A PHONOLOGICAL DESCRIPTION OF “PET TALK” IN ARARA

by

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This thesis, submitted by Isaac Costa de Souza in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Chair

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This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Department   Linguistics
Degree       Master of Arts

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ABBREVIATIONS AND SYMBOLS

A Subject of transitive clause
Abs Absolutive
Adj Adjectivizer
Admon Admonition
Aff Affirmative mood
Aug Augmentative
Caus Causative
Dir Direction
Dist Distal
DO Direct object
Ela Elative case
Erg Ergative
Excl Exclusive
Fem Feminine
Hort Hortatory
Imp Imperative
Imperf Imperfective
Inc Inceptive
Incl Inclusive
Iter Iterative
lit Literally
LUD Ludlingant
Mur Murmured
N Noun
Neg Negation
Nmlz Nominalizer
O Object
Past Past
p.c. Personal communication
Perf Perfective aspect
Perm Permission
PL Plural
PN Proper name
Poss Possessive
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<td>Recent past</td>
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<td>Ė</td>
<td>A weak vowel that can be deleted</td>
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ABSTRACT

The Arara people of Para, Brazil, as a whole, are remnants or survivors of some larger Cariban groups who descended from the headwaters of the upper Xingu to the mid and low areas of this river by the beginning of the nineteenth century. Now they live in three different villages: Maia, Cachoeira Seca and Laranjal.

The present thesis aims to describe thirteen different *ludlings* or “play languages” that elderly Arara people from Laranjal know and sometimes use in talking to pets. Play languages are linguistic forms that are purposely manipulated at some level. The strategies which the Arara people use to manipulate the base language to form their ludlings are the addition of affixes and/or certain phonological modifications, such as copying vowels, nasalization, murmur, and lateralization of flaps. The addition of affixes may trigger some phonological processes, such as vowel deletion and haplology. In addition to the ludlings, an informal sketch of Arara phonology is presented as part of the background for the discussion of the “language games”, as well as a brief overview of Arara grammar.
CHAPTER 1
INTRODUCTION

This thesis describes thirteen different play languages, or ludlings,\(^1\) that elderly Arara people sometimes use in talking to pets. The use of play languages among the Araras is decreasing, and only elderly people know them. The Arara language is spoken in the state of Pará, Brazil. The data presented here were collected during several years, starting in November, 1982, in the Posto de Vigilância 1, and later, starting in 1994, in the village of Laranjal, under the auspices of the Summer Institute of Linguistic (SII) and the Brazilian non-governmental organization Associação Linguística Evangélica Missionária (ALEM).\(^2\) Scientific names for plants and animals were collected from different sites on the internet, usually with a picture of each type or species. Arara proper names used in this thesis are from the Arara language (not borrowed from Portuguese).

The strategies that Arara people use to manipulate the base language to form their ludlings in talking to pets are the addition of affixes and/or some phonemic modifications, such as copying vowels, modifying vowels, nasalization, murmur, and lateralization of taps. The addition of affixes may trigger some phonological processes, such as vowel truncation and haplology.

\(^1\) For a discussion of this term, see Section 4.1.

\(^2\) In 2010 I collected supplementary data following the Institutional Review Board (IRB) policies, under the University of North Dakota (UND), using an Informed Consent document, which was signed by me and by the Arara language resource person.
This thesis consists of four chapters. Chapter one is an introduction where I present the purpose of the thesis and how it is organized. Chapter two presents general information about the Arara people, including a short history of their group. Chapter three presents an overview of Arara phonology, as well as a brief overview of Arara grammar. In the phonological section some phonological phenomena are discussed in prose with no formal representations; in the grammar section, there is a brief sketch that describes grammatical structures of the language that are pertinent to the discussion in the remainder of the thesis. Chapter four deals with word game data and includes the meaning and purpose of the ludlings, presentation of the data, and a summary of their phonological behavior. Closing the thesis, there is a small conclusion section. In addition to this, there are five Appendices: the first one shows contrast among consonants in Arara; the second one presents contrast among vowels in Arara; the third one presents a summary charts of the ludling data forms in isolation or in simple syntactic constructions; the fourth one presents transcriptions of ludlings that were recorded in sentential contexts; the fifth one presents a table for flora and fauna with terminology in Arara, English, Latin (scientific names), and Portuguese.

The Arara data are written with the International Phonetic Alphabet (IPA). Narrow Phonetic transcriptions are shown inside square brackets, while more abstract representations are sometimes shown in slashes and sometimes without any such marks. By abstract representation, I mean any representation that is not phonetic. I do not always intend these to signify an underlying representation, since I will use slashes for various purposes. For example, the same stem can have different abstract forms: /ibu/ or /ip/ ‘to take a bath’, depending on what is being presented. Since stress usually falls on the last
syllable of the word, it is not marked in the Arara examples, except in the section about stress (3.1.4).

With this thesis, I document these interesting language games that are very typical of Arara culture. As far as I know, there is very little documented information about any similar ludlings among the other indigenous people groups in Brazil. One of them is about the Palikur people, from the state of Amapá, northern Brazil, written by Diana Green (1998), from the Summer Institute of Linguistics (SIL, Brazil). In her paper she comments that there is a ludling using a reversal strategy in the Guarani language of southern Brazil. Finally, I hope that the Arara people, once aware of studies like this, will continue to use these ludlings in their culture.

As a preview of what is coming later in chapter 4, here are few ludling forms: [paru] ‘water’, but [palugu] ‘water (talking to a capuchin monkey)’. In this ludling, they add the infix /-qV-/ to the base word, and change /r/ into [l]. Another example is [wɔt] ‘fish’, but [idiwɔt] ‘fish (talking to a titi monkey)’. In this ludling, they add the prefix /idi-/ to the base word. Finally, [eduet] ‘hammock’, but [ēdūt] ‘hammock’ (talking to a howler monkey). In this ludling, they nasalize the vowels of the base word.
CHAPTER 2
GENERAL INFORMATION ABOUT THE ARARA PEOPLE

Various unrelated ethnic groups with unrelated languages in Brazil are referred to as “Arara” by outsiders, including Arara-Karo, from Rondônia,\(^3\) Arara of Acre,\(^4\) Arara of Mato Grosso,\(^5\) and Arara of Pará.

This thesis is a study of the language of the Arara of Pará, a Cariban language (Rodrigues 1986; Meira 2006), ISO 639-3 code *aap*. These people, as a whole, are remnants of some larger Cariban groups who came down from the headwaters of the upper Xingu to the mid and low areas of this river by the beginning of the 19th century (Souza in progress). They now live in three different villages: Maia, Cachoeira Seca and Laranjal. People living in Maia do not speak the Arara language anymore, only Portuguese.

Maia is located on the Xingu River, below the city of Altamira. The residents have had contact with the Juruna people since the 19th century, with whom they merged as one

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\(^4\) Also called Apolima-Arara, whose speakers live along the Humaitá River, a tributary of the Tarauacá river, in the state of Acre. The speakers come from different ethnic groups, including Chama, Amoaka, Santa Rosa, Arara and Jaminawa (Padilha, Lindomar. www.amazonlink.org/amazonia/culturais_indigenas/povos/apolina_arara.html – accessed on July 19, 2008). The ISO 639-3 code is *mcd* (Gordon 2005).

\(^5\) Other names for this language are Arara do Beiradão and Arara do Rio Branco. Its ISO 639-3 code is *axg*. The language is almost extinct (Gordon 2005).
ethnic group, as well as with other Brazilian citizens. In the late 1990s, they were recognized as a separate people by the Fundação Nacional do Índio (FUNAI), the Brazilian federal entity that manages indigenous affairs in the country. The residents of the other two Arara villages still speak the Arara language. These villages are located along the left bank of the Iriri River, the largest tributary of the Xingu.

Figure 1: Map of Arara Area

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6 This map was prepared by Jonathan Fuchs, and is used with his permission.
The Arara people living in Laranjal were contacted by FUNAI during two different periods of time: 1981 and 1983. The group contacted in 1981 had fifty people and the other one only twenty. The Arara living in Cachoeira Seca were contacted by the same governmental agency in 1987. They numbered about thirty people. These Arara people as a whole call themselves \( \text{ũ/uni0261/uni0254/uni027E/uni0254ŋ'm/uni0254} \), which is the first person inclusive pronoun. The morphological structure of this word is: \( \text{ũ/uni0261/uni0254'}\text/uni027E/uni0254} \) (first person inclusive) and \(-ŋm/uni0254\) (plural) (Souza 2004). Thus, some of them translate the meaning of their autonym as just \( nós \) in Portuguese (“we” in English).

There are about 335 speakers of Arara living in the villages of Laranjal (about 250) and Cachoeira Seca (about 85). According to my research (Souza in progress), people from these two villages were separated from each other around 1925, when there was a conflict between them on a place along the Iriri River called Cachoeira Grande, close to the mouth of this river, and not very far from Laranjal village. An advocate for the indigenous cause named Afonso Alves da Cruz told me (p.c. 2004) that one day he was traveling in a motor boat along the Iriri River with an Arara family from Cachoeira Seca, and as they were passing by Cachoeira Grande, a woman in the boat, who was the oldest woman from Cachoeira Seca at that time, cried out: “I know this place! It was here that my people separated themselves from the Laranjal people! Piput (the oldest man from Laranjal at that time) was very small! I remember it!” She pointed out that when this happened she was about the same age as a girl from her family, who was six years old. Through an examination of Piput’s teeth, dentists from FUNAI estimated the year of his birth as 1922. Since he was not able to remember that story, he would have been three years old or less at the time of the event.

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7 The first person exclusive pronoun is [tʃɪmna].

8 I thank Afonso Alves da Cruz for his long discussions with me about Arara ethnohistory. Without his
Some languages related to Arara are Hixkaryana, Apalaí, Wayway, Makuxi, Taulipang, Waimiri, Atroari, Kuikuro, Bakairi, and Ikpeng (Txikão), among others. By comparing descriptions of these languages (lexicon and morphology) it is possible to state that the closest one to Arara is Ikpeng (Rodrigues 1986).

My first contact with the Arara people from Laranjal was in November 1982. At that time my wife and I spent four months in Posto de Vigilância 1. Between November and December 1986 I spent a month with three young Arara men at this same Posto de Vigilância. Only in 1987 were my wife and I able to start having regular interaction with them. Since that time we have spent several months of every year among the Arara people. During these periods of time, we began studying their language and culture, developed a practical alphabet for writing the language, helped to start a school among them, helped them acquire medicines, helped protect their territory, helped them acquire canoes and sewing machines, and established a nursery for fruit plants and trees such as mahogany to help in their food and money resources, etc.

Only twice was I able to visit people from Cachoeira Seca: the first time by invitation from an anthropologist who was doing studies for the Cachoeira Seca’s area demarcation, and the second time by the FUNAI’s chief in the Cachoeira Seca village, Afonso Alves da Cruz. I stayed in the village for one week during each trip. However, my main research has been among the Arara from Laranjal. Thus the ludling data I present in this thesis were collected among the Arara living in Laranjal, the only sub-group where these ludlings have been attested.

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9 I have personally collected comparative data from some of these languages, including Makuxi, Kuikuro, Bakairi and Ikpeng. These data have not yet been published.
CHAPTER 3
THE ARARA LANGUAGE

3.1 A Brief Overview of Arara Phonology

3.1.1 Phonemic Inventory

The Arara language has twenty-two phonemes: sixteen consonants and six vowels.

A. Consonants

A phonemic consonant chart, used as a basis for systematic transcription, is shown below with the sixteen consonants.

Table 1: Consonants

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Alveolar</th>
<th>Post-Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop</td>
<td>p</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td>k</td>
<td>g</td>
</tr>
<tr>
<td>Affricate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>tf</td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td>η</td>
</tr>
<tr>
<td>Trill</td>
<td>(♀)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>r</td>
</tr>
<tr>
<td>Fricative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(h)</td>
</tr>
<tr>
<td>Central Approximant</td>
<td>w</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>j</td>
</tr>
<tr>
<td>Lateral Approximant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>l</td>
<td></td>
</tr>
</tbody>
</table>

In order to confirm the consonant phonemes of the language, I show contrast between some of them in Appendix 1 at the end of this thesis. Of these sixteen consonants, two of them occur rarely: the voiceless bilabial trill [♀] and the glottal fricative [h]. They occur in a very specific phonological environment. For example, the voiceless bilabial trill occurs in expressive words.\(^\text{10}\) In addition to that, it occurs only in

---

\(^\text{10}\) Expressive words resemble ideophones, but have a larger scope of meaning, as can be seen in the examples in (1).
onset position. Furthermore, it only occurs before the vowel [u], which is always followed by an alveolar or palatal consonant. The trill does not occur in proper names.

All seven of the words in which it occurs are given in (1) below:

(1) a. [ putekeni] ‘Orion’s belt, Pleiades’
b. [ putakeni] ‘small and round cultivated field’
c. [ nut  pute] ‘an insect’
d. [ puta] ‘to throw away’
e. [ puta  puta] ‘rolling on the ground’
f. [ putñak] ‘to shoot an arrow’
g. [ putñik] ‘to miss a target/aim’

The glottal fricative occurs only in coda position but never word-finally and, like the voiceless bilabial trill [b], is always followed by a coronal consonant, also in a very specific phonological environment. It is present in only four words in the normal language, but also occurs in proper names.

(2) a. [ muhna] ‘there further’
b. [ muhta] ‘over there’
c. [ kahtarat] ‘fire caterpillar’
d. [ niahnia] ‘a banana’
e. [ muhtahta] ‘proper name for a man’
f. [ mohtidi] ‘proper name for a man’
g. [ tñahñña] ‘proper name for a woman’

For these reasons [b] and [h] are placed within parentheses in the consonant chart. They are excluded from further discussion in this section. It is also worth mentioning that a few expressions sometimes include two implosive stops that are otherwise never used in the lexicon: [b] and [d].\[11\]

(3) a. [ ñah] ‘(s/he is) lying down in a hammock’
b. [ ñah ketkô] ‘sit down!’

Because of their specific occurrence in special expressions, they are not included in the Arara phonemic inventory.

---

\[11\] The only exception in the whole Arara language is [bak ken] ‘hoe’.
In normal speech, the voiced bilabial and alveolar stops have an optional lenis realization intervocally: \([\beta]\) and \([\ddot{d}]\),\(^{12}\) respectively. Here are some examples:

(4) a. \([m\beta\epsilon]\) \(\text{‘a fruit’}\)
    b. \([a\beta\dot{a}t]\) \(\text{‘manioc bread’}\)

(5) a. \([i\ddot{d}\ddot{a}ra]\) \(\text{‘fly’}\)
    b. \([ou\ddot{d}\ddot{o}]\) \(\text{‘big traditional house’}\)

There is no such realization for the voiced velar stop \(/\dddot{g}/\). In addition to this lenition process, there are restrictions on the occurrence of some of the Arara phonemes. For example, in lexical items other than proper names, there is lack of contrast between \([t]\) and \([\ddot{t}]\) before the high front vowel \([\ddot{i}]\). In this environment only the affricate occurs:

(6) a. \([\ddot{f}\ddot{t}\ddot{i}\ddot{i}]\) \(\text{‘sun’}\)
    b. \([k\ddot{ot}\ddot{t}\ddot{i}]\) \(\text{‘a fish’}\)
    c. \([\ddot{f}\ddot{t}\ddot{r}\ddot{u}\ddot{k}\ddot{a}]\) \(\text{‘coati’}\)

This neutralization of contrast occurs because an alveolar stop always is realized as a palatal affricate before \(/\ddot{i}/\), as can be seen in examples (7b) and (7c) below, where this lexical phonological process happens to reflexive and first person dual inclusive prefixes, respectively:

(7) a. /\ddot{a}\dot{t}-pe-p\ddot{o}-lu/\(^{13}\) → [\ddot{a}tpep\ddot{o}lu] ‘s/he hit his/her own forehead’
    Ref-forehead-hit-Rec
    b. /\ddot{a}\dot{t}-in-\ddot{o}-lu/
       → [\ddot{a}t\ddot{i}n\ddot{o}lu] ‘they left each other’
       Ref-leave-Rec
    c. /kut-in-\ddot{o}-lu/
       → [ku\ddot{t}in\ddot{o}lu] ‘we (dual) left him/her’
       12Erg-leave-Rec

The process of affrication of a coronal stop also occurs (lexically and post-lexically) before a palatal approximant, as can be seen in (8b) and (9b) below:

(8) a. /kariam\mu u-um/ → [kariam\mu uum] ‘sheep’
    deer-Aug

---

\(^{12}\) The lenis form \([\ddot{d}]\) is an IPA notation for a quickly released \([\ddot{d}]\), similar to an alveolar tap.

\(^{13}\) Here there is object incorporation.
b. /ɔɾɔt-um/ → [ɔɾɔtʃum]¹⁴ ‘cultivated cashew’

cashew-Aug

(9) a. /pitɔt i-emi-lu/ → [pitɔd iemilu] ‘I ate a (tropical) fruit’
   fruit 1Erg-eat-Rec
b. /pitɔt jem-i-lu/ → [pitɔtʃemilu] ‘s/he ate a (tropical) fruit’
   fruit eat-Rec

However, there is contrast between [t] and [ʃ] before the vowel [i] in proper names:

(10) a. [titik]¹⁵ ‘proper name for a man’
b. [ʃi.pi] ‘proper name for a woman’

(11) a. [mohtiti]¹⁶ ‘proper name for a man’
b. [taʃi] ‘proper name for a man’

Before the vowel [i] the voiceless affricate [ʃ] is voiced into [ʤ] after nasal consonants, as in (12b) below.

(12) a. /i-la-ʃi/ → [iḷaʃi] ‘his/her mouth’
   3Abs-mouth-Poss
b. /i-mum-ʃi/ → i-mum∅-ʃi¹⁷ ‘his/her head’
   3Abs-head-Poss
   [imudʒi]

Thus, within a word only the voiced affricate is found after a nasal:

(13) a. /kuŋʃi/ → [kuŋʒi] ‘a bird’
b. /tɔŋʃi/ → [tɔŋʒi] ‘a lizard’
c. /eʃin/ → [eʃin] ‘his daughter’

¹⁴ Here there is insertion of the palatal approximant [j], and coalescence of the preceding /t/ and /ʃ/,
resulting in the affricate [ʃ]. Insertion of [j] occurs within certain linguistic structures that involve
relationships between a direct object + 3 person verb (statement only), genitive-nouns, and the noun stem
-Aug when the first constituent ends in a consonant and the following one starts with a vowel (except for
[i]): /ɔɾɔt ʃebebulu/ → [ɔɾɔtʃebebulu] ‘s/he brought cashew fruit’, /ɔɾɔt awom/ → [ɔɾɔtʃawom] ‘cashew
fruit tail (shred)’, /wom-um/ → [womʒum] ‘cultivated banana’. Compare these examples with: [ɔɾɔd
insertion does not occur between subject-verb and moods other than declarative. Palatalization triggered by
imʃi] ‘his father-in-law’.

