out another widely-used categorisation of these pronouns using sub-distinctions within 1PL: thus inclusive 1PL.INCL ('we' including hearers) and exclusive 1PL.EXCL ('we' excluding hearers), and within 1PL.INCL a further sub-distinction between 1PL.INCL.DU (two referents, one speaker and one hearer) and 1PL.INCL.PL (more than two referents). This other categorisation is relevant to verbal agreement in Talodi, as all three of these 1PL pronouns take plural agreement (see Smits 2017: 207-208), but it does not seem to be the most helpful for discovering the pronoun paradigm in the first place. Thus, Stevenson (1957:37) discovered the sub-distinction between inclusive and exclusive (and the absence of sex gender distinctions) in Talodi languages, but did not discover the further sub-distinction between inclusive dual and inclusive plural. Following Smits (2007a) and Thomas (1955), the present survey successfully used the feature distinctions of speaker, hearer and augmentation to confirm eight pronouns in all four languages surveyed.

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'I' | ɔʊc | ɔɪŋ | wɪŋ | aŋɪ | (speaker) |
| 'you (SG)' | ɔʊŋ | ŋʊc | ŋʊŋ | aŋa | (hearer) |
| 'you (SG) & I' | ɔrɪt | ɔssɪk | ɔrɪk | aŋɪcɪ | (speaker and hearer) |
| 'he/she' | ɔɔk | ɔŋck | ŋck | aŋɔ | (neither speaker nor hearer) |
| 'we' | ɔnin | ɔninc | ŋiŋ | aŋɔni | (augmented speaker) |
| 'you (PL)' | ɔncnc | ɔncnc | ŋcn | aŋɔncɔ | (augmented hearer) |
| 'you (PL) & I' | ɔrcn | ɔsscn | ɔttcŋ | aŋɔrɪnnɔ | (augmented speaker and hearer) |
| 'they' | ɔkɪn | ɔgɛŋ | ŋɛŋ | aŋɛ | (augmented neither speaker nor hearer) |

<46> Vanderelst (2013) lists eight pronoun sets for Dagik for different sentence contexts. Since therefore Talodi languages are potentially rich in pronoun sets, one further pronoun set was compiled in each language with its own respective function. Once again, all the sets have eight pronouns in a minimal/augmented system:

|  | **Lumun** <u>subject prefixes</u> | **Tocho** <u>prepositional suffixes</u> | **Acheron** <u>prepositional pronouns</u> | **Dagik** <u>dependent pronouns</u> |  |
|---|---|---|---|---|---|
| 'I' | mp- | -ɛŋ | gɪŋ | kɪ | 1SG |
| 'you (SG)' | ŋkʷ- | -aŋ | gaŋ | ka | 2SG |
| 'you (SG) & I' | ɪt̪- | -arɪk | gɛssɪk | karɪ | 12DU |
| 'he/she' | kʷ- | -ɔk | gɔk | ka | 3SG |
| 'we' | int̪- | -iŋ | gɛniŋ | kani | 1AUG |
| 'you (PL)' | nt̪- | -ɔŋ | gɛncŋ | kanɔ | 2AUG |
| 'you (PL) & I' | ʊnt̪- | -attɔŋ | gɛsscŋ | karɪnnɔ | 12AUG |
| 'they' | nt̪- | -agɛŋ | gɛŋ | kɛ | 3AUG |

|  | *examples* | | | |
|---|---|---|---|---|
| **Lumun** | mp-aɪk | paɾgɔ | ŋʊɾʊ | 'I'm eating asida.' |
|  | 1SG-COP | eat | asida | |
| | | | | |
| **Tocho** | tɪrɔk | taɟɪk | ann-ɛŋ | 'God is with me.' |
|  | God | COP | with-1SG | |
| | | | | |
| **Acheron** | gənzɪ | gɔga | əŋɪc ɔɪŋ | 'God is with me.' |
|  | gənzɪ | gɔga | əŋa gɪŋ | 'God is with me.' |
|  | God | COP | with 1SG | (əŋɔ 'with' occurs with the first pronoun set, and əŋa with the prepositional pronoun set) |
| | | | | |
| **Dagik** | aŋɔrɪ d̪arɪ | pəlɔ | karɪ rəgɔ | 'You (SG) and I are running |
|  | 12DU COP | run | 12DU eat | and eating.' |

## 8.2. Possessive pronouns

<47> Possessive pronouns in predicative and attributive use tend to follow the same strategies as adjectives, but there are some variations. In predicative use, the predicative pronoun appears immediately after the noun in the first three languages and only Acheron uses a copula verb, just as with adjectives. However, the Dagik predicative possessive pronouns have initial a-, also

seen on ordinalised numerals in Tocho (6.2), and a plausible function uniting these occurrences is a definite nominaliser, '(the one that is) four', '(the one that is) mine'.[16]

| predicative | **Lumun** | **Tocho** | **Dagik** | **Acheron** |
|---|---|---|---|---|
| 'the pig is mine' | tʊt̪t̪rʊk t-ɪn | tət̪ruk t-ɪŋ | ŋəllɛðu a-ŋ-ɪ | yət̪t̪əruk yɔga y˜ɪ-y-ɪŋ |
| 'the pig is yours (SG)' | tʊt̪t̪rʊk t-aŋ | tət̪ruk t-aŋ | ŋəllɛðu a-ŋ-a | yət̪t̪əruk yɔga y˜ɪ-y-aŋ |
| 'the pig is yours (SG) & mine' | tʊt̪t̪rʊk t-ɔrɪt | tət̪ruk t-ɔrɪk | ŋəllɛðu a-ŋ-ɔrɪ | yət̪t̪əruk yɔga y-ɛssɪk |
| 'the pig is his/hers' | tʊt̪t̪rʊk t-ʊŋ | tət̪ruk t-ʊŋ | ŋəllɛðu a-ŋ-ʊ | yət̪t̪əruk yɔga y˜ɪ-y-ʊŋ |
| 'the pig is ours' | tʊt̪t̪rʊk t-in | tət̪ruk t-iyiŋ | ŋəllɛðu a-ŋ-ɔnɪ | yət̪t̪əruk yɔga y˜i-y-iŋ |
| 'the pig is yours (PL)' | tʊt̪t̪rʊk t-ɔn | tət̪ruk t-ɔŋ | ŋəllɛðu a-ŋ-ɔnɔ | yət̪t̪əruk yɔga y˜ɪ-y-ɔŋ |
| 'the pig is yours (PL) & mine' | tʊt̪t̪rʊk t-ɔnnɔn | tət̪ruk t-ɔttɔŋ | ŋəllɛðu a-ŋ-ɔrɪnnɔ | yət̪t̪əruk yɔga y-ɛssɔŋ |
| 'the pig is theirs' | tʊt̪t̪rʊk t-ɛn | tət̪ruk t-ɛŋ | ŋəllɛðu a-ŋ-ɔgɛ | yət̪t̪əruk yɔga y˜ɪ-y-ɛŋ |

<48> In attributive possessive pronouns, a relative prefix is not used in Lumun although it occurs in Tocho and Dagik just as in attributive adjectives. Attributive and predicative possessive pronouns are thus homographs in Lumun, but in this instance a difference in tone was heard, tʊt̪t̪rʊk t-în 'the pig is mine', tʊt̪t̪rʊk t-ìn 'my pig'. Also, the attributive possessive pronoun in Dagik is always [+ATR], which may therefore be a further attributive marker in Dagik.