¹⁵ This man is deceased.

¹⁶ This man is deceased.

¹⁷ Here there is a vowel deletion process, whereby across morpheme boundaries a vowel is deleted before a
non-liquid consonant.
Actually, affricate voicing is part of a general process whereby only voiced obstruents occur after a nasal consonant, as illustrated in (14b) and (15b):

\[
\begin{align*}
(14) & \quad \begin{array}{ll}
\text{a. } & \text{/enəbʊ-ta/} \quad \rightarrow \quad \text{eneb∅-ta}^{18} \quad \text{[enepta]} \quad \text{‘bring it (from there)!’} \\
\text{b. } & \text{/enəŋu-ta/} \quad \rightarrow \quad \text{enep∅-ta} \quad \text{[enenda]} \quad \text{‘(go there to) see it!’}
\end{array} \\
(15) & \quad \begin{array}{ll}
\text{a. } & \text{/enəbʊ-kʊ/} \quad \rightarrow \quad \text{eneb∅-kʊ} \quad \text{[enepkʊ]} \quad \text{‘bring it!’} \\
\text{b. } & \text{/əməmʊ-kʊ/} \quad \rightarrow \quad \text{əməm∅-kʊ} \quad \text{[əməmgʊ]} \quad \text{‘come in!’}
\end{array}
\end{align*}
\]

Thus, within a word only voiced obstruents are found in this environment:

\[
\begin{align*}
(16) & \quad \begin{array}{ll}
\text{a. } & \text{[tomgɛm]} \quad \text{‘an insect’} \\
\text{b. } & \text{[panbɑk]} \quad \text{‘ball’} \\
\text{c. } & \text{[amdeṭ]}^{19} \quad \text{‘handle, strap, hank made of cotton or vegetal fiber’}
\end{array}
\end{align*}
\]

As shown in examples (14a) and (15a) above, other voiced consonants do not cause the subsequent voiceless consonant to be realized as voiced. On the contrary, they are realized as voiceless themselves.

Although the alveolar stop \[t\] never occurs before \[i\] in the lexicon other than in proper names, its voiced counterpart \[d\] rarely can occur before this vowel: in the question word \[wadite\] ‘how is it?’ and in few derived words, where the vowel \[e/\] is raised to \[i/\] before \[a/\], in a dissimilation process. In this case, it must be noted that the voiced alveolar stop \[d\] is not realized as palatal before \[i/\]. Examples are given in (17b) and (18b):

\[
\begin{align*}
(17) & \quad \begin{array}{ll}
\text{a. } & \text{/u-gʊɾi-de-lu/} \quad \rightarrow \quad \text{[uɡuridelu]} \quad \text{‘I got angry’} \\
& \quad \text{1-angry-Verb-Rec} \\
\text{b. } & \text{/ɔ-gʊɾi-de-ane/} \quad \rightarrow \quad \text{[ɔɡuridiane]} \quad \text{‘don’t get mad!’} \\
& \quad \text{2Abs-angry-Verb-Admon}
\end{array}
\end{align*}
\]

\[18\] For vowel deletion here and in example (15), see footnote 17.

\[19\] The Arara people from Cachoeira Seca village pronounce all these words with the corresponding voiceless stops.
(18) a. /i-mu-de-lu/ → [imudelu] ‘it laid an egg’
   3Abs-egg-Verb-Rec
b. /ni-mu-de-a/ → [nimudia] ‘let it lay eggs’
   3Abs-egg-Verb-Perm

The sequence [di] also occurs in proper names:
(19) a. [adidi] ‘proper name for a woman’
b. [mohtidi]20 ‘proper name for a man’

Other restrictions on sound occurrences can be found in utterance-initial position. Of
the fourteen consonants, only nine occur in this position: the voiceless stops [p], [t] and
[k], the affricate [ʧ], the bilabial and alveolar nasals [m] and [n], the lateral [l], and the
glides [w] and [j]. The other five cannot be found in utterance-initial position: the voiced
stops [b], [d] and [g], the dorsal nasal [ŋ], and the tap [r]. Neither consonant group seems
to form a natural class. Examples with consonants in utterance-initial position are given
in (20):
(20) a. [pera] ‘a tropical fruit’
b. [tupa] ‘a gourd container’
c. [kuto] ‘a toad’
d. [ʧanu] ‘poison’
e. [muta] ‘a monkey’
f. [nuna] ‘moon’
g. [lukunden] ‘scorpion’
h. [wauri] ‘small fruit of a palm tree’
i. [jaguri] ‘agouti’

However, in terms of stops it is possible to see from affixation that each pair of
voiceless and voiced stops occurs lexically in initial position in underlying forms (UF).
Examples are given in (21) for voiceless and (22) for voiced, respectively:
(21) a. /kamb/ → [kamb] ‘firewood, fire’
b. /i-kamb-rui/ → [ikambrui] ‘his/her firewood, fire’
   3Abs-fire-Poss
(22) a. /buulepte/ → [puulepte] ‘knife’
b. /i-buulepte-n/ → [ibuulepten] ‘his/her knife’
   3Abs-knife-Poss

20 This is different from [mohtiti] ‘proper name for a man’ in (11a).
As can be seen in (21b) above, the /k/ of the stem does not voice after the prefix [i-]; the phonetic representation *[iɡamborut]* is unacceptable. Therefore, the variation between [p] and [b] in [pulepte] and [ibuulepten] in (22a) is better explained as a devoicing process (utterance-initially) than a voicing process after a vowel across a morpheme boundary.

Stems starting with underlying voiceless consonants are extremely rare, like the example in (21) above. They form just a small group of stems: about twenty or less in the whole language. The most common situation is to have stems starting with voiced consonants which are realized as voiceless word-initially.

There are other kinds of examples showing a difference of behavior between underlying voiceless and voiced stops. One of them is that a voiceless alveolar stop (/t/) in a UF is realized as voiced after a nasal consonant, while in this same environment, an underlying voiced alveolar stop is deleted. This is possible to see comparing examples (23b) and (24b) below, where in the first there is voicing of a consonant and in the second deletion:

(23) a. /ak-ta/*21
    eat-Dist
    → [akta]
    ‘(go there and) eat it’

    b. /en-en-ta/
    see-Dist
    → [enenda]
    ‘(go there and) see it’

(24) a. /i-em-i-da/
    1Erg-eat-Near
    → [iemida]
    ‘I will eat it’, or ‘let me eat it (near me)’

    b. /i-en-en-da/*22
    1Erg-see-Near
    → [ienena]
    ‘I will see it’ or ‘let me see it (near me)’

Yet among the fourteen consonants, only six can be found in utterance-final position: the voiceless stops [p], [t] and [k] and the nasals [m], [n], and [ŋ]. The other eight cannot:

---

21 The UF for “eat” is /aɡu/ and “see” in (b) is /eŋeŋu/. They were modified here for the sake of simplicity.

The vowel deletion is referred to in footnote 17.

22 See the previous footnote about the UF for “see”.

the voiced stops [b], [d] and [g], the affricate [ʧ], the lateral [l], the tap [ɾ], and the glides [w] and [j]. Examples with consonants in utterance-final position are illustrated in (25):

(25) a. [kamap] ‘a gourd container’
b. [wakat] ‘alligator, cayman’
c. [kɔk] ‘evening, night’
d. [ɔgum] ‘wasp’
e. [ugon] ‘man’
f. [manaŋ] ‘a coconut bug’

In terms of UF’s, the analysis developed to show contrast between the stops in initial position does not apply to the stops in final position because: (a) they agree in voicing with the following segment in a derived environment; or (b) they resyllabify to the onset position when the next segment is a vowel, as expected in any other language. In other words, in UF’s stops are unspecified for voicing lexically in final position. This non-specification is represented by capital letters here and elsewhere. Examples of voicing agreement between stops are shown in (26) and (27):

(26) a. /kamaB/ → [kamap] ‘a gourd container’
b. /kamaB t/uni026Ft/ → [kamap t/uni026Ft] ‘he wants a gourd container’
c. /kamaB l/uni0254n/ → [kamab lon] ‘gourd container itself’

(27) a. /ka/uni0261aG/ → [ka/uni0261ak] ‘a toucan bird’
b. /ka/uni0261aG t/uni026Ft/ → [ka/uni0261ak t/uni026Ft] ‘he wants a toucan bird’
c. /ka/uni0261aG l/uni0254n/ → [ka/uni0261a/uni0261 lon] ‘a toucan bird itself’

Examples of stops moving to the onset position when the next segment is a vowel are presented below:

(28) a. /ibuD/ → [i.but] ‘his wife’
b. /ibuD imu/ → [i.bu.di.mû] ‘his father-in-law’

(29) a. /adaG/ → [a.dak] ‘two, pair’
b. /adaG adaG/ → [a.da.ga.dak]24 ‘four’

23 Small upper case [ﻥ] is used to represent a bilabial trill in this thesis. Therefore, it cannot be used to represent lack of contrast in voicing. Thus capital letters will be used: /B/ stands for bilabial, /D/ for alveolar, and /G/ for velar.

24 The insertion of /j/ does not occur between a word for number and a verb (regarding /j/ insertion, see footnote 14).
c. /adaG amuD/ → [a.da.ga.mut] ‘s/he (has) two pets’

d. /adaG enepko/ → [a.da.ge.nep.kɔ] ‘bring two’

On the other hand, all of the consonants may occur in onset position within an
utterance. But in coda position within an utterance, only the stops (voiceless and voiced)
and the nasals may occur, a total of nine consonants: [p], [b], [t], [d], [k], [g], [m], [n],
and [ŋ]. However, the voiced stops occur only across word boundaries. The other five
consonants never occur in coda position: [f], [l], [ɾ], [w], and [j]. Some examples of
consonants in coda position within an utterance are shown in (30):

(30) a. [tuap.kɔ] ‘a toucan bird’
b. [kamap tariŋ.pe] ‘the gourd container is big’
c. [kamab lon] ‘gourd container itself’
d. [st.piŋɔ] ‘an armadillo’
e. [wakad wɔltu] ‘he killed an alligator’
f. [tuk.tɔ] ‘cultivated field’
g. [kaŋq lon] ‘toucan bird itself’
h. [tom.ɡem] ‘insect’
i. [en.ban] ‘her/his food (fruit)’
j. [kuŋ.dʒi] ‘a bird’
k. [wag wak] ‘a bird’

B. Vowels

As mentioned above, the Arara language has six vowels. A vowel chart is shown
below with these phonemes:

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-round</td>
<td>Non-round</td>
<td>Non-round</td>
</tr>
<tr>
<td>High</td>
<td>i</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>Mid</td>
<td>e</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>Low</td>
<td>a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to confirm the vowel phonemes of the language, I show contrasts between
them in Appendix 2 at the end of this thesis.

Phonetically, the high back vowels, /u/ and /u/, tend to be pronounced as lax or
slightly open. On the other hand, the mid front vowel /e/ and the mid back vowel /a/ tend
to be realized as more close before the close vowels /i/ and /u/. Examples with /e/ being realized as [e] are given in (31) below:

(31) a. [murei] ‘chair, bench’
    b. [eudui]25 ‘his ambush’

Examples with /ɔ/ being realized as [o] are given in (32) below:

(32) a. [ogo]26 ‘snake’
    b. [pou] ‘small peccary’

The front mid vowel /ɛ/ is often pronounced as [e] in closed syllables:

(33) a. [et] ‘rubber tree, plastic’
    b. [rek] ‘skin wound’
    c. [purep] ‘instrument made out of vine put on feet to climb trees’

An Arara speaker can pronounce a word in several different ways, showing vowel fluctuation. This is illustrated below with the word for ‘beads’:

(34) a. [kuri]
    b. [kori]
    c. [kɔri]

However, there are restrictions on the occurrence of the vowels. Although all of them can begin a word or an utterance, with rare exceptions only /a/ and /e/ begin stems that take prefixes (e.g. nouns that can be possessed, and verbs). Here are some examples with nouns with stems starting with vowels other than /a/ and /e/:

(35) a. ug-ie-n 12Abs-tooth-Poss ‘our (incl.) tooth’27
    b. uu-ɔd 1Abs-owner ‘my owner’28
    c. uu-u-n 1Abs-food-Poss ‘my food’29

Here are some examples with verbs:

25 This is a trisyllabic word: [e.u.dui].
26 This is also a trisyllabic word: [o.go.i].
27 Only eight stems starting with /i/ were found.
28 Only this stem was found.
29 Only this stem was found. No stem was found starting with /u/.
(36)  a. i-ɑkpe-lu  ‘I kept it’
    1Erg-keep-Rec
  b. i-ubi-tkɛ-lu  ‘I looked for it’
    1Erg-seek-Iter-Rec
  c. in-iadu-lu  ‘I burned it’
    1Erg-burn-Rec
  d. i-umdu-me-lu  ‘I put it in the water; I made it to dive’
    1Erg-dive-Caus-Rec

At the same time, all of them undergo a nasalization process when they are in
utterance-final position and are preceded by a nasal consonant. This may be seen as an
intonational marking of an utterance boundary. Some examples are presented in (37)
below:

(37)  a. /abiana/  →  [abianã]  ‘a peccary’
  b. /pone/  →  [pɔnẽ]  ‘piranha’
  c. /ɔremi/  →  [ɔremĩ]  ‘a fish’
  d. /tɔɾɔmɔ/  →  [tɔɾɔmĩ]  ‘Brazil nut’
  e. /imu/  →  [imũ]  ‘its egg’
  f. /kariamũ/  →  [kariamũĩ]  ‘deer’
  g. /mau/  →  [mãũ]  ‘cat’

When vowels are not in utterance-final position there is no nasalization. Some
examples are presented in (38) below:

(38)  a. [abiana βɔk]  ‘on the peccary’
  b. [pɔne βɔk]  ‘on the piranha’
  c. [ɔremi βɔk]  ‘on the fish’
  d. [tɔɾɔmɔ βɔk]  ‘on the Brazil nut’
  e. [imu βɔk]  ‘on the egg’
  f. [kariamũ βɔk]  ‘on the deer’
  g. [mau βɔk]  ‘on the cat’

Vowel nasalization occurs in proper names that end in a vowel, when said in an
emphatic call. In this case, the nasalization spreads over all vowels of the word:31

30 /i/ needs to be better analyzed, since it receives /in-/ as the person marking prefix, which comes before consonants, and not vowels.

31 In this same kind of emphatic call, proper names that end in consonants have an extra unrounded high back vowel /uː/ after that consonant: /wɔŋdɔ/ → [wɔŋdũ] ‘proper name for a man’, /pãy/ → [pαŋũ] ‘proper name for a boy’. Depending on the length of the calling, the epenthetic vowel can be lengthened.
3.1.2 Syllable Structure

Arara has the following syllable types: V, CV, VC, and CVC. Thus its maximal syllable template is CVC; there is no obligatory onset. All syllable types can occur word-initially and word-finally. Here are some examples with the V pattern, word-initially and word-finally, respectively:

(40) a. [umu.pui] ‘yam’
    b. [a.gum] ‘wasp’

(41) a. [mu.ə] ‘bag made out of vegetable fiber’
    b. [tu.ə] ‘a wild fruit’

Here are some examples with CV, word-initially and word-finally, respectively:

(42) a. [mo.ə] ‘a toad’
    b. [ka.map] ‘a gourd container’

(43) a. [ɔna.ko] ‘a bird’
    b. [uu.əu] ‘stone’

Here are some examples with VC, word-initially and word-finally, respectively:

(44) a. [at.pido] ‘an armadillo’
    b. [ap.tenu] ‘wind’

(45) a. [e.ək] ‘a beetle’
    b. [ə.əl] ‘rubber tree, plastic’

Here are some examples with CVC, word-initially and word-finally, respectively:

(46) a. [tuk.to] ‘cultivated field’
    b. [kɔt.kɔt] ‘a bird’

(47) a. [am.net] ‘his blood vessel, his vein’
    b. [ka.map] ‘a gourd container’
3.1.3 Stress

In words pronounced in isolation, such as in a list, primary stress in Arara preferentially falls on the last syllable of the word. Some examples are given in (48) below:

(48) a. [kɔ'kɔ] ‘my uncle’
   b. [wa'kat] ‘alligator, cayman’
   c. [tuk'tɔ] ‘cultivated field’
   d. [apte'nũ] ‘wind’
   e. [ɔtkoi'mɔ] ‘an armadillo’

However, there are some variations in stress. If a word ends in a sequence of two vowels (followed or not followed by a consonant) and the second vowel is [+high], the stress may alternatively switch to the previous vowel, resulting in a variation between a monosyllabic and a disyllabic realization of the same word. Some examples are given in (49) below:

<table>
<thead>
<tr>
<th>Two Syllables</th>
<th>One Syllable</th>
</tr>
</thead>
<tbody>
<tr>
<td>(49) a. [po'u] ~ ['pou]'</td>
<td>‘small peccary’</td>
</tr>
<tr>
<td>b. [iu'i] ~ [i'ui]'</td>
<td>‘tree’</td>
</tr>
<tr>
<td>c. [mã'ũ] ~ ['mãũ]'</td>
<td>‘cat’</td>
</tr>
<tr>
<td>d. [tũ'uŋ] ~ ['tũuŋ]'</td>
<td>‘shotgun with a long barrel’</td>
</tr>
<tr>
<td>e. [a'ut] ~ ['aut]'</td>
<td>‘his ribs’</td>
</tr>
</tbody>
</table>

Normally the pronunciations in the left column occur in careful speech; the others in normal speech. This variation is not present when the second vowel is [-high], as can be seen below:

(50) a. [mũ'ẽ] *[mũẽ] ‘bag made out of vegetable fiber’
   b. [tu'a] *[tua] ‘a wild fruit’
   c. [mẽ'ẽ] *[mẽẽ] ‘a toad’

Usually this variation is also absent in words containing three syllables:

---

32 This is the only section of the thesis where stress is marked.
33 If [u] were a consonant, [po'u] or ['pou] would receive [-ñm] as plural and not [-ũmɔ] as it does (see Section 3.2.7).
34 The phonetic form [jei] ‘wood, tree’, starting with a consonant, was attested only in the ludling examples (see Appendix 3, example 4).
(51) a. [taku'i] *[ta'kui] ‘manioc flour’
b. [ogo'i] *[o'goi] ‘snake’

But there are some exceptions. In these cases, the consonant of the penultimate syllable must be a liquid: /ɾ/ or /l/. Some examples are given in (52) and (53) below:

(52) a. [muɾei] ~ [mu'rei] ‘chair, bench’
b. [kaɾei] ~ [ka'rei] ‘non Indian’

(53) a. [lala'ɾu] ~ [la'lau] ‘proper name for a woman’
b. [ʧila'ɾu] ~ [ʧi'lau] ‘proper name for a woman’

Since stress on words pronounced in isolation, such as in a list, is very predictable, in the rest of my phonetic transcriptions I will not mark it. However, it is worth noting that within a sentence the stress can change from its final position within the word to a different syllable. This can be seen in words such as [iʃi'ɾu] ‘his urine’ and [uɾa] ‘I’, which in isolation are spoken with stress on the last syllable, but within a sentence pronounced with stress on the third and second syllable (from right to left), respectively.