| attributive | **Lumun** | **Tocho** | **Dagik** | **Acheron** |
|---|---|---|---|---|
| 'my pigs' (*Lumun* pig) | tʊt̪t̪rʊk t-ɪn | nət̪ruk ɔn-n-ɪŋ | ŋəllɛðu i-n̪-i | nət̪t̪əruk n˜ɪ-n-ɪŋ |
| 'your (SG) pig(s)' | tʊt̪t̪rʊk t-aŋ | nət̪ruk ɔn-n-aŋ | ŋəllɛðu i-n̪-a | nət̪t̪əruk n˜ɪ-n-aŋ |
| 'your (SG) & my pig(s)' | tʊt̪t̪rʊk t-ɔrɪt | nət̪ruk ɔn-n-ɔrɪk | ŋəllɛðu i-n̪-ɔri | nət̪t̪əruk n-ɛssɪk |
| 'his/her pig(s)' | tʊt̪t̪rʊk t-ʊŋ | nət̪ruk ɔn-n-ʊŋ | ŋəllɛðu i-n̪-u | nət̪t̪əruk n˜ɪ-n-ʊŋ |
| 'our pig(s)' | tʊt̪t̪rʊk t-in | nət̪ruk ɔn-n-iyiŋ | ŋəllɛðu i-n̪-ɔni | nət̪t̪əruk n˜i-n-iŋ |
| 'your (PL) pig(s)' | tʊt̪t̪rʊk t-ɔn | nət̪ruk ɔn-n-ɔŋ | ŋəllɛðu i-n̪-ɔnɔ | nət̪t̪əruk n˜ɪ-n-ɔŋ |
| 'your (PL) & my pig(s)' | tʊt̪t̪rʊk t-ɔnnɔn | nət̪ruk ɔn-n-ɔttɔŋ | ŋəllɛðu i-n̪-ɔrinnɔ | nət̪t̪əruk n-ɛssɔŋ |
| 'their pig(s)' | tʊt̪t̪rʊk t-ɛn | nət̪ruk ɔn-n-ɛŋ | ŋəllɛðu i-n̪-ɔgɛ | nət̪t̪əruk n˜ɪ-n-ɛŋ |

<49> In Acheron, the agreement consonant prefix is reduplicated in most possessive pronouns, and the relative prefix *ɪ- is preserved after the reduplicated agreement consonant, just as Acheron also preserves the definite nominaliser *a- after a reduplicated agreement consonant in some ordinal numerals (6.2). The relative prefix is preserved in its original high front vowel quality *ɪ-, whereas the productive relative prefix in Acheron relative clauses is now /ɛ-/ or /ə-/ (10.4).

## 9. Adverbs

<50> The four languages all have adverbs that appear after the core SVO clause, expressing pace, truth, time (9.1), place (9.2), quality (9.3) and position (9.4):

| **Lumun** | ti tɔgat cɪk ma<u>rɔt</u> | 'Famine was there <u>in the past</u>.' |
|---|---|---|
| **Tocho** | kəbək kaŋkɔk <u>ɪllɪŋ</u> | 'The meat cooked <u>well</u>.' |
| **Acheron** | rawʊk rɔrabɔd̪ɛ wɪk <u>nəŋəŋ</u> | 'The dogs caught the wild hen <u>there</u>.' |
| **Dagik** | pat̪ɪ parɪ tasɔ <u>tasɛ</u> | 'The man is coming <u>slowly</u>.' |

---

[16] I am grateful to a reviewer for the suggestion that *a-* is a definite nominaliser. A productive use of *a-* for definite nominalisation in Dagik is seen in Vanderelst (2016:145). This prefix should be distinguished from the plural noun class prefix *a-*: the latter attaches directly to a noun root, and marks it as plural (1, 2.1, 5.3, 5.4), whereas the former attaches to a qualifier lacking a head noun, in front of its noun class agreement prefix, and marks it as a definite nominal (6.2 and here).

Adverbs do not agree with the words they modify, unlike verbs, adjectives, numerals, demon stratives, and possessive pronouns. The adverbs surveyed belong to a limited number of initial consonant classes (*t,*c,*k,*m) or an initial vowel class (*i), or they are formed by locative prefixes (*ɪ- 'in', *n(ə)- 'at', *tɔ- 'up', *t̪ɔ- 'down').[17]

## 9.1. Adverbs of pace, truth and time

<51> Adverbs of pace 'slowly', 'quickly' use reduplication, also apparent in the truth adverb 'really' in Lumun and Dagik but obscured by phonological change in Tocho and Acheron:

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'slowly' | kɪ-ccɛ~kɪ-ccɛ | kə-ccɛ-rɪk | gə-ssɛŋ~gə-ssɛŋ | ta-sɛ |
| 'quickly' | cɔ-gɔc~cɔ-gɔk | cə-gɔc~cə-gɔk | gə-rɛ~gə-rɛ | tɔ~tɔ~tɔ |
| 'really, truly' | ɪɟa~ɪɟa-t | ɪɟaccak | izɛssak | isa~isa |
| 'yesterday' | mɛ-ccɪn | ma-ccɪŋ | mə-ssɪŋ | mə-si |
| 'today' | ɪnɛnnɪ | ɪnɛnna | inanɛŋ | imɛmɛ |
| 'tomorrow' | ŋɔrrɔt | nə-ŋgɔllɔk-kəmɛ | nə-ŋɔrrɔk | ma-ŋɔrrɔ |
| 'in daylight' | ɪ-cɪŋkɪ | ɪ-cəŋki | ɪ-zəŋki | ti-səŋgi |
| 'at night' | ɪ-ŋkɔɽa | nə-ŋkɔra | nə-ŋkɔra | nə-ŋgɔra |

The initial consonant class of a given adverb can vary from language to language, as can the first vowel which thereby also precedes the adverb root. The truth adverb 'really, truly' and the time adverb 'today' have an initial [+ATR] vowel *i in Acheron and Dagik which contrasts with the adverb-forming locative prefix*ɪ- seen in other adverbs. The word for 'in daylight' in all four languages contains the noun *cəŋki 'sun' with locative prefixation.

## 9.2. Adverbs of place

<52> Place adverbs have locative *n- in the three Narrow Talodi languages Tocho, Acheron, and Dagik, as also in the time adverbs 'at night', 'tomorrow':

| **Lumun** | | **Tocho** | | **Acheron** | | **Dagik** | |
|---|---|---|---|---|---|---|---|
| c-ɛnɛ | 'here' | n-innɛ | 'there near' | iɲɛ ' | here close to me | n-ini | 'here' |
| c-ɛnɛ-gɛt | 'there' | n-ɪyɔŋ | 'here' (ɪyɔŋ 'this') | n-əŋəŋ | 'there with it' | n-ɛnɛ | 'there near' |

All four languages have a contrast between 'up' and 'down' locative prefixes on place adverbs, as seen earlier in toponyms for local ethnic groups in the three Narrow Talodi languages (1. Ethnology), and previously reported in Lumun in predicate locative expressions (Smits 2007b). The position adverb cɪk 'down there' (9.4) combines with place adverbs containing the down prefix t̪- in some languages as /cɪt̪-t̪-/:

|  | **Lumun** | | **Tocho** | |
|---|---|---|---|---|
| *t̪(ɔ)- 'down' | t̪-ɛn t̪-ɪ, t̪-ɛn t̪-ɪ-d̪-ɛ | 'far there' | t̪ɔ-gaŋ | 'far there' |
|  | cɪt̪-t̪-ɛn-t̪-ɪ-d̪-ɛ | 'down far there' | cɪt̪-t̪ɔ-gaŋ | 'down far there' |

---

[17] Two reviewers propose that locatives are a distinct word class from adverbs in these languages. However, while locative-marked words have a distinct morphology (by definition), this survey does not find them to have a separate syntax or semantics from other adverbs. Syntactically, both modify verbs, and there are intensifier words with and without locative marking that modify adjectives (5.3) as well. Semantically, there are time words both with and without locative marking (9.1), and locative marking is used to derive adverbs of quality (9.3) as well as adverbs of position (9.4). I am therefore considering locative-marked words to be a morphological sub-class of adverbs. There is a continuum in the data from adverbs without locative marking, adverbs with locative marking, adverbs derived from other parts of speech using locative marking, to adverbial nouns productively inflected by locative marking.

|  |  |  | ṭɔ-məgɛŋ | 'down' |
|  |  |  | ṭɔ-məgɛŋ ṭɔ-gaŋ | 'down there' |
|  |  |  | ṭ-aŋ | 'on the floor' |
|  |  |  | cɪt-ṭ-aŋ | 'there on the floor' |
| *ṭ(ɔ)- 'up' | t-ɛn-d-ə-r-ɛ | 'up there' | tɔ-ṭṭɔk | 'up' |
|  |  |  | tɔ-ṭṭɔk tɔ-gaŋ | 'up there' |

|  |  | **Acheron** |  | **Dagik** |  |
|---|---|---|---|---|---|
| *ṭ(ɔ)- 'down' | ḏ-ɛ-ḏ-i | 'down there' | ð-isi n-ini | 'down here' |
|  | ḏ-əgək | 'far down there' | ð-isi n-ɛnɛ | 'down there near' |
|  |  |  | ð-iṭi | 'over there' |
|  |  |  | ð-ɛṭɛ ð-iṭi | 'far over there' |
| *ṭ(ɔ)- 'up' | ɣ-ɛ-s-i | 'up there' | tɔ-mpəlla n-ini | 'up here' |
|  | ɣ-əgək | 'far up there' | tɔ-mpəlla n-ɛnɛ | 'up there near' |

### 9.3. Adverbs of quality

<53> Adverbs of quality are derived from adjectives using locative prefixes *ɪ- (Dagik tɪ-) or *ḏɔ-, often with root consonant gemination, whereas in Lumun the adjective modifies lɔn 'word' in an adverbial noun phrase, although a similar derived adverb ɪ-kkɪ́ḏak 'badly' has since been reported in Lumun as well (Smits 2017:621):

|  | **Tocho** | **Acheron** | **Dagik** | **Lumun** |
|---|---|---|---|---|
| 'good' | pɔ-rɪŋ | bɔ-rɪŋ | ɣ-ɔrɪ | l-ɔbɔrɔt |
| 'well' | ɪ-llɪŋ | ɪ-rrɪŋ | tɪ-ɣ-ɔrɪ | lɔn l-ɔbɔrɔt |
| 'bad' | pɔ-giḏak | bɔ-giḏak | ɣ-isa | l-ɔgɪḏak |
| 'badly' | ɪ-kkiḏak | ḏɔ-giḏag-ɔ | t-isa | lɔn l-ɔgɪḏak |

*examples*

| **Lumun** | ŋgʷɔlɔt lɔn l-ɔbɔrɔt | 'You run well.' ('You run in a good way.') |
|---|---|---|
| **Tocho** | kəbək kaŋgɔk ɪ-llɪŋ | 'The meat cooked well.' |
| **Dagik** | paṭɪ pasɛmɔ ðarʊwa tɪ-ɣ-ɔrɪ | 'The man speaks the Dagik language well.' |

### 9.4. Adverbs of position

<54> The four languages all have certain monosyllabic positional adverbs, as first documented in Lumun by Smits (2007a):

|  | **Lumun** | **Tocho** | **Acheron** | **Dagik** |
|---|---|---|---|---|
| 'on it' | nan | naŋ | naŋ | na |
| 'in it' | tɪt | tik | yik | ti |
| 'down there' | cɪk | cɪk | ðɪk, zɪk | sɪ |

*examples*

| **Lumun** | caṭṭak cɔnʊ ŋʊɾʊ nan | 'The calabash has dirt on it.' |
|---|---|---|
| **Tocho** | uni-ḏɛ ŋɪ: cɪk | 'Pour the water down!' |
| **Acheron** | gaya gɔnʊ ŋuzi yik | 'The cup has milk in it.' |
| **Dagik** | pɪra pɔnnɛ ŋəɾəbɛ na | 'The tree has a bird on it.' |

<55> The four languages all have some further positional adverbs referring to certain frequent locations. These are derived from nouns in the same way as adverbs of quality are derived from adjectives, using a locative prefix and gemination of the first root consonant:

|  | Lumun | Tocho | Acheron | Dagik |
|---|---|---|---|---|
| 'house fields' (N) | kə-rək | kə-rək | gə-rək, gə-yək | kə-rək |
| 'in the house fields' (ADV) | ɪ-ttək | ɪ-ttək | ɪ-ttək | tɪ-ttək |
| 'far fields' (N) | kɔ-bɔn | kə-bɔŋ | gə-bɔŋ | kə-bɔ |
| 'in the far fields' (ADV) | ɪ-kkʷɔn | ɪ-ppɔŋ | ɪ-ppɔŋ | tɪ-ppɔ |
| 'homeland/town' (N) | pɔ-d̠ɔk | pə-d̠ɔk | bə-d̠ɔk | |
| in the homeland/town (ADV) | nɔ-t̠t̠ɔk | nɔ-t̠t̠ɔk | nɔ-t̠t̠ɔk | |

<56> The locative markers *ɪ,*nɔ seen in adverbs may also be placed productively before other nouns. These are not adverbs but regularly inflected nouns, though they may be used adverbially. They differ from derived adverbs as there is no root consonant gemination: they have the usual structure of nouns with a noun class prefix before the root, and the locative marker is added in front. Locative-inflected nouns are also unlike adverbs formed by locative prefixes (including place adverbs in 9.2) in that there is variation from language to language as to whether or not the locative marker is joined to the noun, as shown in the table and discussed below:

|  | **Lumun** |  | **Tocho** |  |
|---|---|---|---|---|
| _one word:_ | ɪ-bɔd̠an | 'on the ground' | ɪ-rɔk | 'in the well' |
|  | nɔ-ɟabʊ | 'in the basket' | tɔ-ɟaraŋ | 'upon the shelf' |
| _two words:_ |  |  | ənti cuk | 'from the market' |

|  | **Acheron** |  | **Dagik** |  |
|---|---|---|---|---|
| _one word:_ | ɪ-yɔk | 'in the well' |  |  |
|  | nɔ-bɪya | 'on the tree' |  |  |
| _two words:_ | ɪ yazɔ | 'in the grass' | ti gəðu | 'in the room' |
|  | nɔ ɔɪŋ | 'on/with me' | nɔ bɪra | 'on the tree' |

<57> As with genitive markers (3.2), one test for whether the locative inflections are joined to front of the noun is whether they trigger the lexical process of intervocalic voicing on the word-initial noun class consonant when it is a plosive. In Lumun, voicing of the noun class consonant suggests that the locative marker is prefixed to the noun. In Tocho, we have a distinction between /ɪ-, tɔ-/ which trigger voicing and hence are prefixed, and /ənti/ 'from' which does not trigger voicing and hence is separate from the noun (for /nɔ/, only additional geminated forms were elicited in Tocho, nɔ-ccʊ 'on the rakuba', nɔ-ppaŋ 'with the rest' so no conclusion could be made about /nɔ/ before nouns with noun class prefixes). In Acheron, the initial consonant is always voiced, so the intervocalic voicing test does not help. Instead, Acheron writers proposed that the locative markers are joined in some frequently-used expressions as in |ɪ.yɔk| 'in the well' |nɔ.bɪ.ya| 'on the tree', but separate when used with other words as in |ɪ|ya.zɔ| 'in the grass', |nɔ|ɔ.ɪŋ| 'on/with me'. I have transcribed these examples using foot boundaries to suggest a possible prosodic difference that needs further investigation. In Dagik, the noun class consonant becomes voiced in the presence of the locative marker, but the intervocalic voicing test does not diagnose wordhood in Dagik as it is triggered at word boundaries in a number of clause contexts (sections 10.,11.). However, there is evidence that /tɪ/ is detachable because it occurs as a verbal extension on the copula /a-rɪ/ before a main verb (4.4).