(54) [iʃi'ɾu doŋ uɾa]35 ‘I am going to urinate’

3.1.4 Some Common Phonological Processes

In this section I will present one phonological constraint and some of the common phonological processes that occur in the Arara language.

Obligatory Contour Principle

The Obligatory Contour Principle (OCP) “prohibits consecutive or adjacent identical segments” (Goldsmith 1990:309). When identical segments are adjacent the OCP is violated. In Arara UF’s, it is possible to find sequences of segments with similar points of articulation, consonants or vowels, violating the OPC. When this happens, one of them is deleted: either the first or the second segment. It is not yet completely understood what

35 This sentence was collected in 1988, from a young man during an Arara festival. It was recorded with a Sony tape recorder. An Arara vowel can be lengthened in an emphatic linguistic environment.
triggers the direction of deletion. Examples involving regressive deletion of consonants are shown in (55b), (56b), and (57c):

(55) a. /ɛɾuB/\[^{36}\] → [ɛɾu] ‘hurry’
b. /ɛɾuB mɔmuru/ hurry PN → ɛɾuʔ mɔmuru [ɛɾu momuru] ‘hurry, Momuru!’

(56) a. /i-bɔD put/ 3Abs-lip hair → [i'bɔt put] ‘his beard, his moustache’
b. /i-bɔD-ruʔ/ 3Abs-lip-Poss → i-bɔʔ-ruʔ [i'bɔruʔ] ‘his/her lips’

(57) a. /wan/ → [wan] ‘honey’
b. /e-pi/ → [e-pi] ‘his/her skin, its bark, leather’
c. /wan e-pi/ honey bark → wan j-e-pi[^{37}] waʔ jepi [wajepi] ‘beeswax’

Examples of progressive consonant deletion, which occurs only in suffixes, are shown in (58b) and (59b) below:

(58) a. abe-dam ebb-season ‘season of ebbing (water stream), dry season’
b. inm-lam fill-season ‘season of filling (water stream), rainy season’

(59) a. ɛɾu-ru eye-Poss ‘her/his eye’
b. i-daɡin-u 3Abs-whistle-Poss ‘her/his whistle’

Examples of regressive vowel deletion are shown in (60b) and (61b):

(60) a. urɔ ‘I’
b. malon ur ɛndɔ enough I here ‘I am going to stay here’

[^{36}]: It must be remembered that stops lose their voicing contrast in utterance-final position: in this position, only voiceless stops occur. Thus, a capital symbol in the underlying representation stands for an archiphoneme that points to neutralization of contrast (see footnote 23).

[^{37}]: Here there is a feeding relationship: a palatal approximant is inserted across word boundaries between a C and the following V (CjV), and the preceding coronal C is deleted by virtue of the OCP violation (ʔjV).
Progressive Vowel Deletion

A vowel is deleted after another vowel across a morpheme boundary. This deletion applies only in certain suffixes: /-enŋ/ ‘plural in postpositions’, /-ebra/ ‘negation’, and /-upe/ ‘there is’. This phonological process cannot be insertion since it would be necessary to propose that there is insertion of different vowels, such as [e] vs. [uu].

Examples with the ‘plural’ suffix in postpositions /-enŋ/:

(63) a. /i-budeq-enŋ/ → [ibudegenŋ] 3Abs-similar-Pl ‘he/she is like them’
b. /ug-wuma-enŋ/ → ug-wuma-∅enŋ 12Abs-for-Pl ‘for us’

Examples with the ‘negative’ suffix /-ebra/:

(64) a. /mondon-ebra/ → [mondonebra] there-Neg ‘s/he, it is not there’
b. /tɔ-nend-e-ebra/ → tɔ-nend-e∅ebra T-see-Nmlz-Neg ‘it is not possible to see it’

Examples with the ‘existential’ suffix /-upe/:

(65) a. /mulik-upe/ → [muligupe] ani-there.is ‘there is an ani bird’
b. /pumie-upe/ → pumie-∅pe woman-there.is ‘there is a woman’

---

38 This phonetic representation shows that the deletion process being described here does not apply cyclically; otherwise the phonetic form would be *[pumiep]. But that surface form means ‘she is a woman’.
Nasalization of Stops

A stop consonant is realized as a nasal before a nasal consonant, as can be seen in (66b), (67b), and (68b) below:

(66) a. /wambiT/ → [wambit] ‘vulture’
    b. /wambiT muren/ → [wambin muren] ‘vulture’s baby’

(67) a. /w-ib/ → [wib] ‘I took a bath (today)’
    b. /w-ib-naŋ/ → w-ib∅-naŋ ‘I am taking a bath (in the river)’

(68) a. /ṵ-a/ → [ṵa] ‘our (incl.) lung’
    b. /ṵ-mum/ → [ṵmum] ‘our (incl.) head’

Vowel Deletion in CV Syllables

A high back vowel, [u] or [u], is deleted after another vowel across a morpheme boundary. The vowels must have an intervening labial consonant. The following diagram represents this vowel deletion process.

$$V + C \rightarrow \emptyset$$

Labial [+ high] [+ back]

Only a few nouns with obligatory possession undergo this deletion. The phonological process described here cannot be insertion since it would be necessary to propose that there is insertion of different vowels, such as [u] or [u]. As shown in the above chart, the vowels that are sensitive to deletion after a prefix are marked with a diacritic to mark this sensitivity. This breve mark over the vowel is an ad hoc device, just to show that they

---

See footnote 23 for an explanation of capital letters.

Across morphemes a vowel is deleted in verb stem-final position before a non-liquid consonant (see footnote 17); stop sequences then are realized as voiceless: /bt/ → [pt]. Even when both stops are underlyingly voiced they are realized as voiceless: /ug-banan/ → [ukpanan] ‘our (incl.) ear’.

---
have a different behavior in relation to other vowels that do not undergo deletion in the same environment. Examples of noun stems with vowels sensitive to deletion are: /mûnu/ ‘body, flesh’, /mûdabuuri/ ‘food’, /mûbe/ ‘shoulder blade, scapula’, /bûtʃi/- ‘leg’, etc. As already stated, all noun stems with a vowel sensitive to deletion begin with a labial consonant.

\[
\begin{align*}
\text{(70)} & \quad \text{a. } /m\text{ôk}ʊ / bûtʃi-n/ & \rightarrow [m\text{ôk}ʊ bûtʃi̱n] \quad \text{‘Mouko’s leg’} \\
& \quad \text{PN leg-Poss} \\
& \quad \text{b. } /i-bûtʃi-n/ & \rightarrow [iŋtʃi̱n] \quad \text{‘his leg’} \\
& \quad \text{3Abs-leg-Poss}
\end{align*}
\]

\[
\begin{align*}
\text{(71)} & \quad \text{a. } /tætʃi / mûbua-ʧi/ & \rightarrow [tætʃi mûbuaʧi] \quad \text{‘Tatji’s arm’} \\
& \quad \text{PN arm-Poss} \\
& \quad \text{b. } /i-mûbua-ʧi/ & \rightarrow [i mûbuaʧi] \quad \text{‘his arm’} \\
& \quad \text{3Abs-arm-Poss}
\end{align*}
\]

Noun stems with vowels not sensitive to deletion after a prefix have no diacritic:

/\text{bana}/ ‘ear’, /\text{m}ô\text{wa}/ ‘back’, /\text{dur}u/ ‘central part of the body’, /\text{beba}/ ‘forehead’, /\text{bia}/ ‘cheek’, etc.

**Regressive Vowel Harmony**

When the back round vowel /\text{u}/ occurs before a tap preceding the mid vowel /\text{e}/, the mid vowel spreads its features to the back vowel across morpheme boundaries. Here are some examples:

\[
\begin{align*}
\text{(72)} & \quad \text{a. } /i-\text{muŋu}-\text{ru}/ & \rightarrow [i\text{muŋu}r] \quad \text{‘his/her blood’} \\
& \quad \text{3Abs-blood-Poss} \\
& \quad \text{b. } /\text{tu}-\text{muŋu}-\text{re}/ & \rightarrow [\text{tu}-\text{muŋu}re] \quad \text{‘s/he is bleeding’} \\
& \quad \text{T-blood-Adjr}
\end{align*}
\]

However, if the preceding vowel is not an /\text{u}/, then /\text{e}/ does not spread its features.

\[
\begin{align*}
\text{(73)} & \quad \text{a. } /\text{abo}-\text{n}/ & \rightarrow [\text{ab}o] \quad \text{‘its wing’} \\
& \quad \text{wing-Poss} \\
& \quad \text{b. } /t-\text{abo}-\text{re}/ & \rightarrow [t\text{abo}re] \quad \text{‘it is with open wings’} \\
& \quad \text{T-wing-Adjr}
\end{align*}
\]
3.2 Brief Overview of Arara Grammar

3.2.1 Morphological Typology

In relation to the synthetic index (Comrie 1989:46; Whaley 1997:128-9), the Arara language is a synthetic language since it utilizes various prefixes and suffixes, as illustrated in (74).

41 (74)  ṭu-ẉ-ḍu-ḳ  ọṃọṛ-ŋ̣ ọ g̣ạṇạn
     DO-kill-Pl-Imp you-Pl at.least
     ‘kill it!, at least you all (do it)”

42 No statistical research was done, however the Arara language seems to uniformly share fusional and agglutinative characteristics, according to the terms of the fusion index (Comrie 1989:46; Whaley 1997:133). Example (75b) below shows fusion occurring between the second person /ə-/ and the vowel /e/ in the stem, resulting in [i].

(75)  a. /u/12-liver-Poss
     [ugerən] ‘our (incl.) liver’
     b. /ə-ere-n/ 2-liver-n
     [iren] ‘your liver’

Examples in (76) show agglutinative characteristics in Arara. The majority of these morphemes can be easily segmented.

(76)  a. kʊṭ-ip-ta-nḍu-n
     12Erg-bathe-Dist-Pl-Hort
     ‘let’s (all) take a bath’ (elicited)
     b. k-əḍ-eṃịa-ŋ̣urụg̣e-da
     1Erg-Refl-hand-wash-Near
     ‘I am going to wash my hand (in a near place)’ (elicited)

In Arara there are three orders of prefixes and seven of suffixes. Sentence (76b) above is an example of a sequence of three prefixes: person-Refl-Noun. Here is an example of five suffixes:

41 The transcription here is phonological, not phonetic.
42 Text Abiana wynə tjimna kundomba (We went hunting pecarries). Author: Akitu Arara. Recorded and transcribed by Isaac and Shirley Souza. May 1, 2002.
43 [eren] is ‘her/his liver’; [ieren] is ‘my liver’.
The following diagram shows the order in which the different morphemes occur in verbs:

(78) Erg Abs Incorp Stem Caus Verb Iter Tense Aspect Indic Pl
    Ref Imp

3.2.2 Ergative Type

In terms of person cross-referencing on the verb (Comrie 1989:111, 126), Arara displays an ergative-absolutive pattern. The prefix of the subject of an intransitive clause has the same form as the prefix of the direct object of a transitive clause. The prefix of the subject of a transitive clause has a different form. Some examples are given below (all of them elicited):

(79) a. uu-wungu-lu
    1Abs-sleep-Rec
    ‘I slept’

b. ∅-uu-mونgu-lu
    3Erg-1Abs-wait-Rec
    ‘he/she waited for me’

c. in-∅-mونgu-lu
    1Erg-3Abs-wait-Rec
    ‘I waited for him/her’

In the entire Arara language, there are nine intransitive verbs that form clauses with an ergative subject prefix, similar to the ones that occur in transitive clauses. In terms of first person, five of them occur with the allomorph [w-] and four with the allomorph [k-]. This last allomorph occurs only before verb stem starting with the vowel /ɔ/; the allomorph /w-/ occurs before verb stems starting with the other vowels, as can be seen in (80) below.

(80) a. w-ibu-lu
    1Erg-bathe-Rec
    ‘I took a bath’
b. k-ɔrigu-lu
   1Erg-dance-Rec
   ‘I danced’

When a language has intransitive verbs that sometimes perform the function of an active subject and sometimes perform the function of a non-active subject, it can be said that this language has split intransitivity. Since in Arara there are so few intransitive verbs with ergative (active) prefixes and the vast majority has abslotutive (non-active) prefixes, it cannot be classified as having split intransitivity.

3.2.3 Word Order

For transitive clauses, Arara has the basic word order object-verb-subject (OVS). Examples are given below:

\[
\begin{array}{ccc}
O & V & S \\
(81) & ɔremi & abot-tadam-lu & kɔkɔ \\
& fish.(sp.) & catch-Iter-Rec & uncle \\
& ‘uncle caught several “oremi” fish’
\end{array}
\]

\[
\begin{array}{ccc}
O & V & S \\
(82) & ...wɔɔtomɔ & aut & j-ak-takpu-lu & waŋa... \\
& tapir & rib & Relr-eat-finish-Rec & PN \\
& ‘...Waga finished eating the tapir rib...’
\end{array}
\]

For intransitive clauses, the word order is primarily SV.

\[
\begin{array}{ccc}
S & V \\
(83) & [mute & kun-ep-pa]^{45} & i-ɛtʃit & poda-aktʃi \\
& PN & Rem-arrive-Ind & 1Abs-house & inside-Dir \\
& ‘Mute came to my house (remote)’
\end{array}
\]

\[
\begin{array}{ccc}
S & V \\
(84) & paru & akunde-lu \\
& water & dry-Rec \\
& ‘the water dried up (in the small creek)’
\end{array}
\]


\[^{45}\]The use of square brackets within a sentence is only to mark syntactic constituents.
OVS word order is quite rare among the languages of the world. For example, in one database of 1228 different languages, only nine are reported to have this word order, and six of them are from South America (Dryer 2008:331).

In stative clauses, Arara has the word order subject-adjectival predicate (S-AP).

\[
\begin{array}{l}
S & \text{AP} \\
\text{maraq} & \text{wet} & \text{pugirimam-be}^{46} \\
\text{cockroach} & \text{feces} & \text{dirt-Pred} \\
\end{array}
\]

‘the cockroach feces are dirty’

\[\text{S AP} \]

3.2.4 Noun Phrases

OV languages usually have the order adjective-noun (Comrie 1989:95). However, in Arara, a noun phrase has the adjective after its head:

\[
\begin{array}{l}
N & \text{Adj} \\
\text{uôn} & \text{ka-kə-mnu} & \text{i-rumbə-lu} \\
\text{man} & \text{high-over-Neg} & \text{3Abs-die-Rec} \\
\end{array}
\]

‘the short man died (today)’ (elicited)

\[\text{N Adj} \]

On the other hand, the number precedes the noun:

\[
\begin{array}{l}
\text{Num} & \text{N} \\
\text{ananə} & \text{nunə} & \text{w-ep-ta-nbəm} \\
\text{one} & \text{moon} & \text{1Erg-come-Dist-later} \\
\end{array}
\]

‘I will come back within one month (from the city to the village)’

\[\text{Num N Adj} \]

The head may be detached from the number and placed at the end of the clause:

\[\text{Num N Adj} \]

---

\[\text{Text: } \text{Marak. Author: Akitu Arara. Text collected and transcribed by Isaac and Shirley Souza, Altamira, April 23, 2004. The word [marak] seems to be borrowed from the Portuguese barata ‘cockroach’}.\]
3.2.5 Relational Phrases

Typological studies show that OV languages usually have postpositions instead of prepositions (Comrie 1989:95). The Arara language follows this general typological tendency, as may be seen in the following examples:

(92) walo muren i-abot-taŋ-de [ɔɾɔŋ bɔk]  
   hawk.(sp.) small 1Sg.Erg-catch-Uni-Perf  ground on  
   ‘I caught a small hawk on the ground’

(93) t-udu-k [karɛi wuna]  
   DO-give-Imp  non.Indian to  
   ‘give it to the non-Indian!’

3.2.6 Tense, Aspect and Mood

The Arara language inflects verbs for tense, aspect and mood. Tense is marked by


Below are examples of each tense:

(94) a. w-ibu-lu  
   1Erg-bathe-Rec  
   ‘I took a bath (today)’

b. w-im-ne-ba  
   1Erg-bathe-Rem-Ind  
   ‘I took a bath (yesterday)’

c. w-ip-tʃi  
   1Erg-bathe-Pres  
   ‘I bathe’

\(^{47}\) /-(t)an/ has been glossed as universal tense (Uni) because: (a) in indicative clauses it does not point to a specific time, but only functions as a support to the aspect markers for perfective and imperfective; (b) in interrogative clauses it seems to function as a non-past tense.
d. pawi i-ak-tome kɔŋɔlone curassow.(sp.) 1Erg-eat-Fut tomorrow ‘tomorrow I will eat the curassow’
e. w-ip-taŋ-de-ba 1Erg-bathe-Uni-Perf-Ind ‘I already took a bath’

Aspect is marked by [-de] ‘perfective’, [-gu] ‘imperfective’, and [-naŋuru] ‘progressive’. Below are examples of each aspect:
(95) a. w-ip-taŋ-de-ba 1Erg-bathe-Uni-Perf-Ind ‘I already took a bath’
b. w-ip-taŋ-gu-ba 1Erg-bathe-Uni-Imperf-Ind ‘I was taking a bath’
c. w-im-naŋuru 1Erg-bathe-Prog ‘I am taking a bath’

Mood is marked by [-kɔ] ~ [-k] ‘imperative’, [-nɛ] ~ [-n] ‘hortatory’, and [-ba] ‘affirmative’.48 Here are examples with imperative and hortatory mood:
(96) a. ip-kɔ bathe-Imp ‘take a bath!’
b. kuʧ-ip-tu-n 12Erg-bathe-Pl-Hort ‘let’s (all) take a bath!’

Here are examples with the affirmative mood:
(97) a. w-ip-taŋ-de-ba 1Erg-bathe-Uni-Perf-Aff ‘I took a bath’
b. w-im-nɛ-ba 1Erg-bathe-Rem-Aff ‘I took a bath (yesterday)’

However, /-ba/ never occurs with recent past:
(98) *w-ibu-lu-ba 1Erg-bathe-Rec-Aff ‘I took a bath’

---

48 Interrogative mood (Yes-No Questions) is formed by the use of the particle [ga] ~ [ka], as in [magu ga] ‘did you eat?’, and [mip ka] ‘did you take a bath’.
3.2.7 Plural Forms

There are thirteen different allomorphs for showing plurality in Arara. They can be classified into eight groups, depending on the grammatical form they occur in. In the clusters below with more than one member, the allomorphs depend on the phonological environment. In the verbs, the plural forms refer mainly to the subject.

(99) a. [-ŋm] ~ [-k~g] nouns, proper nouns, adjectives, subject in verbs in the indicative mood, verb suffix of purpose
    b. [-t~d] subject in verbs in the interrogative mood and in verbs in future tense
    c. [-e~n] object of post-positions, subject of verbs in conditional sentence, subject in verbs in negative mood, verbal stems without markers for mood/aspect/time, adverbs of intensity
    d. [-t~d] subjects in verbs in imperative and hortatory mood, subjects in verbs with the suffix for ‘later (euphemic imperative)’, subject in verbs with the suffix for ‘always’
    e. [-pt] subject in verbs with the suffix for ‘admonition’
    f. [-nd] subject in verbs with the suffix for ‘distal’
    g. [-am] possessor of obligatorily possessed nouns without the possessor marker, possessor of obligatorily possessed nouns with the nominalizer of past, a question word
    h. [-bu] object of post-position for ‘companion’

Proper names can have plural suffixes, as other nouns do:

(100) a. [taiŋm] ‘Tai and others’
    b. [putotkom] ‘Pytot and others’
    c. [mutmgom] ‘Mutem and others’

There is no agreement in number between a verb and any of its overt arguments, or between a head and its dependent. Examples of absence of agreement at the sentence level are given below in (101) and (102):

(101) a. karei udo-luŋm non.Indian go-Rec-Pl ‘the non-Indians went out’
    b. kareŋm udo-lu non.Indian-Pl go-Rec ‘the non-Indians went out’

49 The suffix [-ŋm] occurs after a vowel, and the suffixes [-kom] and [-gom] after a consonant; but [-kom] after a voiceless consonant and [-gom] after a voiced consonant.
c. *karei-ŋm  úndá-lu-ŋm  ‘the non-Indians went out’
   non.Indian-PL go-Rec-PL

(102)  a. pumie kure-ŋm-p  ‘the women are beautiful’
       woman good-Pl-Adjr
b. pumie-ŋmo kure-p  ‘the women are beautiful’
       woman-Pl good-Adjr
c. *pumie-ŋm kure-ŋm-p  ‘the women are beautiful’
       woman-Pl good-Pl-Adjr

An example at the phrase level is given below:
(103)  a. wəŋə  tarik-kəm  ‘the big game meats’
        game big-Pl
b. *wəŋə-ŋm  tarik-kəm  ‘the big game meats’
        game-Pl big-Pl
CHAPTER 4
LUDLING DATA

In this chapter I present the Arara ludlings that I collected from some elderly Arara people living in the village named Laranjal. In terms of the ludlings, young people are not, unfortunately, learning them any longer and the elderly Arara, due to lack of practice, are forgetting them. As a dying phenomenon, it is not unusual for the ludling speakers to have trouble with some or many of these unique forms. Indeed, the first time I heard these language games was in about 2001, and it was only by chance. One evening I was sitting at a table with some young Arara men and I spoke to one of them in the same way as I had been speaking to his little daughter. Children learning the Arara language use [l] instead of [ɾ]: [jˈɔlu] instead [jˈɔru] ‘tortoise’. So I replied to one of his questions by saying [ibala] instead of [ibara] ‘no, nothing’, pretending I was a little boy. Laughing and widening his eyes he replied to me with surprise: “I am not a monkey for you to talk to me like this!” Then I found out that I was going to learn something new about the Arara language. I grabbed my notebook and said: “What? Is it not only children who speak this way?” He explained: “We only speak like that to monkeys. For example, instead of saying [amuru] we say [amulu]” (this word denotes a kind of alcoholic drink made out of chewed roots, mainly cassava). But he did not know any more examples. So he pointed out some people who would know more of these. The next day I started going to those people and, in several sessions, I discovered thirteen different ludlings that they use not only to talk to monkeys, but to other pets as well, one for each kind of animal that they
are talking to.\textsuperscript{50} As can be seen, the effect of my joke was the opposite of what I had intended. Instead of the man interpreting my utterance as if I were a little child talking, he interpreted it as if had been talking to a pet.

4.1 \textbf{Meaning and Purpose of the Word Games}

Ludlings are common among the languages of the world, as pointed out by Bagemihl (1996:319). In the literature, according to Sherzer (1982), ludlings have different labels, such as “disguised speech”, “linguistic games”, “ludling,” “pig latins”, “secret codes”, “secret languages, “speech disguise”, and other names. Botne & Davis (2000) use the term “language game”. Sherzer prefers the terminology “play language”. In this thesis I use some of these terms, with preference for the label ludling, from Latin ludus ‘game’ and lingua ‘language’, as described by Laycock (1969:14). Also, the word ludlingant, derived from ludling, will be used in this thesis. This word is defined by Sanders (2000:31) as the morpheme “realized as a substring of the output that is sensitive to constraints that reference it.” His definition includes only the reversal ludling morpheme, but here I use the term ludlingant for any morpheme used by the Arara people in their ludlings.

Laycock (1972) says that a ludling is a transformation of an ordinary language, changing the format but not the content of the original message, for purposes of concealment or comic effect (Frazier & Gil 2007). In this sense, Sherzer (1982:175) states that play languages imply the creation of new linguistic codes derived from the base language. He also says that play languages are linguistic forms that at any level are purposely manipulated. In this sense, the Arara language has ludlings, since the Arara

\textsuperscript{50} Child speech is not included here because, although having some small similarities with the ludlings, it also has lots of differences. For example, one main strategy to talk to children is to shorten consonants and words ([\textipa{teko}] instead [\textipa{dekɔ} ‘come here’], something out of the ludlings’ scope.
elders purposely manipulate the base language, changing the format but not the content of it, creating new linguistic codes with a certain purpose. Sherzer says that strictly speaking, the ludlings are not games, since they do not involve competition or winners, being primarily used for fun, although this does not mean that they need to be necessarily humorous (Sherzer 1982:175). Indeed, in Arara the elders do not have a humorous purpose when they use them.

Historically, purpose was crucial for ludling studies. Bagemihl (1996:699) says that traditional definitions of language games were based mainly on their sociolinguistic function. According to him they always have restricted sociolinguistic functions. Along this line, Sherzer (1982) specifies some common functions of play languages: concealment or secret, language learning (in Thai), pure fun or for play’s sake. He also says that some play languages are used in ritual contexts. In relation to the Arara language, the ludlings fulfill a very restricted sociolinguistic purpose; they are used to “talk” to the Araras’ pets as an expression of friendship. They can use the ludlings any time they approach their pets. On the other hand, in Arara there is no ritual context in which the ludlings are used.

Although being important, the purpose approach was not enough to explain the ludlings in the languages around the world. Thus Laycock\textsuperscript{51} shifted this approach to one based on the ludlings’ formal properties themselves. From this perspective, according to Bagemihl (1996:697) there are some factors intrinsic to ludling data: (a) they are quite unlike ordinary language operations and (b) they are relatively restricted with respect to their sociolinguistic function. In other words, the data have common operations such as

---

\textsuperscript{51} This happened in: Laycock, Donald. 1972. “Towards a typology of ludlings, or play-languages.” \textit{Linguistic Communications: Working Papers of the Linguistic Society of Australia} 6:61-113 (see Bagemihl 1996). I was not able to find the Laycock article, so it is not part of my bibliography.
reversal, replacement, etc., that are not common to the normal language. Also, while the normal language can be used for a great variety of sociolinguistic functions, ludlings have very restricted social functions. Thus, in defining ludlings, Bagemihl (1996:699) includes the following criteria:

(a) ludling morphological processes may involve affixing, templatic structure, reversal, and replacement;
(b) their affixes are limited to one or at most a handful of lexical items;
(c) their morphology is semantically empty.

Criterion (b) does not describe the Arara ludlings very well, since these are quite productive. However, criteria (a) and (c) do. Commenting on criterion (a) above, Bagemihl (pp. 699-700) states that affixing is the simplest process in forming ludlings, and it involves attachment of a ludling affix to a non-ludling word. The ludling affix may have a vowel slot that is unspecified for its quality; but also it may have a vowel specified for its quality. The infix /-gV-/ is an example of a ludling affix containing an unspecified vowel. This infix can be added to an Arara base word such as /abat/ ‘manioc bread’, resulting in the ludling form /abągat/. An example of an affix containing specified vowels in Arara is the prefix /idi-/ which can be added to the same Arara base word /abat/, resulting in the ludling form /idibat/. Bagemihl also states that in templatic processes nasality may be mapped onto the template. This is attested in Arara, where the feature of nasalization can pertain to a word, a phrase, a sentence or a whole discourse. This can be seen in the Arara base word /tawel/ ‘capuchin monkey’, which turns to /tawel/ after the addition of the ludling’s nasal feature. Yet in reference to (a) above, Bagemihl says that all or most of the vowels in a non-ludling utterance are replaced by one or two segments in the ludling form. In Arara the vowels in a base word can be replaced by the vowel [e], or by lower and/or more fronted vowels in relation to the vowels of the base word, as can
be seen in /tawæ/ changing to [tæwæ]. All of these phenomena will be presented in more detail in Section 4.2 below.

Commenting on (c) above, Bagemihl (1996:700) states that ludling morphology is semantically empty because it is used only to classify the speaker or the hearer as belonging to a particular category of individuals. For example, a person uses Pig Latin to address someone who belongs to a certain circle of friendship. In the Arara culture, a person uses the appropriate ludling to address specific classes of animals. Thus, the infix /-qV/- is used to talk to capuchin monkeys; the prefix /idi-/ to talk to titi monkeys; the infix /-pt/- to talk to squirrel monkeys; and nasalization is used to talk to howler monkeys.

The Arara people love their pets. Therefore, pets are very important in the Arara culture. Arara myths reveal that some animals were their ancestors, mainly the monkeys. Sometimes the Arara people use the ludlings’ structures for naming their pets, according to each animal species. Thus they can give the name /muni-gV/ → [munigi] ‘brother’ to a capuchin monkey. Usually the pets get names like any human being and the process of naming them is the same they use to name people. Then a person can get a proper name like [tuupt[ji]oriwụ] ‘crooked shinned’; a capuchin monkey can get a proper name such as [tuuptapa] ‘the one who has a flat hand’. Right after the Arara contact with FUNAI, it was possible to see Arara mothers feeding from their own breasts not just their new babies but also own baby monkeys that their husbands had brought from the forest. For other pets, they offered their milk in a leaf. Thus, in this sense, it is not a surprise that the Arara people have different language games when playing with their pets. The surprise is in the high number of ludlings they use to “talk” to their pets. Just for a matter of

52 See Souza (in progress).
statistical comparison, Javanese (the language I found with the most play languages) presents only seven different ludlings (Sherzer 1982:183-186). Arara has almost twice this many.

In spite of the differences between a ludling and the base language in which it originates, an actual development in ludling analysis is the recognition that a ludling also involves linguistic processes of the ordinary language (Bagemihl, p. 701). In this sense, Sherzer (1982) states that there are similarities and differences among the linguistic structures of ludlings and ordinary languages. Haas (1967) provides a taxonomy of mechanisms or rules involved in play languages that are common to the languages of the world, namely: addition, subtraction, reversal, and substitution. The phonological typology of language games shows that the two most common types of games are syllable transpositions and phoneme insertions in one or more locations in a word (Botne & Davis 2000). On the other hand, reversal does not exist cross-linguistically. The ludlings in Arara fit in this typology, since they are built up mainly through the insertion of one ludling per word. It is noteworthy that what belongs to ordinary languages is more common in the ludlings and what does not belong to ordinary languages is rarer among the ludlings. If syllable reversal is not exploited in common languages, it will not be widely used in the ludlings. On the other hand, if addition is common among the languages of the world, it will be used in ludlings. Indeed, addition is the main process by which Arara speakers form their ludlings (eleven, out of thirteen).

Bagemihl (p. 711) states that “ludlings are an integral part of the human linguistic capacity and as such, an integral part of linguistic theory”. In other words, linguistic

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53 I did not do an exhaustive search on this.
theory has the necessary tools to analyze the ludlings around the world. I illustrate this using the thirteen different ludlings I found in the Arara society.

4.2 Presentation of Data

Some Arara elders from Laranjal village use ludlings to address different pets. These ludlings occur mainly with nominal words, like nouns. But they are also attested in verbs, phrases, and sentences, although only one man knows all thirteen ludlings and can use them in sentences. They are built through the addition of affixes to the base words of the Arara language. To form a ludling in Arara the attachment of only one affix is necessary. This affix can be a prefix, a suffix, an infix, or a suprafixed. Among these, only the first two affixes occur in the normal Arara language. The last two are specific to the ludlings. These ludlings include vowel nasalization ($V \rightarrow \tilde{V}$), vowel delition ($V-V \rightarrow V\emptyset$), and changes in consonant manner of articulation ($/l/ \rightarrow /l/), tap deletion ((/t/ \rightarrow \emptyset), consonant replacement (C(C) → pt), changes in vowel quality ($V \rightarrow \text{æ}$), etc. These changes will be exemplified and discussed below. For now I present the pets and the ludlingants relating to them:
Table 3: Pets’ Names and Ludlingants

<table>
<thead>
<tr>
<th>English</th>
<th>Arara</th>
<th>Ludlingant</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. capuchin monkey</td>
<td>/tawe/</td>
<td>infix /-qV-/</td>
</tr>
<tr>
<td>b. titi monkey</td>
<td>/kuṭamit/</td>
<td>prefix /idi-/</td>
</tr>
<tr>
<td>c. large birds: chicken, duck,</td>
<td>/ṭjarina/⁵⁴, /mak keni/,</td>
<td>prefix /wi-/</td>
</tr>
<tr>
<td>Brazilian merganser, guan</td>
<td>/jaɾambi/, /wəɡaraum/,</td>
<td></td>
</tr>
<tr>
<td>and curassow</td>
<td>/pawi/</td>
<td></td>
</tr>
<tr>
<td>d. trumpeter, woodpecker</td>
<td>/warakina/, /iebereburu/</td>
<td>prefix /pɔ-/</td>
</tr>
<tr>
<td>e. coati</td>
<td>/ṭʃiruka/</td>
<td>prefix /nɔ-/</td>
</tr>
<tr>
<td>f. agouti</td>
<td>/jaquri/</td>
<td>prefix /pi-/</td>
</tr>
<tr>
<td>g. peccary, dog</td>
<td>/abiana/, /wɔkɔri/</td>
<td>prefix /tɔ-/</td>
</tr>
<tr>
<td>h. small birds: macaw, parrot,</td>
<td>/kara, awu, karaja, karaum/,</td>
<td>prefix /eŋna-/</td>
</tr>
<tr>
<td>orange-cheeked, parakeet</td>
<td>/ṭʃarokṭarɔ/, /kui/, /ɛridak/</td>
<td></td>
</tr>
<tr>
<td>i. toucan</td>
<td>/tuapka, pilik, kaqak,</td>
<td>prefix /eŋnara-/⁵⁵</td>
</tr>
<tr>
<td>ṭʃirɔ/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. spider monkey</td>
<td>/wəŋum/</td>
<td>prefix /un-/</td>
</tr>
<tr>
<td>k. squirrel monkey</td>
<td>/ṭfamit/</td>
<td>infix /-pt-/</td>
</tr>
<tr>
<td>l. howler monkey</td>
<td>/arun/</td>
<td>vowel nasalization</td>
</tr>
<tr>
<td>m. tortoise</td>
<td>/jɔru/</td>
<td>murmuring the whole base word and lowering and/or fronting the first vowel, some vowels, or even all of the vowels from the base language; the optimal segment to be achieved is the low front vowel [æ]</td>
</tr>
</tbody>
</table>

The Arara ludlings have as their label in Arara [ilumbanbɔt] ‘to make tongue’ (i-lumban-bɔt = 3Abs-tongue-Verb-Purp). The Arara people do not use the word for tongue as a metaphor for language, except in these ludlings. The term they use for language/speech is [wɔɾunduŋɔ]. The Arara ludlings have the same inventory of phonemes that is found in the normal language. Each ludling will now be presented in detail.

4.2.1 Capuchin Monkey Talk

Capuchin monkeys are called tawe in Arara. The ludling for this species of monkey is labeled in Arara tawe lumbanbɔt ‘to make the tongue of a capuchin monkey’. There are

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⁵⁴ Borrowed word from Portuguese: galinha.

⁵⁵ The two prefixes /eŋna-/ and /eŋnara-/ appear to be completely unrelated to each other. That is, the last syllable made up of /ra-/ does not occur as an independent morpheme elsewhere in the language.
two steps to build the capuchin monkey ludling: (a) a morphological process that consists of adding the infix /-qV-/ right after the base word’s last vowel, where the V is a vowel without underlying feature specifications, copying the phonological features of the last vowel from the word; and (b) a replacement of /l/ by /l/. Examples in (104) below show the ludlingant /-qV-/ added to base words ending in a consonant.

(104)  
a. ęduet ęduęget ‘his hammock’  
b. ibam ibašam ‘his illegitimate father’  
c. kək kəkək ‘night, evening’  
d. oət oęget ‘rubber tree, plastic’  
e. porat poląqat ‘a catfish’

Examples in (105) show this same ludling added to base words ending in a vowel.

(105)  
a. aə aəę ‘a wasp’  
b. nuŋ nuę ‘abcess, tumor’  
c. ibara ibałąqa ‘no, nothing’  
d. paru paluą ‘water’  
e. kuri kuligi ‘bead’  
f. pou pouą ‘small peccary’  
g. ikpa ikpaą ‘mud’  
h. muni munią ‘my brother’

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, adjectives, and even auxiliaries, as can be seen in (106) below (see Appendices 3 and 4).

(106)  
a. kəkəŋo kəkəŋọgo ‘uncles’
   uncle-Pl
b. k-əd-emia-guruqe-da kədemiagurugedaga ‘I am going to wash my own hand (near)’
   1Erg-Refl-hand-wash-Near
   big-Pl-Adjr
c. tərik-kom-bə təlekombęgę ‘they are big’

56 This is the same kind of change that occurs in baby talk (see the introduction to this chapter).
57 The phonetic representation for this example is [nuʔ]. A glottal stop is added to a CV content word when spoken in isolation. The glottal stop is not a phoneme in Arara.
58 Here the speaker changed the /l/ of /tərik/ to [e].
It can be seen above that the ludlingant /-gV-/ occurs word-finally in polymorphemic words that end in open syllables, as it does in monomorphemic ones. However, there is one exception with the suffix for deceased beings: /-mgeni/. Here the suffix comes after the ludlingant:

(107) papa-mgeni papagamgeni60 ‘my deceased father’
father-deceased

This probably happens because the meaning of the suffix refers to the whole word, including the ludlingant. In the general case, it is the ludlingant that seems to have scope over the whole word. Besides occurring in polymorphemic words, the ludlings in general also occur in larger linguistic structures, such as sentences.

As can be seen in (108) and (109) above, the changes triggered by the ludlingant only occur within the scope of a word, and thus do not affect the surrounding words, phonologically speaking. It can also be seen that the ludling sentences follow the same

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59 Here the speaker changed the second /a/ of /kəʊ̀̃gəlone/ to [a]; this variation in common among some of the Arara speakers. He also added an extra [h] at the end of the utterance. Instead of the fricative, Arara speakers optionally use the stop [ʔ]. This process of adding a glottal at the end of an utterance is very common in normal speech.