## 10. Clauses
### 10.1. Basic word order
<58> All four languages have SVO word order (both here and throughout sections 7.-10.). The verb agrees with the subject noun in the initial consonant prefix. There is no case marking on subjects or objects.

|  | intransitive clause (SV) |  |
|---|---|---|
| **Lumun** | p-ʊl p-ɛɔt | 'The person slept.' |
| **Tocho** | p-ʊ p-iɟaḏɛ | 'The person slept.' |
| **Acheron** | b-ʊr b-iðaḏɛ | 'The person slept.' |
| **Dagik** | p-aṯɪ p-ɔbəlɔ | 'The man ran.' |
|  | transitive clause (SVO) |  |
| **Lumun** | p-ʊl p-ɔɾgɔt kəba | 'The person ate meat.' |
| **Tocho** | p-ʊ p-ɔrgɔk kəbək | 'The person ate meat.' |
| **Acheron** | b-ʊr b-ɔrəgɔk gəbək | 'The person ate meat.' |
| **Dagik** | p-aṯɪ p-ɔ-rəgɔ kəbɪ | 'The man ate meat.' |

<59> Deviation from SVO order was found within imperative verbs, where a plural subject is marked by a verb suffix in the three Narrow Talodi languages Tocho, Acheron, and Dagik (4.1). The plural suffix (marking a plural addressee of the command) occurs before an object suffix, Acheron /ɪɟɛ-nɔŋ-ɛŋ/ (give-2PL.IMP-3PL.OBJ) 'give (PL) them!', attesting V-S-O order within the verb, unlike Lumun where plural imperatives have been regularised to S-V-O by use of the regular 2PL subject prefix n- (4.1, 8.1). Subject marking by verb suffix is also observed in Dagik relative clauses, paṯɪ ɪ-p-ɔsəgɪṯ-ɪ 'the man who saw me' ~ 'the man who I saw', where the 1SG verb suffix /-ɪ/ acts as either object or subject, distinguished by a tone difference that still needs to be described. VSO is previously reported as a variant word order in Masakin Tuwal (Stevenson 1957:38-39).

### 10.2. Stative clauses
<60> Predicate nominals use one of two copulas (with personal names lacking noun class prefixes as subject, the copula takes a default singular agreement prefix *p-* or *b-*):

|  | copula | predicate nominal |  |
|---|---|---|---|
| **Lumun** | a | ɔlalʊ p-a bʊl ɪbaŋkɛnɛ | 'Lalu is a teacher.' |
| **Tocho** | a | accalʊk p-a barṯṯɔk | 'Accaluk is a teacher.' |
| **Acheron** | ɔga | gʊkkʊ b-ɔga bɪɽɪmak | 'Gukku is a hunter.' |
| **Dagik** | ɔka | kafɛna p-ɔka paṯɪ ɪba uṉi | 'Kafena is a teacher.' |

Predicate locatives use various copula verbs, or no copula in Tocho:

|  | copula | predicate locative |  |
|---|---|---|---|
| **Lumun** | a-ɪk | ɔlɔccɔ p-a-ɪk ɪkkʷɔn | 'Locco is in the near-field.' |
| **Tocho** | Ø | ɔkʊplɪ p-ɪppɔŋ | 'Okupli is in the near-field.' |
| **Acheron** | ɔga | bʊmaŋ b-ɔga ɪttək | 'A Lumun is in the far-field.' |
| **Dagik** | a | kafɛna p-a ɾɪ gəðu | 'Kafena is in the room.' |

In Tocho, the locative adverb ɪppɔŋ 'in the near-field' appears as a predicate that agrees with the subject noun by its agreement prefix *p-*. In earlier sections, we saw that predicate adjectives and predicate possessive pronouns lack a copula in Tocho, Lumun, and Dagik, hence in Tocho that pattern is extended to predicate locatives also.

<61> The different parts of speech in this survey occur as the complements of the following copulas. In Acheron there is one copula verb for all parts of speech, but the other languages have several copulas, or lack a copula verb in some constructions, at least in present tense:

| copula (present tense) | Acheron | Tocho | Lumun | Dagik |
|---|---|---|---|---|
| noun | ɔga | a | a | ɔka, a |
| adjective | ɔga | - | - | - |
| possessive pronoun | ɔga | - | - | - |
| locative expression | ɔga | - | a-ɪk | a |
| preposition of accompaniment | ɔga | a-ɟɪk | ? | ? |
| verb (progressive) | ɔga | a-ɟɪk | a-ɪk | a-ɾɪ |
| verb (habitual) | | | | a |

Three copulas used with adjectives, nouns, and verbs are widespread enough that they go back to the ancestor proto-Talodi language:

| predicate adjective | *ga | – | occurs with adjectives in non-present tenses in all four languages (5.1) |
|---|---|---|---|
| | | – | extends to all parts of speech and to present tense adjectives in Acheron (5.1) |
| | | – | as /ka/, extends to predicate nominals and to dependent clauses in Dagik (4.6, 8.1) |
| predicate nominal[18] | *a | – | extends to predicate locative expressions and to habitual aspect (4.3) in Dagik; it is distinct from the verb prefix *a- separately reconstructible from Acheron, Tocho, Lumun for incompletive (habitual/prospective) aspect |
| progressive aspect | *a-cɪk | – | in Dagik the positional extension /-cɪk/ 'down' is replaced by another /tɪ/ 'in' (4.4) |
| | | – | extends to predicate locative expressions in Lumun, also preposition of accompaniment in (at least) Tocho (8.1) |

## 10.3. Complement clauses

<62> All four languages have a complementiser particle occurring before the complement clause. The complementiser *na in the three Narrow Talodi languages shows an irregular sound shift in Dagik *n>m also seen in 'today', 'tomorrow' (9.1).

| | complementiser | 'I know that [God hears us].' |
|---|---|---|
| **Lumun** | ɪttɪ | mp-ɪna ɪttɪ [kabɪk kaccɪgɔt-tɔn] |
| **Tocho** | (na) | wɪŋ p-ənna (na) [tɪrɔk tagɛccigɔk ɔttɔŋ] |
| **Acheron** | na | ɔɪŋ b-ɪnna na [gənzɪ gɔgəsɪ-sɔŋ] |
| **Dagik** | ma | aŋɪ p-ʊna ma [məlla ma pɛt̪ɔ-ɪnnɔ] |

## 10.4. Relative clauses

<63> The relative clause follows the head noun in all languages, and is marked by a relativiser prefix on its verb, although the same prefixes are also seen on attributive adjectives (5.1), genitive

---

[18] This copula was also observed in object cleft constructions (collected as an alternative to a passive construction, and in an object relative clause, respectively) – including Acheron, where the first copula is used in all single clause predicate constructions in the main text, but which actually attests this second copula as well:
Lumun ʊmaɖɔn w-a [ɟɔn p-ɔccɔgɔ-ɖɛ] 'An elephant is (what) [John caught].'
Acheron ɔɪŋ b-ɔrabɔ-k wʊzabɛ w-a [ɔʊŋ b-ɔrəgɔ-k ɪna] 'I caught the fish Ø [you ate today]'.