60 There is another example similar to this one in our data: /uŋ-enba-ga-n-gom/ (12Abs-food-LUD-Poss-Pl) ‘it is our food’ (see Appendix 4, example (11)).

61 In this sentence the speaker did not change the /r/ into [l] in the stem [tɔɾik]; he also changed the /ɡ/ into /h/: /tajie/ → [tahie].
grammatical structures of the Arara base language. For example, sentence (108) shows ergativity (see Section 3.2.2) and OV word order (see Section 3.2.3). It can also be seen that within a verbal sentence like (108), only the object has a ludlingant attached to it, but not the verb. On the other hand, the adverbial complements have a ludlingant attached to them. However, the attachment of a ludlingant to an adverbial phrase seems to be optional, since there is one example where there is no ludlingant attached to it: /kɔŋlone n-itʃ-a-gah/ ‘leave it for tomorrow’ (Appendix 4, example (19)). The grammatical word /bɔk/ does not have a ludlingant attached to it. Within a stative sentence, such as (109) above, both the subject and the adjectival predicate have a ludlingant attached to them, but not the adverb of intensity /tagi/ nor the tense marker /gumuk/. The general data above show that this ludlingant occurs with all syllable types:

(110) a. V pɔ.u pɔugu ‘small peccary’
    b. CV nu nuqu ‘abcess, tumor’
    c. VC ɛ.du.gt eduget ‘hammock’
    d. CVC i.bam ibagam ‘his illegitimate father’

In terms of this specific ludling which adds the infix -qV- to a base word, according to Bagemihl (1996:699) the addition of affixes, and vowel copying, are common phenomena among the languages of the world.

4.2.2 Duski Titi Monkey Talk

Duski titi monkeys are called [kuʃamit] in Arara. The ludling for these species of monkeys is labeled in Arara [kuʃamit lumbanbɔt] ‘to make the tongue of a duski titi monkey’. The morphological process used by the Arara people to build the duski titi monkey’s ludling is the addition of the prefix [idi-] to the stem of the base language form, where it has a /d/ before an /i/, which is a rare sequence in the Arara base language (see Section 3.1.1). Here are some examples with the ludlingant /idi-/:
We can see in the data above that there is no morphophonological process when [idi-] is attached to a monosyllabic word. Similarly, in some words starting with a CV syllable and where the next vowel of the stem is different from the vowel of this first CV syllable, there is no morphophonological process resulting from the addition of [idi-].

However, in a few stems with these same characteristics, there is deletion of the first CV syllable as a result of adding [idi-].

On the other hand, if a stem starts with a CV(C) syllable and the next vowel of the stem has the same backness as the first vowel of this CV syllable, then deletion (haplology) extends to the vowel of this syllable: /idi-V[αback](C)CV[αback](C)/ → [idi∅∅(C)CV].

Phonetically speaking, the /j/ turns into the vowel [i], here and elsewhere.

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62 The variation between [kɔk] and [idi-gɔk] is better analyzed as a devoicing process than a voicing process (see Section 3.1.1, examples (21) and (22)).


64 Phonetically speaking, the /j/ turns into the vowel [i], here and elsewhere.
As seen in (114e-f) this deletion process does not extend to a coda of a vowel to be deleted. Furthermore, there seem to be exceptions to the deletion process, since a vowel with the same backness as another one in the following syllable is not deleted in a few stems:

(115) a. /kamap/ [idi{kamap}] ‘gourd container’
b. /wakat/ [idi{wakat}] ‘alligator, cayman’
c. /manan/ [idi{manan}] ‘a coconut bug’

There are other examples with fluctuation, such as /kara/ ‘macaw (type of)’, where the speaker once said /idi{gara}/ and another time /idi{ara}/. If the stem starts with a vowel, this vowel is deleted: /idi-V/ → [idi∅]. Examples are given below:

(116) a. idi-ae → idi-∅e [idie] ‘wasp (sp.)’
b. idi-abat → idi-∅bat [idibat] ‘manioc bread’
c. idi-amuru → idi-∅muru [idimuru] ‘his/her drink’
d. idi-emiaru → idi-∅miaru [idimiaru] ‘his/her hand’
e. idi-upu → idi-∅pu [idipu] ‘yam’

A similar phonological phenomenon occurs in the Arara normal language, as seen in Section 3.1.4 (specifically, Progressive Vowel Deletion), where the second vowel is deleted in a vowel sequence. Again, if the vowel to be deleted in the ludling form has a coda, the coda is not subject to deletion:

(117) a. idi-enben → idi-∅nben [idinben] ‘penis’
b. idi-ikpa → idi-∅kpa [idikpa] ‘mud’
c. idi-stpido → idi-∅tpido [idiptido] ‘armadillo’

As can be seen in (107), a consonant in coda position preserves its voicing feature after the deletion process. If the vowel to be deleted is followed by a non-final syllable starting with an /l/, the deletion extends to this syllable.

(118) /remi/ idi-remi → idi-∅∅∅mi [idimi] ‘a fish’

For now, only (118) was found as an example. If the /l/-syllable occurs at the end of the (first) stem, it will not be subject to the deletion process, as can be seen in (119) below:
47

(119)  a. idi-kurɔ-kurɔ\(^{65}\) → idi-Ørɔ-kurɔ [idiːkʊrɔ] ‘a bird’
b. idi-kure-p → idi-Øre-p [idiːrep] ‘it is good’
c. idi-wuuru-pe → idi-Ørụp-pe [idịrụpe] ‘it is bad’
d. idi-tɔrik-kɔm-be → idi-Ørik-kɔm-be [idịrikɔmbe] ‘they are big’

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, adjectives, and adverbs, as can be seen in (120) below (see Appendices 3 and 4).

(120)  a. i-ɛnma-n idinman ‘my path’
       1Abs-path-Poss
b. k-ɔd-emia-gurile-da idimiagurulɛda ‘I am going to wash my own hand (near)’
       1Erg-Refl-hand-wash-Near
c. tɔrik-kɔm-be idiriğikɔmbe ‘it is big’
       big-Pl-Adjur
d. kọgọlẹ n-itʃ-a idigọlẹ nịtʃ’ẹ ‘leave it for tomorrow’
       tomorrow Abs-Aux-Perm

It can be seen above that the ludlingant /idi-/ occurs word-initially in polymorphemic words, as it does in monomorphemic ones. In (120a and b) the deletion process goes over the vowel of the prefix and is extended to the first vowel of the stem, deleting two vowels. In monomorphemic words (see example (116a) above) the deletion process deletes only one vowel, not extending deletion over the second vowel of the stem. In (120a and b) the deletion acts completely over the personal and reflexive prefixes. The example below also shows the complete deletion of a prefix:

(121) ugu-pịl-n-qom idịpịl’ingom ‘our (incl.) leg’
       12Abs-leg-Poss-Pl

As happens with /-gV/-, the ludling /idi-/ also occur in larger linguistic structures, such as sentences.

O V Oblique
(122) idi-ara in-wɔ-tke-lu idi-gọnne idi-ukara bok
       LUD-macaw.(sp.) 1Erg-kill-Iter-Rec LUD-yesterday LUD-inga.tree on
       ‘I repeatedly killed macaws yesterday in the inga tree’

\(^{65}\) Word formed through reduplication.

\(^{66}\) Here there is a variation with the vowel: /a/ → [ɔ].
(123) \[\text{id}-	ext{upa} \quad \text{tərik-kom-ɓe} \quad \text{tə}(gie)\]
\[\text{LUD-banana} \quad \text{big-Pl-Adjr} \quad \text{very}\]
\[\text{‘the bananas are very big’}\]

Again, as triggered by the ludling \(-\text{gV}-/-\), the changes triggered by \text{id}-/- only occur within the scope of a word, and thus do not affect the surrounding words, phonologically speaking. The same occurs in terms of grammatical structures, following the patterns of the base language. Some words that start with a voiceless stop in the Arara base language preserve their voiceless nature after the addition of the ludlingant \text{id}-/-, while others do not, changing from voiceless to the corresponding voiced counterparts, as can be seen below:

(124) a. piluŋ (idipiluŋ) ‘bird hind quarter’
     b. pου (idibου) ‘small peccary’

(125) a. k/uni026Fd/uni025Bn (idikud̩en) ‘cassava’
     b. k/uni0254/uni02A7i (idig̩i) ‘a fish’

As can be seen in (124a) and (125a) above, neither [p] nor [k] voices after the addition of \text{id}-/-\,. However, in examples (124b) and (125b), both [p] and [k] voice after this ludlingant. Therefore, the variation between [p] and [b], and [k] and [g] is better explained as a devoicing process (utterance-initially) than a voicing process after a vowel across a morpheme boundary. This same kind of devoicing process is found in the Arara base language (see Section 3.1.1, examples (21) and (22)). There is no example showing this variation between the alveolar stops \[t\] and \[d\]. Only the voiceless counterpart occurs in this environment.

(126) a. takui (iditakui) ‘manioc flour’
     b. tawe (iditawe) ‘capuchin monkey’
     c. tamgo (iditamgo) ‘old man, grandfather’
     d. tukt (iditukt) ‘cultivated field’

Absence in the variation of voicing between the alveolar stops may be due to limited data. This same absence of variation is also present among the affricates \[t̩\] and \[d̩\], but
this is expected from the base language, where an affricate does not voice after a vowel. It voices only after a nasal consonant (see Section 3.1.1, examples (12)). The general data show that the ludling ant /idi-/ occurs with all syllable types:

|(127) | a. V a.e | idie | ‘a wasp’ |
| b. CV ku.den | idiku.den | ‘cassava’ |
| c. VC ik.pa | idikpa | ‘a fish’ |
| d. CVC kut.kut | iditkut | ‘night monkey’ |

All the ludlings formed by prefixation, except for /un/-, such as /idi-/ /wi-/ /pɔ-/ /nuu-/ /pi-/ /tɔ-/ /eŋna-/ and /eŋnara-/ work in similar ways in terms of phonological processes, mainly the last seven ones that have the syllabic shape CV.

4.2.3 Large Bird Talk

Large birds, including chickens, muscovy ducks, Brazilian mergansers, guans, and curassows are, respectively, called [tʃarina], [bakeni], [jarambi] [wogaraum], and [pawi] in Arara. The ludling for these species of large birds is labeled in Arara [tʃarina, bakeni, jarambi, wogaraum, pawi bene lumanbɔt] ‘to make the tongue of chickens, muscovy ducks, Brazilian mergansers, guans, and curassows’. The morphological process used by the Arara people to build these large birds’ ludling is the addition of the /wi/- prefix.

(128) | a. nu wi nu ‘abcess, tumor’ |
| b. wɔt wi wɔt ‘fish’ |
| c. kɔk wiɡɔk ‘night, evening’ |

The phonological patterns of this ludling work almost exactly the same way as those of the ludling /idi-/ . See section 4.2.2 (Duski Titi Monkeys Talk) for a description of these phonological patterns, which are analogous to that ludling. Thus the data in (128) show examples of the /wi/- ludling in monosyllabic words. In (129) below there are examples of this ludling attached to polysyllabic words, resulting in a haplology process:

/wi-(C)V/ → [wi(∅)∅].

|(129) | a. wi-a.e → wi-∅e [wie] ‘a wasp’ |
| b. wi-taupa → wi-∅upa [wiupa] ‘a banana’ |
| c. wi-ɔt → wi-∅t [wi.t] ‘rubber tree’ |
d. wi-abat → wi-∅bat [wibat] ‘manioc bread’

e. wi-onat → wi-∅nat [wianat] ‘corn’
f. wi-jeme → wi-∅eeme [wime] ‘mom, my mother’
g. wi-pomu → wi-∅omu [wimu] ‘a beetle’
h. wi-remi → wi-∅reemi [wiremi] ‘a fish’
i. wi-muni → wi-∅oni [wini] ‘my brother’

It is interesting to note that example (129h) shows that /wi-/ triggers a different phonemic process than the ludlingant /idi-/ above. The /idi-/ extends deletion to the next syllable with an /r/-onset (see example (118) above); /wi-/ does not extend deletion to this /r/-initial syllable. On the other hand, similar to /idi-/ here this deletion process does not extend to the coda of a vowel to be deleted.

(130) a. wi-enben → wi-∅nen [wenben] ‘his penis’
b. wi-ikpa → wi-∅kpa [wikpa] ‘mud’
c. wi-otpid → wi-∅tpid [wiptid] ‘armadillo’
d. wi-kutkut → wi-∅tkut [witkut] ‘night monkey’
e. wi-womjum → wi-∅mjum [wujm] ‘banana’

This ludlingant, as /idi-/ and the other ludlings, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (131) below (see Appendices 3 and 4).

(131) a. i-enma-n 1Abs-path-Poss  winman ‘my path’
b. k-ød-emia-guruge-da 1Erg-Refl-hand-wash-Near  widemiagurugeda ‘I am going to wash my own hand (near)’
c. in-dekẽ-lu 1Erg-write-Rec  windekẽlu ‘I wrote it’
d. tɔrik-kɔm-ɓe  big-Pl-Adjr  wŋrik-kɔm-ɓe67 ‘they are big’

Unlike the ludling /idi-/, the deletion here does not act over the personal and reflexive prefixes, only over the first CV syllable, as in (131b) above. But like /idi-/, it deletes identical vowels in a prefix:

(132) ugu-ŋʃi-n-ɡom 12Abs-leg-Poss-Pl  wiŋʃingom ‘our (incl.) leg’

67 Here the speaker changed /wi-/ to [we-] ‘LUD’, in a dissimilation process.
In terms of exceptions, in a couple of words starting with a bilabial consonant, no deletion occurs:

(133) a. \(pου\) \(\text{wibου} \ast\text{wiу}\) ‘small peccary’
    b. \(pου\) \(\text{wibου} \ast\text{wiу}\) ‘catfish’

There are similar examples where the deletion process does apply:

(134) a. \(\text{purak} \text{wirak}\) ‘arrow (type of)’
    b. \(\text{prа} \text{wira}\) ‘fruit (type of)’

As the /idi-/ ludling, /wi-/ also occurs in sentences, following the parameters of the base language.

\[
\begin{array}{ccc}
O & V & \text{Oblique} \\
\text{wi-ra} & \text{in-wə-tke-lu} & \text{wi-gɔŋŋe} & \text{wi-ukara} & \text{bək} \\
\text{LUD-macaw.(sp.)} & \text{1Erg-kill-Iter-Rec} & \text{LUD-yesterday} & \text{LUD-inga.tree on} \\
\text{‘I repeatedly killed macaws yesterday in the inga tree’} \\
\end{array}
\]

(135)
\[
\begin{array}{cccc}
\text{wi-upa} & \text{wi-rik-kəm-be} & \text{da(qie)} \\
\text{LUD-banana.(sp.)} & \text{LUD-big-Pl-Adjr} & \text{very} \\
\text{‘the bananas are very big’} \\
\end{array}
\]

The ludlingant /wi-/, as does /idi-/, also demonstrates the devoicing process of stops.

(137) a. \(\text{piluŋ} \text{wipiluŋ}\) ‘bird hind quarter’
    b. \(pου\) \(\text{wibου}\) ‘small peccary’

It was seen that in the /idi-/ ludling there is no example of variation of voicing between the alveolar stops [t] and [d]. With /wi-/, in addition to [t] and [d], there is also no example showing variation of voicing between the velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

(138) a. \(\text{takui}\) \(\text{wikui}\) ‘manioc flour’
    b. \(\text{tawe}\) \(\text{wiwe}\) ‘capuchín monkey’
    c. \(\text{tamɔ}\) \(\text{wimɔ}\) ‘old man, grandfather’
    d. \(\text{tukτɔ}\) \(\text{wikτɔ}\) ‘cultivated field’
    e. \(\text{kudən}\) \(\text{widen}\) ‘cassava’
    f. \(\text{kʃi}\) \(\text{witʃi}\) ‘a fish’

This deletion process is also true of the palatal affricate [ɾʃ].
The general data also show that this ludling occurs with all syllable types.

The morphological process used by the Arara people to build the trumpeters’ and woodpeckers’ ludling is the addition of a /p-/ prefix.

The phonological patterns of this ludling work almost exactly the same way as those of the /idi-/ and /wi-/ ludlings. However, it is much more similar to the patterns of the /wi-/ ludling (see Section 4.2.3). Thus, example (141) illustrates the ludlingant /p-/ in monosyllabic words. In (142) below there are examples of this ludling attached to polysyllabic words, resulting in the haplology process: /p-(C)V/ → [p(∅)∅]. Here are some examples:

68 Here the word resulting after the addition of the ludlingant is coincident with the base Word. Therefore, there is a homonym process between the base language and this ludling, in this case.
h. \( p\circ-\text{remi} \rightarrow p\circ-\text{remi} \) [p\(\text{remi}\)] ‘a fish’

i. \( p\circ-k\text{uru}-k\circ \rightarrow p\circ-\text{uru}-k\circ \) [p\(\text{uru}\)] ‘a bird’

j. \( p\circ-m\text{uni} \rightarrow p\circ-\text{uni} \) [p\(\text{uni}\)] ‘my brother’

Like /wi-/ this ludlingant does not extend deletion to an /r/-initial syllable (see Section 4.2.3). And like all the other (V)CV prefixed ludlings, it does not extend deletion to the coda of a vowel to be deleted.

(143)

a. \( p\circ-\text{enben} \rightarrow p\circ-\text{enben} \) [p\(\text{enben}\)] ‘his penis’

b. \( p\circ-\text{ikpa} \rightarrow p\circ-\text{ikpa} \) [p\(\text{ikpa}\)] ‘mud’

c. \( p\circ-\text{tpido} \rightarrow p\circ-\text{tpido} \) [p\(\text{tpido}\)] ‘armadillo’

d. \( p\circ-\text{tutkut} \rightarrow p\circ-\text{tutkut} \) [p\(\text{tutkut}\)] ‘night monkey’

e. \( p\circ-\text{womjum} \rightarrow p\circ-\text{womjum} \) [p\(\text{womjum}\)] ‘banana’

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (144) below (see Appendices 3 and 4).

(144)

a. \( i-\text{enma-n} \rightarrow \text{p\(\text{enma}\)} \) p\(\text{enman}\) ‘my path’

b. \( k-\text{d-emia-guruge-da} \rightarrow \text{p\(\text{d-emia}\)} \) p\(\text{demiaguruge}\) ‘I am going to wash my own hand (near)’

c. \( \text{in-deke-ltu} \rightarrow \text{p\(\text{deke}\)} \) p\(\text{dekelu}\) ‘I wrote it’

d. \( \text{torik-kom-be} \rightarrow \text{p\(\text{rik}\)} \) p\(\text{arak-kom}\) ‘they are big’

Like the ludling /wi-/ and unlike /idi-/ the deletion here does not act over the personal and reflexive prefixes, only over the first CV syllable of the word, as in (144b) above. But unlike /idi-/ and /wi-/ it does not delete identical vowels in a prefix:

(145) \( u\text{gu-p\(\text{f}\)} \rightarrow \text{p\(\text{g}\)p\(\text{g}\)} \) ‘our (incl.) leg’

Like /wi-/ there are exceptions to the deletion process (/p\(\circ\)-(C)V/ → [p\(\circ\)]): (146)

a. \( p\circ-\text{u} \rightarrow \text{p\(\circ\)} \) *p\(\circ\) ‘small peccary’

b. \( p\circ-\text{rat} \rightarrow \text{p\(\circ\)} \) *p\(\circ\) ‘catfish’

There are similar examples where the deletion process does apply:

(147)

a. \( \text{purak} \rightarrow \text{parak} \) ‘an arrow’

b. \( \text{pera} \rightarrow \text{p\(\circ\)} \) ‘a fruit’

69 Here the expected form is [p\(\text{gup\(\text{f}\)}\)] or better yet, [p\(\text{f}\)] deleting the whole prefix /ugu-/, as occurs with the other ludlings.
Like the two previous ludlings formed by prefixation (/idi-/ and /wi-/), this ludling also occurs in sentences, following the parameters of the base language.

```
O    V    Oblique
(148) po-ra    in-wɔ-tke-lu    po-gɔnje    po-ukara    bɔk
LUD-macaw.(sp.) 1ERg-kill-Iter-Rec  LUD-yesterday  LUD-inga.tree on
‘I repeatedly killed macaws yesterday in the inga tree’
```

S    AP
(149) po-upa    po-rik-kom-be  taqie
LUD-banana.(sp.)  LUD-big-Pl-Adjr  very
‘the bananas are very big’

And like /idi-/ and /wi-/, this ludling also demonstrates the devoicing process of stops.

```
(150) a. piluŋ pəpiluŋ ‘bird hind quarter’
b. pəu pəbəu ‘small peccary’
```

And like /wi-/, there is no example showing variation of voicing between the alveolar [t] and [d], and velar [k] and [ɡ], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

```
(151) a. takui pəkui ‘manioc flour’
b. tawe pəwe ‘capuchin monkey’
c. tamغو pəmغو ‘old man, grandfather’
d. tukto pəktο ‘cultivated field’
e. kuden pəden ‘cassava’
f. kətji pətji ‘a fish’
```

This deletion process is also true of the palatal affricate [tʃ]:

```
(152) a. tʃelui pəlui ‘sister’
b. tʃamit pəmit ‘squirrel monkey’
```

Like the other ludlings, the general data show that this ludling occurs with all syllable types:

```
(153) a. V a.e pəe ‘a wasp’
b. CV ku.den pəden ‘cassava’
c. VC ik.pa pəkpa ‘mud’
d. CVC ku.kut pəktut ‘night monkey’
```

4.2.5 Coati Talk

Coatis are called [tʃiruka] in Arara. The ludling for this species of animal is labeled in Arara [tʃiruka lumbanbot] ‘to make the tongue of the coati’. The morphological process
used by the Arara people to build the coati’s ludling is the addition of a /ne-/ or /nu-/ prefix.70

(154)  
a. nu  
nunu  
‘abcess, tumor’
b. wət  
nuwət  
‘fish’
c. kək  
nugək  
‘night, evening’

The phonological patterns of this ludling work almost exactly the same way as those of the prefixed ludlings already presented. However, it is much more similar to the patterns of those ludlings formed of two phonemes, such as /wi-/ and /pə-/ (see Sections 4.2.3 and 4.2.4). Thus, example (154) illustrates the ludlingant /nu-/ in monosyllabic words. In (155) below there are examples of this ludling attached to polysyllabic words, resulting in a haplology process: /nu-(C)V/ → [nu∅∅]. Here are some examples:

(155)  
a. nu-aə  
nu-∅e  
[nue]  
‘a wasp’
b. nu-τapə  
nu-∅upa  
[nupə]  
‘a banana’
c. nu-əτ  
nu-∅et  
[nuet]  
‘rubber tree’
d. nu-əbat  
nu-∅bat  
[nubat]  
‘manioc bread’
e. nu-ənat  
nu-∅nat  
[nunanat]  
‘corn’
f. nu-jeəme  
nu-∅me  
[nume]  
‘mom, my mother’
g. nu-ɾəmu  
nu-∅μu  
[nnumu]  
‘a beetle’
h. nu-ɾəmi  
nu-∅rəmi  
[nurəmi]  
‘a fish’
i. nu-ɾəkəɾuɾə  
nu-∅ɾəkəɾuɾə  
[nurəkəɾə]  
‘a bird’
j. nu-ɾəni  
nu-∅ni  
[nuni]  
‘my brother’

Like the other prefixed ludlings formed of two phonemes, this ludlingant does not extend deletion to an /ɾ/-initial syllable. And like all the other (V)CV prefixed ludlings, it does not extend deletion to the coda of a vowel to be deleted.

(156)  
a. nu-enben  
nu-∅nben  
[nunben]  
‘his penis’
b. nu-ikpa  
nu-∅kpa  
[nukpa]  
‘mud’
c. nu-ɾəpədə  
nu-∅ɾəpədə  
[nuɾəpədə]  
‘armadillo’
d. nu-kəɾuɾə  
nu-∅ɾuɾə  
[nurəɾuɾə]  
‘night monkey’
e. nu-ɾəmɾəm  
nu-∅ɾəmɾəm  
[nurəɾəmɾəm]  
‘banana’

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (157) below (see Appendices 3 and 4).

70 During my latest field work (2010), I collected data mainly with the /nu-/ prefix; before that, data were formed with [ne-]. I will use /nu-/ here, since it is the most recent form noted.
Like the ludlings formed of two phonemes, and unlike /idi-/ , the deletion here does not act over the personal and reflexive prefixes, only over the first CV syllable, as in (157b) above. And like all of the prefixed ludlings, except for /pɔ-/ , the ludlingant here deletes identical vowels in a prefix:

(158)  ugu-pʧi-n-ŋom  nuuʧiŋom  ‘our (incl.) leg’
       12Abs-leg-Poss-Pl

Also like the other prefixed ludlings, there are exceptions to the deletion process /nu-(C)V/ $\rightarrow$ [nu(∅)∅]:

(159)  a. pɔu  nuɓou  *nuu  ‘small peccary’
       b. pɔrat  nuɓarat  *nuurat  ‘catfish’

Like the other prefixed ludlings, there are also similar examples where the deletion process does apply:

(160)  a. purak  nuɾak  ‘an arrow’
       b. pɛra  nuɾa  ‘a fruit’

And like all of the ludlings, /nu-/ also occurs in sentences, following the parameters of the base language.

O V Oblique
(161)  nu-ra  in-wɔ-tke-lu  nu-gɔŋe  nu-ukara  bɔk
       LUD-macaw.(sp.)  1Erg-kill-Iter-Rec  LUD-yesterday  LUD-inga.tree  on
       ‘I repeatedly killed macaws yesterday in the inga tree’

71 This datum is part of the latest recordings I made, in 2010. The speaker used different forms for this ludlingant, such as /ni-/ , /ne-/ , /nɔ-/ , etc.
Like the other luldings, this ludling also shows the devoicing process of stops.

Like the other luldings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

Yet, like the other prefixed luldings formed of two phonemes, there are examples of deletion of the palatal affricate [ʧ].

Like the other luldings, the general data show that this ludling occurs with all syllable types:

4.2.6 Agouti Talk

Agoutis are called [jagu] in Arara. The ludling for these species of animals is labeled in Arara [jaguri lumbanbɔt] ‘to make the tongue of agoutis’. The morphological process used by the Arara people to build these animals’ ludling is the addition of a /pi-/ prefix.

Like the other luldings, this ludling also shows the devoicing process of stops.

Like the other luldings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

Yet, like the other prefixed luldings formed of two phonemes, there are examples of deletion of the palatal affricate [ʧ].

Like the other luldings, the general data show that this ludling occurs with all syllable types:

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Like the other luldings, this ludling also shows the devoicing process of stops.

Like the other luldings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

Yet, like the other prefixed luldings formed of two phonemes, there are examples of deletion of the palatal affricate [ʧ].

Like the other luldings, the general data show that this ludling occurs with all syllable types:

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Like the other luldings, this ludling also shows the devoicing process of stops.

Like the other luldings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

Yet, like the other prefixed luldings formed of two phonemes, there are examples of deletion of the palatal affricate [ʧ].

Like the other luldings, the general data show that this ludling occurs with all syllable types:
The phonological patterns of this ludling work almost exactly the same way as those of the prefixed ludlings already presented. However, it is much more similar to the patterns of those ludlings formed of two phonemes (see the ludlings above). Thus, example (167) illustrates the ludlingant /pi-/ in monosyllabic words. In (168) below there are examples of this ludling attached to polysyllabic words, resulting in a haplogy process: /pi-(C)V/ → [pi(∅)∅]. Here are some examples:

(168)  a. pi-ae → pi-∅e [pie] ‘a wasp’
   b. pi-taupa → pi-∅∅upa [piupa] ‘a banana’
   c. pi-∅et → pi-∅et [piet] ‘rubber tree’
   d. pi-abat → pi-∅bat [pibat] ‘manioc bread’
   e. pi-onat → pi-∅nat [pinat] ‘corn’
   f. pi-jeme → pi-∅∅me [pime] ‘mom, my mother’
   g. pi-pomu → pi-∅∅mu [pimu] ‘a beetle’
   h. pi-∅remi → pi-∅remi [piremi] ‘a fish’
   i. pi-kuro-kuro → pi-∅∅ro-kuro [pirokuro] ‘a bird’
   j. pi-muni → pi-∅∅ni [pini] ‘my brother’

Like other prefixed ludlings formed of two phonemes, this ludlingant does not extend deletion to an /r/-initial syllable. And like the other (V)CV prefixed ludlings, it does not extend deletion to the coda of a vowel to be deleted.

(169)  a. pi-enben → pi-∅nben [pinben] ‘his penis’
   b. pi-ikpa → pi-∅kpa [pikpa] ‘mud’
   c. pi-∅tpido → pi-∅tpido [pitpido] ‘armadillo’
   d. pi-kutkut → pi-∅tkut [pitkut] ‘night monkey’
   e. pi-womjum → pi-∅mjmjum [pimium] ‘banana’

This ludlingant, like any other, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (170) below (see Appendices 3 and 4).

(170)  a. i-ênma-n 1Abs-path-Poss → pinman ‘my path’
   b. k-∅-emia-guruge-da 1Erg-Refl-hand-wash-Near → pidemiagurugeda ‘I am going to wash my own hand (near)’
   c. in-deke-lu 1Erg-write-Rec → pindekelu ‘I wrote it’
d. **torik-kɔm-be**    **perik-kɔm-be**\(^{72}\)    ‘they are big’  
big-Pl-Adjr

Like the ludlings formed of two phonemes, and unlike /idi-/ the deletion here does not act over the personal and reflexive prefixes, only over the first (C)V syllable. And like all of the prefixed ludlings, except for /pɔ-/ the ludlingant here deletes identical vowels in a prefix:

(171) ugu-pʃi-n-ɡom    **piptʃingom**    ‘our (incl.) leg’  
12Abs-leg-Poss-Pl

Also like the other prefixed ludlings, there are exceptions to the deletion process:

/\pi-(C)V/ → [pi(∅)∅]:

(172) a. pɔu    **piɓɔu**    *piu    ‘small peccary’
  b. pɔɾat    **piɓɔɾat**    *pirat    ‘catfish’
  c. malɔn    **piɓalɔn**    *pilɔn    ‘that’s okay’

Like the other prefixed ludlings, there are also similar examples where the deletion does apply:

(173) a. puɾak    **pirak**    ‘an arrow’
  b. pɛɾa    **pira**    ‘a fruit’

And like all of the ludlings, /\pi-/ also occurs in sentences, following the parameters of the base language.

O    V    Oblique
(174) pi-ra    in-wɔ-tke-luu    pi-ɡɔnŋe    pi-ukara    bɔk
LUD-macaw.(sp.)  1Erg-kill-Iter-Rec  LUD-yesterday  LUD-inga.tree  on
‘I repeatedly killed macaws yesterday in the inga tree’

Adv:Manner    V    Oblique: Source
(175) pi-pɔɾe    taqie    w-ebu-luu    pi-dua-n-dubɔ-p
LUD-empty very  1Erg-arrive-Rec  LUD-forest-Ela-Former-now
‘I arrived from the forest without any load’

Like other ludlings, this ludling also shows the devoicing process of stops.

(176) a. piluŋɔ    **pipiluŋɔ**    ‘bird hind quater’
  b. pɔu    **piɓɔu**    ‘small peccary’

\(^{72}\)This is a variant of [pirikombe].
And like the ludlings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

(177) a. takui → pikui ‘manioc flour’
    b. tawē → pīwe ‘capuchin monkey’
    c. tamŋo → pĩmŋo ‘old man, grandfather’
    d. tukto → piktō ‘cultivated field’
    e. kudën → pídën ‘cassava’
    f. kãńi → pįńi ‘a fish’

Yet, like the other prefixed ludlings formed of two phonemes, there are examples of deletion of the palatal affricate [tʃ].

(178) a. /tʃeʌ/ → pɪl ‘sister’
    b. /tʃamit → pim ‘squirrel monkey’

Like the other ludlings, the general data show that this ludling occurs with all syllable types:

(179) a. V a.e → pie ‘a wasp’
    b. CV kut,den → piden ‘cassava’
    c. VC ik,pa → pikpa ‘mud’
    d. CVC kut,kut → pikut ‘night monkey’

4.2.7 Peccary and Dog Talk

Peccaries and dogs are, respectively, called [abianã] and [wɔkɔri] in Arara. The ludling for these species of animals is labeled in Arara [abiana wɔkɔri bene lumbanbɔt] ‘to make the tongue of the peccary and the dog’. The morphological process used by the Arara people to build the peccary’s and dog’s ludling is the addition of a /tɔ-/ prefix.

(180) a. nu → tɔnu ‘abcess, tumor’
    b. wɔt → tɔwɔt ‘fish’
    c. kɔk → tɔgɔk ‘night, evening’

The phonological patterns of this ludling work almost exactly the same way as those of the prefixed ludlings already analyzed. However, it is much more similar to the patterns of those ludlings formed of two phonemes (see these ludlings above). Thus, example (180) illustrates the ludlingant /tɔ-/ in monosyllabic words. In (181) below there
are examples of this ludling attached to polysyllabic words, resulting in a haplology process: /tɔ-(C)V/ → [tɔ(∅)∅]. Here are some examples:

(181)  
a.  tɔ-æ  →  tɔ-∅ɛ  [tɔe]  ‘a wasp’
b.  tɔ-taupa  →  tɔ-∅ɛupa  [tɔupa]  ‘a banana’
c.  tɔ-ɔɛt  →  tɔ-∅ɛt  [tɔet]  ‘rubber tree’
d.  tɔ-abat  →  tɔ-∅bat  [tɔbat]  ‘manioc bread’
e.  tɔ-ɔnat  →  tɔ-∅nat  [tɔnat]  ‘corn’
f.  tɔ-jeme  →  tɔ-∅ɛme  [tɔme]  ‘mom, my mother’
g.  tɔ-pɔmu  →  tɔ-∅ɛmu  [tɔmu]  ‘a beetle’
h.  tɔ-ɔremi  →  tɔ-∅remi  [tɔremi]  ‘a fish’
i.  tɔ-kuro-kurɔ  →  tɔ-∅ɛro-κurɔ  [tɔrokurɔ]  ‘a bird’
j.  tɔ-muni  →  tɔ-∅ni  [tɔni]  ‘my brother’

Like the other prefixed ludlings formed of two phonemes, this ludlingant does not extend deletion to an /r/-initial syllable. And like all the other (V)CV prefixed ludlings, it does not extend deletion to the coda of a vowel to be deleted.

(182)  
a.  tɔ-enben  →  tɔ-∅ɛnben  [tɔnenben]  ‘his penis’
b.  tɔ-ikpa  →  tɔ-∅ɛkpa  [tɔkpa]  ‘mud’
c.  tɔ-ɔtpidɔ  →  tɔ-∅ɛtpidɔ  [tɔtpidɔ]  ‘armadillo’
d.  tɔ-kutkut  →  tɔ-∅ɛtkut  [tɔtkut]  ‘night monkey’
e.  tɔ-womjum  →  tɔ-∅ɛmjum  [tɔmium]  ‘banana’

The haplology process triggered by the ludlingant /tɔ-/ seems not to apply in base words starting with labial consonants.\(^{73}\)

(183)  
a.  wɔtomo  →  /tɔ-wotomo/  [tɔwɔtomɔ]  ‘tapir’
b.  wakat  →  /tɔ-wakat/  [tɔwakat]  ‘alligator, cayman’
c.  muda  →  /tɔ-muda/  [tɔmuda]  ‘wait!’
d.  muta  →  /tɔ-muta/  [tɔmuta]  ‘a monkey’
e.  muni  →  /tɔ-muni/  [tɔmuni]\(^{74}\)  ‘brother’
f.  manaŋ  →  /tɔ-manaŋ/  [tɔmananɔ]  ‘a coconut bug’
g.  pɔu  →  tɔ-pɔu  [tɔbou]  ‘small peccary’
h.  porat  →  tɔ-pɔrat  [tɔbɔrat]  ‘catfish’

There are similar examples, with bilabial stops, where the deletion process does apply:

\(^{73}\) But there are exceptions, such as: /tɔ-womjum/ → tɔ-∅ɛmjum [tɔmium] ‘banana’ (see example (182e)).

\(^{74}\) However, see example (181j) above, where we have the form [tɔni] for this ludling.
This ludlingant, like any other, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (185) below (see Appendices 3 and 4).

(185) a. i-ɛnma-n \text{\textit{t\text{\textbar}nman}} 'my path'

b. k-ɔd-ɛmia-guruğe-da \text{\textit{t\text{\textbar}demiaguruğe\textbar\text{\textbar}da}} 'I am going to wash my own hand (near)'

c. in-đekɛ-lo \text{\textit{t\text{\textbar}ndekɛlu}} 'I wrote it'

d. tərik-kɔm-ɓe \text{\textit{t\text{\textbar}rik-kɔm-ɓe}} 'they are big’

Like the ludlings formed of two phonemes, and unlike /idi-/ , the deletion here does not act over the personal and reflexive prefixes, only over the first CV syllable, as in (185b) above. And like all of the prefixed ludlings, except for /pɔ-/ , the ludlingant here deletes identical vowels in a prefix:

(186) ugu-pʃi-n-gɔm \text{\textit{t\text{\textbar}ptʃingɔm}} 'our (incl.) leg’

And like all of the ludlings, /tɔ-/ also occurs in sentences.