nouns (3.2), ordinal numerals (6.2), attributive possessive pronouns (8.2), and verbs of interrogative clauses (10.5):[19]

|  | relativiser *ɪ- | 'The dog [who has a long mouth] died.' |
|---|---|---|
| **Lumun** | ɪ- | t̪ʊk [ɪ-t̪-ɔnʊ t̪ɔn t̪ʊgʷɪt] t̪rɔt |
| **Dagik** | ɪ- | ŋaʊ [ɪ-ŋ-ɔnnɛ ðʊgaɽɔ ɪðɔsɪ] ŋɔɪŋɔ |
| **Acheron E** | ə- | d̪awʊk [ə̱-d̪-ɔnʊ d̪ɔŋ d̪uzɛk] d̪ɪŋɔk |
| **Acheron W** | -ɛ- | d̪awʊk [d̪-ɛ̱-nʊ d̪ɔŋ d̪isɛk] d̪ɪŋɔk |
| **Tocho** | ɔN- | t̪aʊk [ɔn-t̪-ɔnɔ t̪ɔŋ t̪uccək] t̪ɪŋɔk |

<64> The prefix *ɪ- may be reconstructed from Lumun and Dagik, reducing to schwa in eastern Acheron, although the original high front vowel quality is apparently fossilised in Acheron possessive pronouns (8.2). Relative prefixes in western Acheron and Tocho are more different, however.

The western Acheron relative prefix /-ɛ-/ differs from those in other Talodi languages in that it appears after the agreement consonant, not before it. A similar prefix /-é-/ in Moro [mor] (Jenks 2013), a larger language group bordering Acheron in the west, likewise appears after the agreement consonant rather than before it, and moreover it also occurs on genitive nouns and attributive adjectives just as the western Acheron prefix does (3.2, 5.1). Moro is a likely source for the western Acheron relative prefix because western Acheron dialect speakers report bilingualism in Moro, and Moro influence is also suggested by occurrence of a dental fricative /ð/ in western Acheron, which is frequent in Moro but atypical in the Talodi family (Norton & Alaki 2015:84).[20]

<65> The Tocho prefix /ɔN-/ matches the initial *ɔŋ- found on pronouns of Narrow Talodi languages (Schadeberg 1981:155). Smits (2012) finds that the Lumun cognate /ɔ́-/ on pronouns and some nouns is a marker of specificity, and its extension to relative clauses in Tocho is consistent with the fact that relative clauses make their head noun specific.

### 10.5. Interrogative clauses

<66> All four languages have interrogative pronouns that include extended plural forms of 'who'. Those in Lumun, Tocho and Acheron show recurrent suffixes /-t̪a/, /-t̪ɪ/ or /-ɪ/. Verbs that follow interrogative pronouns often take additional prefixes, a- in Lumun or relative prefixes in Narrow Talodi languages, and placement of the time and place interrogatives 'when' and 'where' varies between initial and final position in the clause.

|  | who? (SG, PL) | 'who saw the snake?' |
|---|---|---|
| **Lumun** | ɔt̪-t̪a, ɔt̪-t̪a-n | ɔt̪t̪a a-kɪmmat pɪɲɪl |
| **Tocho** | ɔt̪-t̪ɪ, ɔt̪-t̪ɪ-nɛŋ | ɔt̪t̪ɪ-yaŋ ɔm-pɛnɔk pəra |
| **Acheron** | ɔb-ɪ, ɔb-ɪ-ɛnɪŋ | ɔbɪ bɔɽəmɛk bənɪr (E), ɔbɪ b-ɛ-ɽəmɛk bənɛrək (W) |
| **Dagik** | aŋɔ, aŋɔ-wɛ | aŋɔ ɪ-pɔsəgɪt̪ɛ pəntɛr |

|  | what? | 'what is in the cup?' |
|---|---|---|
| **Lumun** | ŋɪn-t̪a | ŋɪnta a-kaɪk ɪkɛt̪t̪ɛɽɛt |
| **Tocho** | ŋɪn-t̪ɪ | ŋɪnt̪ɪ-yaŋ ɔm-pɪ part̪ɔrɔk |
| **Acheron** | ŋən-ɪ | ŋənɪ bɔga ɪgaya |
| **Dagik** | yɔka | yɔka karɪ ŋɔtɔ |

---

[19] Relative prefixes are also seen in object relative clauses (Lumun ɱp-ɔccɔgɔd̪ɛ pabɛ [ɪ-p-a ŋkʷ-ɔɽgɔt ɪnɛnnɪ] 'I caught the fish [Ø you ate today]'), although these require more syntactic analysis.

[20] It is, however, possible that lowering *ɪ- > ɛ- was an internal process in proto-Acheron, as lowering is also manifested in the eastern Acheron prefix ə-. I am grateful to a reviewer for pointing this out. In addition, use of a relative prefix on genitive nouns is not as unique to western Acheron as this survey suggests (2.2), as it has since been reported in Dagik (Vanderelst 2016:73). So the only fact pointing unambiguously to Moro influence is the atypical placement of the relative prefix after the agreement consonant.

|        | when?      | 'when did he die?'          |
|--------|------------|-----------------------------|
| **Lumun**   | accɪn-ţa   | kʷɪɔt accɪnta               |
| **Tocho**   | ŋɔn-ţɪ     | ŋɔntɪ-yaŋ ɔn-na ŋɔk ɪŋɔ     |
| **Acheron** | mɔn-ɪ      | mɔnɪ mama bɪŋɔk             |
| **Dagik**   | ɪmasɔ      | ɪmasɔ ɪŋɔ~ŋɔ               |

|        | where?     | 'where did he die?'         |
|--------|------------|-----------------------------|
| **Lumun**   | kər-ḏa     | kʷɪɔţɛ kərda               |
| **Tocho**   | kərɛ-ḏɪ    | kərɛdɪ-yaŋ ɔn-na ŋɔk ɪŋɔ    |
| **Acheron** | gəyɛ       | ɔŋɔk bɪŋɔḏɛ gəyɛ           |
| **Dagik**   | kərɛ       | kərɛ ɪŋɔţɔ                 |

<67> All four languages have a clause-final particle for yes/no questions. There is a polarity switch /ɪ/ ~ /a/ between the yes-no question particle vowel and the final vowel of the interrogative pronouns in Lumun and Narrow Talodi languages.

|        | yes/no question |                          |                              |
|--------|-----------------|--------------------------|------------------------------|
| **Lumun**   | ɪ  | ŋkʷɪmmat pɪɲɪl-ɪ         | 'did you see the snake?'     |
| **Tocho**   | a  | ŋʊŋ pɛnɔk pəra-a         | 'did you see the snake?'     |
| **Acheron** | a  | ɔʊŋ bɔɾəmɛk bənɪr-a      | 'did you see the snake?'     |
| **Dagik**   | a  | paţɪ pi pa pamɪ-a        | 'is this man a doctor?'      |

## 11. Verb extensions

<68> All four languages have verb extensions for passive, pluractional, reciprocal, benefactive-applicative, and causative, as first observed in a Talodi language by Stevenson (1957:37-38). These extensions usually replace the final vowel of the verb stem, as imperative suffixes also do (4.1). The survey only establishes the existence of extensions for these categories and makes no claims to be exhaustive: longer extensions may well consist of two suffixes, and there may be more than one alternate suffix for a given category in a language.

### 11.1. Passive

| **Lumun** | -ɪtta | ɔɟɔn pɔccɔg-ɔ-ḏɛ ʊmaḏɔn | 'John caught an elephant.' |
|-----------|-------|--------------------------|----------------------------|
|  |  | ʊmaḏɔn wɔccɔg-ɪtta-ḏɛ | 'An elephant was caught.' |
| **Tocho** | -kɔ | ɔkɔtɪ pɔrab-ɔ-k ŋʊmaḏɔŋ | 'Koti caught an elephant.' |
|  |  | ŋʊmaḏɔŋ ŋɔrak-kɔ-k (əŋa kɔtɪ) | 'The elephant was caught (by Koti).' |
| **Acheron** | -kɔ | amʊza bɔrab-ɔ-k wʊmaḏɔŋ | 'Amuza caught an elephant.' |
|  |  | wʊmaḏɔŋ wɔrak-kɔ-k (əŋa amʊza) | 'An elephant was caught (by Amuza).' |
| **Dagik** | -gɔ, -ŋɔ | yɔn pɔrabɔ maðɔ | 'John caught an elephant.' |
|  |  | maðɔ mɔrabɔ-gɔ | 'The elephant was caught.' |
|  |  | maðɔ mɔrabɔ-ŋɔ yɔn | 'The elephant was caught by John.' |

The demoted actor can be mentioned in the passive construction in the three Narrow Talodi languages, either after the preposition əŋa in Tocho and Acheron (also in 8.1) or after a different passive suffix -ŋɔ in Dagik. In Lumun, mentioning a demoted agent was only achieved by an object cleft construction that does not use the passive suffix, ʊmaḏɔn wa [ɟɔn pɔccɔg-ɔ-ḏɛ] 'An elephant is [(what) John caught].'

### 11.2. Pluractional

| **Lumun** | -ʊttɛ | ɔkkʷ-ɔ ntan | 'sneeze' |
|-----------|-------|-------------|----------|
|  |  | ɔkkʷ-ʊttɛ ntan | 'sneeze many times' |
| **Tocho** | ~əC_RED | wɪŋ patrɛ-k | 'I sneezed.' |

|  |  | wɪŋ pat~ət-rɛ | 'I sneeze <u>many times</u>.' |
|---|---|---|---|
| **Acheron** | ~VC<sub>RED</sub> | ɔɪŋ bayɪss-ɛ wat̪t̪ərɪyɔ | 'I sneeze.' |
|  |  | ɔɪŋ bayɪs~ɛss-ɛ wat̪t̪ərɪyɔ | 'I sneeze <u>many times</u>.' |
| **Dagik** | ~əC | aŋɪ pɔbiɾ-ɔ | 'I sneezed.' |
|  |  | aŋɪ pɔbiɾ~ət-ɔ | 'I sneeze <u>many times</u>.' |

The pluractional marking strategies of partial reduplication and extension also appear in habitual aspect in Tocho and Lumun (4.3).

### 11.3. Reciprocal

| **Lumun** | -ɛttɔ | ɔɟɔn pagad̪acc-ɛ ɔlʊkka | 'John sees Luka.' |
|---|---|---|---|
|  |  | ɔkɪn t̪agad̪acc-ɛttɔ | 'They see <u>each other</u>.' |
| **Tocho** | -əɾɔ | atuttuk pɛŋkɛn-ɔ atuttuk | 'Tuttuk sees Tuttuk.' |
|  |  | ŋɛŋ t̪ɛŋkɛn-əɾɔ | 'They see <u>each other</u>.' |
| **Acheron** | -ɪttɪyɔ | kid̪a baɾəm-ɛ ɔŋallʊ | 'Kida sees Ongallu.' |
|  |  | ɔgɛnd̪ɛŋ d̪aɾəm-ɪttɪyɔ | 'They see <u>each other</u>.' |
| **Dagik** | -təra | yɔn pɔsəgɪ-t̪ɛ lʊk | 'John saw Luke.' |
|  |  | yaɪ səgɪ-təra-t̪ɛ | 'They see <u>each other</u>.' |

### 11.4. Benefactive-Applicative

| **Lumun** | -ɪn-t̪ɛ | mpaccɔg-ɔ-t pabɛ | 'I caught a fish.' |
|---|---|---|---|
|  |  | mpaccɔg-ɪnt̪ɛ-t ɔcɔn pabɛ | 'I caught a fish <u>for John</u>.' |
| **Tocho** | -ɛn-t̪ɔ | wɪŋ paɪll-ɛ-k yabɛ | 'I caught fish.' |
|  |  | wɪŋ paɪll-ɛnt̪ɔ-k acalʊk yabɛ | 'I caught fish <u>for Caluk</u>.' |
| **Acheron** | -ɪnɔ | ɔɪŋ parab-ɔ wʊzabɛ | 'I catch fish.' |
|  |  | ɔɪŋ parab-ɪnɔ ɔkid̪a wʊzabɛ | 'I catch fish <u>for Kida</u>.' |
| **Dagik** | -ɪnɔ | aŋɪ baɪ rab-ɔ ŋabɛ | 'I am catching a fish.' |
|  |  | aŋɪ baɪ rab-ɪnɔ yɔn ŋabɛ | 'I am catching a fish <u>for John</u>.' |

### 11.5. Causative

| **Lumun** | -ɪɛ | ɔɾg-ɔ | 'eat' | mpaɾg-ɪɛ ɔɟɔn | 'I <u>make</u> John eat.' |
|---|---|---|---|---|---|
| **Tocho** | -ɛ | ɔrəg-ɔ | 'eat' | wɪŋ pɔrəg-ɛ-k ɔɟɔn | 'I <u>made</u> John eat.' |
|  | -ɪ | ɔɟʊpr-ɔ | 'walk' | wɪŋ paɟʊpr-ɪ-d̪ɛ ɔɟɔn | 'I <u>made</u> John walk.' |
| **Acheron** | -ɛ | ɔrəg-ɔ | 'eat' | ɔɪŋ barəg-ɛ kid̪a | 'I <u>make</u> Kida eat.' |
|  | -ɪkkɛ | ɔwʊkk-ɔ | 'dance' | ɔɪŋ bawʊkk-ɪkkɛ kid̪a | 'I <u>make</u> Kida dance.' |
|  | -ɪssɛ | ɔðəpp-ɪyɔ | 'walk' | ɔɪŋ bað̪əpp-ɪssɛ kid̪a | 'I <u>make</u> Kida walk.' |
| **Dagik** | -ɪ | rəg-ɔ | 'eat' | aŋɪŋ rəg-ɪ yɔn kəbɪ | 'I am <u>making</u> John eat meat.' |

## 12. Conclusions
### 12.1. Word order type

<69> The four languages show the same word orders on all parameters surveyed. Within the clause, there is consistent head-first word order on all of the following parameters (Dryer 1992):

| **Word Order** | **Abbreviation** | **Paper Section** |
|---|---|---|
| Verb before object | VO | 10. Clauses |
| Auxiliary before main verb | AuxV | 4. Verbs |
| Noun before genitive | NG | 3. Nouns |
|  | NPoss | 8. Pronouns |

| | | |
|---|---|---|
| Noun before adjective | NA | 5. Adjectives |
| | NNum | 6. Numerals |
| | NDem | 7. Demonstratives |
| Noun before relative clause | NRel | 10. Clauses |
| Preposition before noun | PN | (see below) |
| Verb before adverb | VAdv | 9. Adverbs |
| Adjective before intensifier adverb | AAdv | 5. Adjectives |
| Adjective before pivot and standard noun | APN | 5. Adjectives |

The **NA** and **PN** word orders are less widely established than the rest. **NA** order is clear in eastern Acheron where unmarked adjectives after nouns are attributive, but in all other languages unmarked adjectives after nouns are predicates, and when they modify the noun they are marked by a relative prefix, so these are actually ambiguous with **NRel** word order. Nevertheless, the **NA** word order occurring in eastern Acheron is reported elsewhere as marginally possible in Lumun and Dagik (Smits 2007a:42, Vanderelst 2016:145), and further-more numeral adjectives and demonstrative adjectives follow the noun in all four languages.