O V Oblique

(187) tɔ-ra \text{\textit{in-wɔ-tke-lu}} tɔ-gŋe tɔ-ukara bɔk LUD-macaw.(sp.) 1Erg-kill-Iter-Rec LUD-yesterday LUD-inga.tree on ‘I repeatedly killed macaws yesterday in the inga tree’

AP S

(188) tɔ-rik-kom-ɓe \text{\textit{(tɔ-tɔ)}} tɔ-upɔ LUD-big-Pl-Adjr hesitation LUD-banana ‘the bananas are big’

Like the other ludlings, the ludling /tɔ-/ also shows the devoicing process of stops.

(189) a. piluŋ \text{\textit{t\text{\textbar}piluŋ}} ‘bird hind quarter’

b. pɔu \text{\textit{t\text{\textbar}pɔu}} ‘small peccary’

And like the ludlings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:
Yet, like the other prefixed ludlings formed of two phonemes, there are examples of deletion of the palatal affricate [ʃ].

Like the other ludlings, the general data show that this ludling occurs with all syllable types:

There are homonyms in this Arara language game resulting from the addition of the ludlingant /tɔ-/ and from the phonemic processes the base words undergo.

4.2.8 Small Bird Talk

Small birds, including macaws, parrots, orange-cheeked parrots, and parakeets are, respectively, called [ka/awu (awu, karaja, karaum)], [ʃarɔkʃarɔ], [kui], and [eridak] in Arara. The ludling for these species of small birds is labeled in Arara [ka/awu (awu, karaja, karaum), ʃarɔkʃarɔ, kui, eridak pene lumbanbɔt] ‘to make the tongue of macaws, parrots, orange-cheeked parrots, and parakeets’. The morphological process used by the Arara people to build these small birds’ ludling is the addition of an /eŋna-/ prefix.

The phonological patterns of this ludling work almost exactly the same way as those of the prefixed ludlings already analyzed. However, it is much more similar to the
patterns of those ludlings formed of two phonemes (see these ludlings above). Thus, example (194) illustrates the ludlingant /e̱na-/ in monosyllabic words. In (195) below there are examples of this ludling attached to polysyllabic words, resulting in a haplology process: /e̱na-(C)V/ → [e̱na(∅)∅].

Here are some examples:

(195) a. e̱na-ae → e̱na-∅e [e̱nae] ‘a wasp’
b. e̱na-taupa → e̱na-∅tupa [e̱napa] ‘a banana’
c. e̱na-∅et → e̱na-∅et [e̱naet] ‘rubber tree’
d. e̱na-∅abat → e̱na-∅bat [e̱nabat] ‘manioc bread’
e. e̱na-∅onat → e̱na-∅nat [e̱nanat] ‘corn’
f. e̱na-∅eme → e̱na-∅eme [e̱name] ‘mom, my mother’
g. e̱na-∅omu → e̱na-∅omu [e̱namu] ‘a beetle’
h. e̱na-∅remi → e̱na-∅remi [e̱naremi] ‘a fish’
i. e̱na-∅muniŋm → e̱na-∅muniŋm [e̱naminiŋm] ‘my brothers’

Like the other prefixed ludlings formed of two phonemes, this ludlingant does not extend deletion to an /r/-initial syllable. And like all the other (V)CV prefixed ludlings, it does not extend deletion to the coda of a vowel to be deleted.

Like /tɔ-/ , the haplology process triggered by the ludlingant /e̱na-/ seems not to apply in base words starting with labial consonants:

(196) a. e̱na-eben → e̱na-∅ben [e̱naben] ‘his penis’
b. e̱na-ikpa → e̱na-∅kpa [e̱nakpa] ‘mud’
c. e̱na-∅tpidɔ → e̱na-∅tpidɔ [e̱natpidɔ] ‘armadillo’
d. e̱na-∅kutkut → e̱na-∅tkut [e̱naktkut] ‘night monkey’
e. e̱na-∅omjum → e̱na-∅omjum [e̱namomjum] ‘banana’

However, there is a form [e̱naniŋm] ‘brothers’ in Appendix 3. This example is in (195i).

There is one example of deletion of a second vowel (haplology, since it also deletes the onset of this vowel) in a monomorphemic word: /e̱na-enarut/ → e̱na-∅∅rut → [e̱narut] ‘his sister’.

But there are exceptions, such as: /e̱na-∅omu/ → e̱na-∅omu [e̱namu] ‘beetle’ (see example (195g)) and /e̱na-womjum/ → e̱na-∅omjum [e̱namium] ‘banana’ (see example (196e)).
There are similar examples, with bilabial stops, where the deletion process does apply:

(198) a. puurak eŋnarak ‘an arrow’
    b. ṭera eŋnara ‘a fruit’

The ludlingant /ŋna-, like any other, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (199) below (see Appendices 3 and 4).

(199) a. i-ŋna-n eŋnanman ‘my path’
        1Abs-path-Poss
b. k-əd-ŋnia-gurugu-da eŋnademiagurugeda ‘I am going to wash my own hand (near)’
        1Erg-Refl-hand-wash-Near
c. in-deke-lu eŋnandekelu ‘I wrote it’
        1Erg-write-Rec
d. torik-kəm-be eŋnarik-kəm-be ‘they are big’
        big-Pl-Adjr

Like the ludlings formed of two phonemes, and unlike /idi-, the deletion here does not act over the personal and reflexive prefixes, only over the first CV syllable, as in (199b) above. And like all of the prefixed ludlings, except for /pə-, the ludlingant here deletes identical vowels in a prefix:

(200) ugu-pəi-n-ŋəm eŋnapəiŋəm ‘our (incl.) leg’
        12Abs-leg-Poss-Pl

And like all of the ludlings, /ŋna- also occurs in sentences.

(201) eŋna-ra in-wə-tke-lu eŋna-ŋəmə eŋna-ukara bək
        LUD-macaw.(sp.) 1Erg-kill-Iter-Rec  LUD-yesterday  LUD-nga.tree on
        ‘I repeatedly killed macaws yesterday in the inga tree’

Adv:Manner V Oblique: Source
(202) eŋna-pərə taqie w-ɛbu-lu eŋna-dua-n-dubə-p
        LUD-empty very 1Erg-arrive-Rec  LUD-forest-Ela-Former-now
        ‘I arrived from the forest without any load’

Like the other ludlings, the ludling /ŋna- also shows the devoicing process of stops.

(203) a. piluŋ eŋnapiluŋ ‘bird hind quarter’
    b. ṭou eŋnabou ‘small peccary’
And like the ludlings formed of two phonemes, there is no example with variation of voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the deletion process over the CV syllable word-initially, such as in the following examples:

(204) a. takuí ennakuí  ‘manioc flour’
b. tawe ennawe  ‘capuchin monkey’
c. tamgó ennamgó  ‘old man, grandfather’
d. tuktó ennaktó  ‘cultivated field’
e. kudèn ennaden  ‘cassava’
f. kɔfí ennatfí  ‘a fish’

Yet, like the other prefixed ludlings formed of two phonemes, there are examples of deletion of the palatal affricate [ʧ].

(205) a. /ʧ/ʧù /eŋnu/  ‘sister’
b. /ʧ/ʧìt /eŋnu/  ‘squirrel monkey’

Like the other ludlings, the general data show that this ludling occurs with all syllable types:

(206) a. V a.e enna.e  ‘a wasp’
b. CV kù.dén ennaden  ‘cassava’
c. VC ik.pá ennakpa  ‘mud’
d. CVC ku.kut ennakut  ‘night monkey’

There are homonyms in this Arara language game resulting from the addition of the ludlingant /eŋna-/ and from the phonemic process the base words undergo.

(207) a. eŋna-emuru → eŋna-Ømuru [en naamuru]  ‘his testicles’
b. eŋna-amuru → eŋna-Ømuru [en naamuru]  ‘alcoholic drink’

4.2.9  **Toucan Talk**

Toucans are called [tuapko] in Arara. They can also receive specific names like [pilik], [kagak] and [ʧirɔ]. The ludling for these species of birds is labeled in Arara [tuapko lumbanbɔt] ‘to make the tongue of the toucans’. The morphological process used by the Arara people to build the toucans’ ludling is the addition of an /eŋnara-/ prefix.

(208) a. nu ennaranu  ‘abcess, tumor’
b. wɔt ennarawɔt  ‘fish’
c. kɔk ennaragɔk  ‘night, evening’
The phonological patterns of this ludling work almost exactly the same way as those of the prefixed ludlings already analyzed. However, it is much more similar to the patterns of those ludlings formed of two phonemes (see these ludlings above). Thus, example (198) illustrates the ludlingant /eŋna-/ in monosyllabic words. In (209) below there are examples of this ludling attached to polysyllabic words, resulting in a haplology process: /eŋnara-(C)V/ → [eŋnaraØØ]. Here are some examples:

(209) a. eŋnara-ae → eŋnara-Øe [eŋnarae] ‘a wasp’
     b. eŋnara-taupa → eŋnara-ØØupa [eŋnaraupa] ‘a banana’
     c. eŋnara-øet → eŋnara-Øet [eŋnaraet] ‘rubber tree’
     d. eŋnara-abat → eŋnara-Øbat [eŋnaraabat] ‘manioc bread’
     e. eŋnara-ønat → eŋnara-Ønat [eŋnaranat] ‘corn’
     f. eŋnara-jeme → eŋnara-ØØme [eŋnaraeme] ‘mom, my mother’
     g. eŋnara-ømu → eŋnara-ØØmu [eŋnaramu] ‘a beetle’
     h. eŋnara-øremi → eŋnara-Øremi [eŋnaramio] ‘a fish’
     i. eŋnara-kurø-kuro → eŋnara-ØØro-kuro [eŋnarakurø] ‘a bird’
     j. eŋnara-muni → eŋnara-ØØni [eŋnaranïnìo] ‘my brothers’

Like the prefixed ludlings formed of two phonemes, this ludlingant does not extend deletion to an /r/-initial syllable. And like all the other (V)CV prefixed ludlings, it does not extend deletion to the coda of a vowel to be deleted.

(210) a. eŋnara-enben → [eŋnaranben] ‘his penis’
     b. eŋnara-ikpa → [eŋnarakpa] ‘mud’
     c. eŋnara-øtpido → [eŋnaratpido] ‘armadillo’
     d. eŋnara-kutkut → [eŋnaratkut] ‘night monkey’
     e. eŋnara-womjum → [eŋnaramium] ‘banana’

The haplology process triggered by the ludlingant /eŋnara-/, unlike /tɔ-/ and /eŋna-/
(see Sections 4.2.7 and 4.2.8), applies in base words starting with labial consonants:

(211) a. eŋnara-mate → [eŋnaraete] ‘wait’
     b. eŋnara-manaŋ → [eŋnaranan] ‘a coconut bug’

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78 There is one example of deletion of a second vowel in a monomorphemic word: /eŋnara-enarut/ → eŋnara-ØØØrut → [eŋnarautar] ‘his sister’; and there is an example where the last vowel of the ludlingant is deleted /eŋnara-jurut/ → eŋnara-ØØØru → [eŋnaru] ‘tortoise’. Here the two /r/’s merge into just one, presumably due to the violation of the OCP.
This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (212) below (see Appendices 3 and 4).

(212)  

a. i-ŋna-n → ɛŋnarənmann ‘my path’  
     1Abs-path-Poss

b. k-ɔ-ɛmia-gurʊ-ɛ-da → ɛŋnarɛdemiaqurʊgeda ‘I am going to wash my hand (near)’  
     1Erg-Refl-hand-wash-Near

c. in-dekɛ-lu → ɛŋnarəndekeleu ‘I wrote it’  
     1Erg-write-Rec

d. tɔrɪk-kɔm-be → ɛŋnarərik-kɔm-be ‘they are big’  
     big-Pl-Adjr

Like the ludlings formed of two phonemes, and unlike /idi-/ , the deletion here does not act over the personal and reflexive prefixes, only over the first CV syllable, as in (212b) above. And like all of the prefixed ludlings, except for /pɔ-/ , the ludlingant here deletes identical vowels in a prefix:

(213)  

ugu-ɬɛi-n-qɔm → ɛŋnarapɬɛŋqɔm ‘our (incl.) leg’  
     12Abs-leg-Poss-Pl

And like all of the ludlings, /ɛŋna-/ also occurs in sentences.

O V Oblique

(214)  

ɛŋna-ra in-wɔ-tɛ-lu ɛŋna-ɡɔnɛ ɛŋna-ukara bɔk  
     LUD-macaw.(sp.) 1Erg-kill-Iter-Rec  LUD-yesterday  LUD-nga.tree on  
     ‘I repeatedly killed macaws yesterday in the inga tree’

Adv:Manner V Oblique: Source

(215)  

ɛŋna-ra-pɔɾe tɐiɬ w-ebu-ɬu ɛŋna-ra-dua-n-dubɔ-p  
     LUD-empty very 1Erg-arrive-Rec LUD-forest-Ela-Former-now  
     ‘I arrived from the forest without any load’

Like the other ludlings, the ludling /ɛŋna-/ also shows the devoicing process of stops.

(216)  

a. piluŋ → ɛŋnarapliluŋ ‘bird hind quarter’

b. pɔu → ɛŋnarabɔu ‘small peccary’
And like the ludlings formed of two phonemes, there is no example with variation of
voicing between the alveolar [t] and [d], and velar [k] and [g], mainly because of the
deletion process over the CV syllable word-initially, such as in the following examples:

(217) a. takui ennarakui ‘manioc flour’
b. tawë ennarawë ‘capuchin monkey’
c. tamqo ennaramqo ‘old man, grandfather’
d. tuktø ennaraktø ‘cultivated field’
e. kudën ennaraden ‘cassava’
f. këfi ennaraffi ‘a fish’

This deletion process is also true of the palatal affricate [ʧ].

(218) a. tfeltu ennaralu ‘sister’
b. tfamit ennaramit ‘squirrel monkey’

Like the other ludlings, the general data show that this ludling occurs with all syllable
types:

(219) a. V a.e eñnarae ‘a wasp’
b. CV ku.den ennaraden ‘cassava’
c. VC ik.pa ennarakpa ‘mud’
d. CVC kut.kut ennaratkut ‘night monkey’

There are homonyms in this Arara language game resulting from the addition of the
ludlingant /eñnara-/ and from the phonemic process the base words undergo.

(220) a. eñnara-emuru → eñnara-∅muru [eñnaramuru] ‘his testicles’
b. eñnara-amuru → eñnara-∅muru [eñnaramuru] ‘alcoholic drink’

4.2.10 Spider Monkey Talk

Spider monkeys are called [woŋoum] in Arara. The ludling for these species of
monkeys is labeled in Arara [woŋoum lumbanbøt] ‘to make the tongue of the spider
monkey’. The morphological process used by the Arara people to build the spider
monkey’s ludling is the addition of an /un-/ prefix.

(221) a. un-nu unu ‘abcess, tumor’
b. un-wøt unwøt ‘fish’
c. un-køk ungøk ‘night, evening’

We can see in the data above that there is no morphophonological process when [un-]
is attached to a monosyllabic word, except if the base word starts with an alveolar
consonant, as in (221a). In this case, the alveolar consonant is deleted (see below for more examples of this process). But deletion also does not occur in some polysyllabic words. For example, there is no deletion when the base word starts with /m/.

(222)

a. muni unmunı 'brother'
b. muða unmuda 'wait!'
c. mate unmate 'go!'
d. malon unmalon 'that’s okay'
e. mudaimo unmudaimo 'a fish'
f. murei unmurei 'bench'
g. manan manan 'a coconut bug'

Also no deletion occurs if the ludlingant /un-/ is added to a word that starts with a closed syllable: un-(C)VC.

(223)

a. un-kutkut → [ungutkut] 'night monkey'
b. un-ɔtpidɔ → [unɔtpidɔ] 'armadillo'
c. un-ɔtkoimo → [unɔtkoimo] 'armadillo'
d. un-ikpa → [unikpa] 'mud'
e. un-ambamba → [unambamba] 'sting ray'
f. un-enben → [unenben] 'his testicles'
g. un-wəmjum → [unwmjum]82 'banana'

However, some deletions occur as a result of the addition of the ludlingant /un-/ in polysyllabic words. One deletion occurs when this ludlingant is added to a word starting with an alveolar consonant. In this case, the alveolar consonant is deleted: un-C_[Cor] → un-∅.83

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79 Here deletion has scope only over bilabial nasals and not over bilabial consonants in general, similar to what happens with /tɔ-/ and /ɛŋna-/ (see Sections 4.2.7 and 4.2.8).
80 The form /un-/ for this ludlingant, is a speaker variant.
81 There are exceptions: /pɔtpuri/ → [unbuluri] 'wood tick', /ɔnma/ → [unma] 'path'.
82 The form [unmjum] was also attested (datum from 2010).
83 There is one exception: /un-tʃamit/ → un-∅∅mit → [unmit] ‘squirrel monkey’, instead of the expected form: *[unamit].
It is noteworthy that some words can be input to different phonological processes when the ludlingant /un-/ is added. For example, /nu/ ‘abcess, tumor’, as a monosyllabic word, can be an input to the deletion blocking process. At the same time, it can undergo deletion, since it is a word that starts with an alveolar consonant. As can be seen, the deletion does apply (see (221a) and (224a) above). Neither *[unnun] nor *[unun] are attested.

Another deletion occurs when the ludlingant /un-/ is attached to a word whose first two vowels are identical, except if the first syllable has a coda (see examples in (223) above). In this case, the syllable of the first vowel is deleted (haplology): /un-(C)V.CV/ → [un-∅CV].^88

<table>
<thead>
<tr>
<th>(224)</th>
<th>a. un-nu</th>
<th>un-∅u</th>
<th><em>unu</em></th>
<th>‘abcess, tumor’</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. un-tawe</td>
<td>un-∅awe</td>
<td>unawe[^84]</td>
<td>‘capuchin monkey’</td>
<td></td>
</tr>
<tr>
<td>c. un-napko</td>
<td>un-∅apko</td>
<td>unapko</td>
<td>‘let it there’</td>
<td></td>
</tr>
<tr>
<td>d. un-tʃelui</td>
<td>un-∅elui</td>
<td>unelui</td>
<td>‘sister’</td>
<td></td>
</tr>
<tr>
<td>e. un-tukɔ</td>
<td>un-∅ukɔ</td>
<td>uniktɔ[^85]</td>
<td>‘cultivated field’</td>
<td></td>
</tr>
<tr>
<td>f. un-taupa</td>
<td>un-∅aupa</td>
<td>unaupa</td>
<td>‘a banana’</td>
<td></td>
</tr>
<tr>
<td>g. un-taukara</td>
<td>un-∅aukara</td>
<td>unaukara</td>
<td>‘inga tree’</td>
<td></td>
</tr>
<tr>
<td>h. un-nabiɔt</td>
<td>un-∅biɔt</td>
<td>unbiɔt[^86]</td>
<td>‘sweet potato’</td>
<td></td>
</tr>
<tr>
<td>i. un-takuĩ</td>
<td>un-∅akuĩ</td>
<td>unakuĩ[^87]</td>
<td>‘manioc flour’</td>
<td></td>
</tr>
<tr>
<td>j. un-tamgo</td>
<td>un-∅amgo</td>
<td>unamgo</td>
<td>‘old man, grandfather’</td>
<td></td>
</tr>
</tbody>
</table>

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^84 There also exists the form [undawe], collected at the same time (January 2003) as [unawe].