<70> The question of whether Talodi languages have true prepositions before nouns in the order **PN** is not a trivial one. Genitive markers (3.2) and locative markers (9.4) come before the noun in the four languages, but they may or may not be separate from their nouns, and could be case modifiers rather than prepositional heads, in a given language. However, credible prepositions of accompaniment are seen in Acheron and Tocho with a pronoun complement and, in Acheron, governing the selection of different pronoun sets (8.1). Pivot words in Acheron and Dagik comparative sentences before locative-marked nouns are also candidate prepositions (5.4).[21]

<71> Turning to word orders at the clause level, clause particles do not all occur in head-first position before their clause. In all four languages, complementisers and relativisers come before their clause (head-first), but yes/no question particles come after their clause:

| Word Order | Abbreviation | Paper Section |
|---|---|---|
| Complementiser before complement clause | CompS | 10. Clauses |
| Relativiser before relative clause | RS | 10. Clauses |
| Question particle after clause | SQ | 10. Clauses |

<72> Reviewers of this paper point out that the solitary exception of question particle order calls into question whether the question particle is actually a head (see also Dryer 1992:102-123). It thus recalls the negative verbal modifier particle *tɪ found in some Narrow Talodi languages (4.6). There are no other exceptions to head-first word order in the survey, nor in published analysis of lengthy Lumun texts (Smits 2007a, Stirtz 2012), although since this survey was done Dagik has been reported to allow **OV** order for object focus (Vanderelst 2016:233). Another language, Lafofa [laf], classified as a Talodi language by Greenberg (1963) and Schadeberg (1981), shows multiple opposite word orders **OV, AN, PossN, NP** (Stevenson 1957:43-46, Tucker & Bryan 1966:270-288), but its membership of the Talodi family is disputed on independent lexical grounds by Stevenson (1964), Blench (2013), and Norton & Alaki (2015).

---

[21] One problem when establishing prepositions is whether they can be properly distinguished from adverbs, as both terms typically refer to words that modify verbs and other word classes. Thus, in English, the classification of words as adverbs or prepositions is revisited by Payne, Huddleston & Pullum (2010). In the present languages, if adverbs of position (9.4) were reclassified as prepositions, then prepositions would have the same derivational morphology as adverbs. Nevertheless, interesting questions remain as to what syntactic differences such words might show.

## 12.2. Diagnostic grammar features

<73> The four languages surveyed all share the following grammar features. As the survey builds on previous work on Talodi languages starting with Stevenson (1957:35-42), this list provides the stable features that jointly characterise the Talodi languages in the current state of knowledge:[22]

| | |
|---|---|
| Ethnology | four terms for people, person, language, homeland for each known settlement, by either prefixation or periphrasis |
| Nouns | noun classes with different singular and plural prefixes |
| | plural suffix for kinship terms |
| | alliterative agreement with nouns by initial consonant prefix in verbs, adjectives, the numerals 1-3, demonstratives, possessive pronouns, and genitive nouns |
| Verbs | verb classes for forming imperatives |
| | auxiliary verbs for progressive aspect and for negative imperative |
| Adjectives | size adjectives take quantity meaning in the plural unless reduplicated |
| | adjectives intensified by reduplication or by adverbs |
| Numerals | 10 as a base numeral |
| | ordinal number meaning encoded in birth-order nouns |
| Demonstratives | at least 3: proximal, medial, distal |
| Pronouns | 8 including dual 1st-&-2nd person and augmented 1st-&-2nd person in addition to 1SG/2SG/3SG/1PL/2PL/3PL distinctions (alternatively construed as distinguishing three 1st person plural pronouns: dual inclusive, plural inclusive, and plural exclusive) |
| Adverbs | set of positional adverbs including 'in it', 'on it', 'down there' |
| | set of locative prefixes 'in', 'at', 'up', 'down' |
| | derived adverbs with root consonant gemination after locative prefix |
| Clauses | head-first (VO) word order type; question particle after clause |
| | subject-verb agreement; no case marking of subject or object |
| | singular & plural forms of *who?* |
| Verb Extensions | (at least) passive, pluractional, reciprocal, benefactive-applicative, causative |
| | locative-applicative *-ḍɛ required by certain verbs in some inflections |

No grammatical category surveyed here was found to be marked by a minimal tone contrast on written homographs in all four languages. However, tone is known to have a role in forming imperative verbs in both Lumun and Dagik (Smits 2017:339-341, Vanderelst 2016:108), and since Lumun and Dagik represent the two branches of Talodi, imperative tone goes back to proto-Talodi and is therefore likely to be inherited by further Talodi languages. In any Talodi language shown to have imperative tone, it must be mastered by readers wishing to use instructtional texts as well as narrative texts.

## 12.3. Language clustering

<74> The four languages Lumun, Tocho, Acheron and Dagik were confirmed as separate languages on lexical grounds in Norton & Alaki (2015). Grammatically, they are all found to be different from each other in the numerals they use as bases and in the sizes of their birth-order noun sets.

---

[22] Since the proposed diagnostic features are found in all of the sample of four languages (and in some cases, already known in other Talodi languages as well), they do not include many other interesting features found in multiple, but not all, Talodi languages.

Otherwise, repetition of grammatical properties across at least some of the languages is the norm.

The eastern and western dialects of Acheron (Norton 1995) are found to differ grammatically here. They have different relative prefixes, of which only the western prefix is found on attributive adjectives and genitive nouns. The dialects also present different derivations of the ordinal numerals 'second' and 'third'.

The three languages spoken on adjacent lands at Saraf Al-Jamous, Lumun, Tocho, and Acheron, which were previously classified together as a group (Stevenson 1956:102), share only a few properties in this survey that distinguish them from Dagik located further away to the south:

1. Language prefix *k- (dental /ð-/ in Dagik)
2. Past tense suffix *-t (absent in Dagik)[23]
3. Habitual and prospective expressed by verbal prefixes (by auxiliaries in Dagik)
4. No 2nd-person demonstrative (present in Dagik)

However, the three Narrow Talodi languages Tocho, Acheron, Dagik share many more properties that distinguish them from Lumun: (here PNT = Proto-Narrow-Talodi)

1. Toponyms use an up or a down locative prefix for tribal homelands in the hills or on the plains (one prefix used for all in Lumun)
2. Ethnonym prefix PNT *k- for peoples outside the Talodi family (/l-/ in Lumun)
3. The first vowel alternates for singular/plural in some nouns (rarer in Lumun)
4. The plural suffix used on kinship nouns contains a mid front vowel PNT *ɛ (mid back vowel /ɔ/ in Lumun)
5. Imperative plural suffix PNT *-nɔn (prefix in Lumun)
6. Imperative plural affix is added to the imperative verb (to the citation stem in Lumun)
7. The verbal prefix *a- has a habitual reading without further inflectional marking (prospective reading in Lumun)
8. Negative auxiliary PNT *ma in imperatives (different auxiliary /kərənn-ɪ/ in Lumun)
9. Past suffix still used under negation (not used with negation in Lumun)
10. Numerals 6,7,8,9 built on base 5 (various compounds in Lumun)
11. Numerals 4 or higher behave as nouns (10 or higher in Lumun)
12. Birth-order terms are gender-neutral for sons or daughters from the fifth-born onwards (no gender-neutral birth-order terms in Lumun)
13. Relative prefix occurs on attributive possessive pronouns (absent in Lumun)
14. Adverbs of quality derived by locative prefixes (expressed by adverbial noun phrase in Lumun)
15. Locative prefix PNT *n- on place and time adverbs (/c-/ or /ɪ-/ in Lumun)
16. Complementiser PNT *na (different complementiser /ɪttɪ/ in Lumun)
17. Relative prefixes appear on the verb in *who*-clauses (cleft marker /a-/ in Lumun)
18. Question particle vowel PNT *a and question-word suffix vowel PNT *ɪ (vowels switched in Lumun)
19. Passive suffix PNT *-gɔ (different suffix /-ɪtta/ in Lumun)
20. Demoted agent can be expressed in passive clauses (object cleft in Lumun)

The weight of the evidence from this grammar survey therefore supports the proposal of Norton & Alaki (2015) that Lumun belongs in a separate branch from Tocho, Acheron, and Dagik and has evolved separately from them over a longer period.

---

[23] This difference is narrowed by the subsequent finding of Vanderelst (2016:113,155) that *-t* is a latent suffix in Dagik that surfaces on perfective stems when further suffixes are added.

**References**

Alaki, Thomas Kuku 2008
    'Tira numerals'. Numeral Systems of the World's Languages Project.
    http://lingweb.eva.mpg.de/numeral/Tira.html

Alamin, Suzan 2003
    An initial syntactic description of the Asheron language, a language of the Nuba Mountains. MA
    Dissertation (University of Khartoum)

Bhat, D.N.S. 1999
    *The Prominence of Tense, Aspect, and Mood*. Amsterdam: Benjamins

Bird, Steven 1999
    'When marking tone reduces fluency: An orthography experiment in Cameroon'. *Language and
    Speech* 42:83-115

Blench, Roger 2013
    'Splitting up Kordofanian'. In Schadeberg, Thilo and Roger Blench (eds.), *Nuba Mountain
    Language Studies*, p. 571-586. Cologne: Rüdiger Köppe

Crocker, Ellen 1982
    'Grammar write-up [of Masakin Tuwal]'. Unpublished manuscript

Crocker, Ellen 1984
    'Some vocabluary from Masakin Tuwal'. Unpublished manuscript

Dryer, Matthew 1992
    'The Greenbergian word order correlations'. *Language* 68:81-138

Greenberg, Joseph 1963
    *The Languages of Africa.* The Hague: Mouton

Jenks, Peter 2013
    'Noun phrases in Moro'. In Schadeberg, Thilo and Roger Blench (eds.), *Nuba Mountain
    Language Studies*, pp. 57-82. Cologne: Rüdiger Köppe

Kröger, Oliver 2012
    'Typology put to practical use: A participatory approach to initial grammar research'. In
    Brenzinger, Matthias and Anne-Marie Fehn (eds.), *Proceedings of the 6th World Congress of
    African Linguistics, Cologne, 17-21 August 2009*, pp. 155-168. Cologne: Rüdiger Köppe

Kutsch Lojenga, Constance 2014a
    'Orthography and tone: a tone-system typology with implications for orthography
    development'. In Michael Cahill & Keren Rice (eds.), *Developing Orthographies for Unwritten
    Languages*, pp. 49-72. Dallas: SIL International

Kutsch Lojenga, Constance 2014b
    'Basic principles for establishing word boundaries'. In Michael Cahill & Keren Rice (eds.),
    *Developing Orthographies for Unwritten Languages*, pp. 73-106. Dallas: SIL International

Munro, Pamela 2007
    'From parts of speech to the grammar'. In Thomas Payne & David Weber (eds.), *Perspectives
    on Grammar Writing*, pp. 71-111. Amsterdam: Benjamins

Norton, Russell 1995
    Variation and change in the phonology of Asheron. MA Dissertation (University of Essex)

Norton, Russell 2000
    'The noun classes of Asheron'. *Occasional Papers in the study of Sudanese Languages* 8:23-55

Norton, Russell 2012
    'Non-concatenative morphology in Dinka and Arabic: Augmentation and replacement'. In
    Matthias Brenzinger and Anne-Maria Fehn (eds.), *Proceedings of the 6th World Congress of
    African Linguistics, Cologne, 17-21 August 2009*, pp. 169-180. Cologne: Rüdiger Köppe

Norton, Russell and Thomas Kuku Alaki 2015
    'The Talodi languages: A comparative-historical analysis'. *Occasional Papers in the study of
    Sudanese Languages* 11:47-162

Norton, Russell and Thomas Kuku Alaki 2017
    'Torona: A disappearing Talodi language of Sudan'. In Gratien Atindogbe and Evelyn Fogwe
    Chibaka (eds.), *Proceedings of the 7th World Congress of African Linguistics, Buea, 17-21
    August 2012*, pp. 152-177. Bamenda: Langaa

Payne, Huddleston and Pullum 2010
    'The distribution and category status of adjectives and adverbs'. *Word Structure* 3(1):31-81

Roberts, David 2010
    'Exploring written ambiguities can help assess where to mark tone'. *Writing Systems Research* 2(1):25-40

Schadeberg, Thilo 1981
    *A Survey of Kordofanian, Volume 2: The Talodi Group*. Hamburg: Helmut Buske

Smits, Heleen 2007a
    Noun and noun phrase in Lumun (Kordofanian). MA Dissertation (University of Leiden)

Smits, Heleen 2007b
    'Notes on the description of topological scenes in Lumun'. Unpublished manuscript (University of Leiden)

Smits, Heleen 2012
    'The prefix /ɔ-/ in Lumun kinship terms and personal names'. *Occasional Papers in the study of Sudanese Languages* 10:95-114

Smits, Heleen 2013
    'The locative-applicative suffix in Lumun'. In Schadeberg, Thilo and Roger Blench (eds.), *Nuba Mountain Language Studies*, pp. 219-236. Cologne: Rüdiger Köppe

Smits, Heleen 2017
    *A Grammar of Lumun: A Kordofanian Language of Sudan.* Leiden: Netherlands Graduate School of Linguistics

Snider, Keith 2014
    'Orthography and phonological depth'. In Michael Cahill & Keren Rice (eds.), *Developing Orthographies for Unwritten Languages*, pp. 27-48. Dallas: SIL International

Stevenson, Roland 1956-57
    'A survey of the phonetics and grammatical structure of the Nuba Mountain languages'. *Afrika und Übersee* 40:73-84,93-116, 41:27-65,117-152,171-196

Stevenson, Roland 1962-64
    'Linguistic research in the Nuba Mountains'. *Sudan Notes & Records* 43:118-130, 45:79-102

Stirtz, Timothy 2012
    'Lumun participant reference in narrative discourse'. *Occasional Papers in the study of Sudanese Languages* 10:115-140

Thomas, David 1955
    'Three analyses of the Ilocano pronoun system'. *Word* 11:204-208

Tucker, A.N. & Margaret Bryan 1966
    *The Non-Bantu Languages of North-Eastern Africa.* London: Oxford University Press

Vanderelst, John 2013
    'Personal pronouns in Dagik (Talodi, Kordofanian)'. In Schadeberg, Thilo and Roger Blench (eds.), *Nuba Mountain Language Studies*, pp. 157-176. Cologne: Rüdiger Köppe

Vanderelst, John 2016
    *A Grammar of Dagik: A Kordofanian Language of Sudan.* Cologne: Rüdiger Köppe