^85 Here the speaker changed the high round back vowel /u/ to /i/.

^86 The form [unbiɔt] was recorded as well. Besides deleting the vowel /a/, there is an unexpected change in the place of articulation of the nasal consonant from the prefix.

^87 The form [ungui] is also attested.

^88 There are exceptions such as /un-kara/ → [ungara] ‘macaw (spp.)’ and /un-kamap/ → [ungamap] ‘gourd container’ where no deletion occurs.

^89 The expected form was [unbirinda].
e. /un-kəkə/ → un-∅∅kə [ungə] ‘uncle’
f. /un-upu/ → un-∅pu [umbu]90 ‘yam’

It is noteworthy that the stops in (225d-f) are voiced after a nasal consonant, as occurs in the normal language (see Section 3.1.1, examples (14) and (15)). Again it is noteworthy to see that some words can be input to different phonological processes when the ludlingant /un-/ is added. For example, /manan/ ‘a coconut bug’ can be an input to the blocking process or to the deletion triggered by the addition of /un-/ before a word whose first two vowels are identical. However, only the blocking process applies (see (222g) above). The form *[unanan] is not attested.

It was seen that deletion is blocked in some words: monosyllabic words, words that do not start with bilabial nasal, and words that do not start with a closed syllable. It was also seen that some words undergo deletion: words that start with an alveolar consonant and words whose first two vowels are identical. For other words, their behavior is not always consistent. For example, there are some cases where no phonological process occurs even though the first two vowels of the base word are different.

(226)  a. /un-a/ [unæ] ‘a wasp’
b. /un-ar/ [unar]91 ‘howler monkey’
c. /un-ɔremi/ [unɔrmi] ‘a fish’
d. /un-ɔnat/ [unɔnat]92 ‘corn’
e. /un-ɔpu/ [unbou]93 ‘small peccary’
f. /un-ɔmu/ [unbomu] ‘a beetle’
g. /un-pera/ [unbera] ‘a fruit’
h. /un-purak/ [unbura] ‘an arrow’
i. /un-pulete/ [unbulete] ‘knife’
j. /un-kurakor/ [ungurkor] ‘a bird’

90 Here the nasal assimilates to the place of articulation of the following consonant. As can be seen from the other examples, this assimilation is not a general process among the ludlings.

91 In the data I recorded with an elderly man the following alternative forms appear: [unum], [unrun], and [unirun].

92 The form [unat] was also attested (/un-ɔnat/ → un-∅nat → un-∅∅at).

93 Here and elsewhere, only voiced obstruents occur after a nasal consonant (see Section 3.1.1, examples (14) and (15)).
However, similar words undergo deletion.

\[(227)\]

\begin{align*}
a. \quad & /\text{un-}\text{æt}/ \rightarrow \text{un-}\text{æt} \quad [\text{unæt}] \quad \text{‘rubber tree’} \\
b. \quad & /\text{un-}\text{miægu}/ \rightarrow \text{un-}\text{mægu} \quad [\text{unmægu}] \quad \text{‘manioc bread’} \\
c. \quad & /\text{un-}\text{ðørat}/ \rightarrow \text{un-}\text{ðørat} \quad [\text{unørat}] \quad \text{‘catfish’} \\
d. \quad & /\text{un-}\text{idua}/ \rightarrow \text{un-}\text{ðua} \quad [\text{undua}] \quad \text{‘forest’} \\
e. \quad & /\text{un-}\text{apon}/ \rightarrow \text{un-}\text{pon} \quad [\text{unbon}] \quad \text{‘club’} \\
f. \quad & /\text{un-}\text{aqulu}/ \rightarrow \text{un-}\text{gulu} \quad [\text{ungulu}] \quad \text{‘I ate it’} \\
g. \quad & /\text{un-}\text{kɔtʃi}/ \rightarrow \text{un-}\text{ðtʃi} \quad [\text{undʃi}] \quad \text{‘a fish’} \\
h. \quad & /\text{un-}\text{kunデン}/ \rightarrow \text{un-}\text{ðデン} \quad [\text{unden}] \quad \text{‘cassava’}
\end{align*}

Therefore, there is no general pattern for these data, from (226) and (227) above.

Other variations by the speaker can also be found. There is a change from a back vowel to a front vowel in the prefix /un-/ , either into [in-] or [en-]:

\[(228)\]

\begin{align*}
a. \quad & /\text{un-}\text{idamu}/ \rightarrow \text{un-}\text{damu} \quad [\text{indamu}] \quad \text{‘his grandson/granddaughter’} \\
b. \quad & /\text{un-}\text{ikamabu}/ \rightarrow \text{in}\text{gama}\text{bu} \quad [\text{ingamabu}] \quad \text{‘a gourd container’} \\
c. \quad & /\text{un-}\text{ipun}/ \rightarrow \text{in}\text{bun} \quad [\text{imbun}] \quad \text{‘his/her foot’} \\
d. \quad & /\text{un-}\text{emunu}/ \rightarrow \text{en}\text{emu} \quad [\text{enemunu}] \quad \text{‘his testicles’}
\end{align*}

Also there is an example with /i/ epenthesis:

\[(229)\]

/ku/\text{amit/} \rightarrow \text{un-}\text{amit} \quad [\text{uni}\text{amit}] \quad \text{‘duski titi monkey’}

There are examples with vowel mutation in the base word, from /e/ to [i] and /u/ to [i], respectively:

\[(230)\]

\begin{align*}
a. \quad & /\text{enarut}/ \rightarrow \text{en-}\text{arut} \quad [\text{uninarut}] \quad \text{‘his sister’} \\
b. \quad & /\text{tukt}/ \rightarrow \text{un-}\text{ukt} \quad [\text{unikt}] \quad \text{‘cultivated field’}
\end{align*}

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (231) below (see Appendices 3 and 4).

\[(231)\]

\begin{align*}
a. \quad & \text{i-enma-n} \quad \text{unman} \quad \text{‘my path’} \\
b. \quad & \text{k-ǝd-emia-guruge-da} \quad \text{undemiagurugeda} \quad \text{‘I am going to wash my own hand (near)’} \\
c. \quad & \text{in-deke-lu} \quad \text{undekelu} \quad \text{‘I wrote it’} \\
d. \quad & \text{kure-p} \quad \text{ungurep} \quad \text{‘they are big’}
\end{align*}

It can be seen above that the ludlingant /un-/ occurs word-initially in polymorphemic words, as it does in monomorphic ones. Here the deletion process can also be
extended over two vowels word-initially. However, like the other prefixed ludlingants, this deletion process occurs only if the first vowel is part of a prefix, as in (231a) above. Similar to the other ludlings that are prefixes, except /pɔ/-, this ludlingant deletes a whole prefix when it is formed of two identical vowels:

(232) ugu-pʃi-n-gɔm unbutʃingɔm ‘our (incl.) leg’

However, in order to fit into Arara syllable structure, the stem used here is the one that occurs after a noun, buṭingɔm, and not the one that occurs with prefixes -piṭingom (see the vowel deletion process that occurs here in section 3.1.5). And like all of the ludlings, /un/- also occurs in sentences:

(233) unqara in-wə-tke-ltu un-gɔŋɔŋe un-aukara bɔk LUD-macaw.(sp.) 1Erg-kill-Iter-Rec LUD-yesterday LUD-nga.tree on ‘I repeatedly killed macaws yesterday in the nga tree’

Adv:Manner V Oblique

(234) un-bɔɾe taq̥i w-ebu-ltu un-dua-n-dubɔ-p LUD-empty very 1Erg-arrive-Rec LUD-forest-Ela-Former-now ‘I arrived from the forest without any load’

As seen above (231d-h), all obstruents are voiced after the ludlingant /un-/. Here are some more examples:

(235) a. un-papa unba ‘dad’
b. un-kɔkɔ unqɔ ‘old man, grandfather’
c. un-upu [umbu]94 undʒi ‘yam’
d. un-kɔtʃi un‘di ‘a fish’

The general data show that the present ludling occurs with all syllable types:

(236) a. V a,æ unæ ‘a wasp’
b. CV puu.rak unburak ‘an arrow’
c. VC ik,pa unikpa ‘mud’
d. CVC kut,kut ungutkut ‘night monkey’

94 Here the nasal assimilates to the place of articulation of the following consonant. As can be seen from the other examples, this assimilation is not a general process in the ludlings.
Squirrel monkeys are called [ʃamit] in Arara. The ludling for these species of monkeys is called in Arara [ʃamit lumbanbot] ‘to make the tongue of a squirrel monkey’. The morphological process used by the Arara people to build the squirrel monkey’s ludling is the addition of an infix /-pt-/ after the first vowel of the base word.

(237)  a. nu nuptu ‘abcess, tumor’
b. wɔt wɔptɔ ‘fish’
c. kɔk kɔptɔ ‘night, evening’

As seen above, when the ludlingant [-pt-] is inserted into a monosyllabic word, the vowel from the syllable nucleus is repeated after the addition of the infix. This seems to happen so that the output forms can accommodate Arara syllable structure. Without this repetition these output forms would present consonant clusters, such as *nupt, *wɔpt, and *kɔptk, respectively, not licensed by the CVC Arara canonical pattern.

When this ludlingant occurs in words with a vowel sequence in the two first syllables, it simply separates the two vowels: /(C)VV(C)/ → [(C)V-pt-V(C)].

(238)  a. ae a-pt-e [apte] ‘a wasp’
b. ɔe t a-pt-ɛt [ɔptet] ‘rubber tree’
c. pɔu po-pt-u [pɔptu] ‘small peccary’
d. taupa ta-pt-upa [taptupa]‘a banana’

If the first vowel in the word is followed by a consonant, the ludlingant replaces this consonant: /(C)V-C-V(C)/ → [(C)V-pt-V(C)].

(239)  a. /kɔko/ → kɔ-pt-ɔ [kɔptɔ] ‘my uncle’
b. /je/me/ → je-pt-e [jeptɛ] ‘mom’
c. /pa/pa/ → pa-pt-a [paptə] ‘dad’
d. /a/bat/ → a-p-t-at [aptat] ‘manioc bread’
e. /tʃɛ/ → tʃe-p-t-ua [tʃeptu] ‘sister’
f. /ɔɾem/ → ɔ-pt-ɛmi [ɔptemi] ‘a fish’
g. /ɔnat/ → ɔ-pt-at [ɔptat] ‘corn’
h. /pi/t/ → pi-pt-ɔt [piptɔt] ‘a fruit’
i. /mud/ → mu-p-t-a [μupta] ‘wait!’

95 This example is in Appendix 3, example (12), line C. In that appendix, in the sentence section, example (20), line C, the speaker gave the form [taupta], with the ludlingant after the second vowel.
If there are two consonants following the vowel, both of them will be replaced by the ludlingant /-pt-/. Thus we can have \( (C)VCCV(C) \rightarrow [(C)pt-V(C)] \), as can be seen in the examples below.

(240) a. /enben/ \( \rightarrow \) e-pt-en \[epten\] ‘his penis’  
b. /ənma/ \( \rightarrow \) ə-p-t-a \[opta\] ‘path’  
c. /əpta/ \( \rightarrow \) ə-p-t-a \[opta\] ‘a fish’  
d. /ikpa/ \( \rightarrow \) i-p-t-a \[ipta\] ‘mud’  
e. /tamgo/ \( \rightarrow \) ta-pt-ə \[tapə]\ ‘old man, grandpa’  
f. /kutkut/ \( \rightarrow \) ku-p-tut \[kuptut\] ‘night monkey’

There are other examples that support this hypothesis. Similar, but not identical to /idi-/ (see Section 4.2.2, example (118)), if the next consonant in the sequence of phonemes is a flap and the vowel following the flap is identical to the one before it, the replacement extends until the flap: \( (C)V.CV_i-V_i \rightarrow [(C)pt-V_i] \).

(241) a. /ibi/ind\(ə\) \( \rightarrow \) i-p-t-inda \[iptinda\] ‘companion’  
b. /iba/\(\overline{a}\) \( \rightarrow \) i-p-t-a \[ipta\] ‘nothing’  
c. /amu/\(\overline{u}\) \( \rightarrow \) a-p-t-u \[aptu\] ‘alcoholic drink’

The only other ludlingant that causes this kind of deletion is /idi-/ for duski titi monkeys talk (see Section 4.2.2). On the other hand, a palatal affricate does not delete.

(242) a. /kɔtʃi/ \( \rightarrow \) kɔ-p-tʃi kɔ-p-ʃ-tʃi \[kɔptʃi\] ‘a fish’  
b. /emʃin/ \( \rightarrow \) e-p-t-ʃin e-p-ʃ-tʃin \[epʃin\] ‘his daughter’

Since the ludlingant /-pt-/ ends in an alveolar stop, and the contiguous affricate begins with a similar stop, the OCP is violated with a consequent deletion of the alveolar stop from the ludlingant (for OCP see Section 3.1.5). This is the only example of a ludlingant undergoing a phonemic process. However, there is an example where the affricate is replaced.

(243) ugu-p(o)n-gəm \( \rightarrow \) ugu-p(t)ingəm \[uuptingom\] ‘our (incl.) leg’  
12Abs-leg-Poss-Pl

Different from the normal language, this ludling does not palatalize an alveolar stop before the vowel /i/ (see Section 3.1.1, examples (7b and c)).

(244) a. /ɔptiðo/ \( \rightarrow \) ɔ-p-t-idə \[optiðo\] ‘armadillo’  
b. /ɔmíaegu/ \( \rightarrow \) ɔ-p-t-iaegu \[optiaegu\] ‘a fish’
c. /wɔmjum/ → wɔ-pt-ium [wɔptium] ‘banana’
d. /nabi/ → na-pt-iot [naptiot] ‘sweet potato’
e. /ibirinda/ → i-pt-inda [iptinda] ‘companion’
f. /ibi/ → i-pt-in [iptin] ‘her brother’
g. /ibit/ → i-pt-it [iptit] ‘her younger sister’

The ludlingant [-pt-] has other variants, such as [-kt-] and [-tt-].

(245) a. /unu/ → u-kt-un [uktun] ‘my food’
b. /ugnom/ → u-kt-ŋom [uktŋom]96 ‘men’
c. /itun/ → i-tt-un [itun] ‘her vagina’

Other variants seem to be systematic, being allomorphs of [-pt-]. One of them is

[-ht-], which occurs in few a words that have an alveolar consonant, such as /d/, /l/, /n/,
and /t/, following the first vowel of the base word:

(246) a. /mate/ → ma-hɛ [mahte] ‘let’s go!’
b. /kudɛn/ → ku-hɛn [kuhten] ‘cassava’
c. /malɛn/ → ma-hɛn [mahtɛn]99 ‘that’s ok’
d. /muni/ → mu-hɛt [muhtɛ]100 ‘brother’

But as can be seen above (example (239e-i)), alveolar consonants, such as /l/, /t/, /n/,
/t/, and /d/, are also replaced by the form /-pt-/. One other variant is that the voiced
coronal stop /d/ also occurs replacing alveolar consonants, such as /t/ and /l/.

(247) a. /arun/ → a-d-un [adun] ‘howler monkey’
b. /jɛru/ → jɔ-d-u [jodu] ‘tortoise’
c. /malɔn/ → ma-d-on [madon]101 ‘that’s okay’

Here the alveolar consonants are liquids. But as was seen, there are liquids which are
replaced by the form /-pt-/ as well (see (239e and f)). Again the motivation to the

96 Here the speaker used [s] instead of [o].
97 In this example an extra syllable deletes. The expected form is [iptutun]. This is the only example where
the OPC violation does not result in deletion from the first consonant onward.
98 However, there are examples where alveolar consonants are replaced by [-pt-], such as /mate/ → [mahtɛ]
coconut bug’.
99 The form [madon] was also attested (see example (247c) below).
100 In Appendix 3, example (10), line C, there also exists the form [muptim] ‘brothers’.
101 The form [mahtɛn] was also attested (see example (246c)).
replacement triggered by the form /-d-/ instead of /-pt-/ seems not to be phonemic. There are also examples where two replacements take place within a word:

(248)  

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>/i-enarut/</td>
</tr>
<tr>
<td>1Abs-sister</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>/i-manɔ/</td>
</tr>
<tr>
<td>3Abs-brother</td>
<td></td>
</tr>
</tbody>
</table>

In this case, the first replacement is with /-pt-/, which replaces the consonant that follows the first syllabic nucleus of the base word; the second replacement is with the segment /-d-/ which replaces the alveolar sonorant that follows the second vowel of the base word. It is not clear when the form /-d-/ has a primary or a secondary role.

The data presented so far are mainly monomorphemic. But this ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (249) below (see Appendices 3 and 4).

(249)  

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>i-ɛnma-n</td>
</tr>
<tr>
<td>1Abs-path-Poss</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>k-ɔd-ɛmia-guruge-da</td>
</tr>
<tr>
<td>1Erg-Refl-hand-wash-Near</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>in-dekɛ-lu</td>
</tr>
<tr>
<td>1Erg-write-Rec</td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>wuruup-pe</td>
</tr>
<tr>
<td>bad-Adjr</td>
<td></td>
</tr>
</tbody>
</table>

It can be seen above that the ludlingant /-pt-/ occurs in polymorphemic words, as it does in monomorphemic ones, i.e., after the first syllabic nucleus of the base word. In this sense, a vocalic sequence can be read as one vocalic cluster, if the first vowel of this sequence is a prefix. If this first vowel is part of the stem, it is not considered a cluster together with the following vowel (see example (238) above). Similarly to the other ludlings, except for /pɔ-/, this ludlingant treats a prefix formed by two identical vowels as one whole, being added after the last vowel of the prefix:
(250) ugu-ptʃi-n-gōm  ugu-pt-ingōm  ‘our (incl.) leg’
12-Abs-leg-Poss-Pl

And like all of the ludlings, /-pt/- also occurs in sentences:

(251) ka-pt-a  in-wɔ-tke-lu  kɔ-pt-ɔŋŋe  tau-pt-a\(^\text{102}\)  bɔk
ma-LUD-caw.(sp.)  1Erg-kill-Iter-Rec  yes-LUD-terday  inga-LUD-tree  on
‘I repeatedly killed macaws yesterday in the inga tree’

Adv:Manner  V  Oblique: Source

Like the other ludlings, the general data show that this ludling occurs with all syllable
types:
(253) a.  V  a.ɛ  aptɛ  ‘a wasp’
b.  CV  ku.ɗen  kuhten  ‘cassava’
c.  VC  ik.pa  ipta  ‘mud’
d.  CVC  ku.ktu  kuptu  ‘night monkey’

There are homonyms in this Arara language game resulting from the addition of the
ludlingant /-pt/- and from the phonemic process the base words undergo.
(254) a.  /ɔnma/  →  ɔ-pt-a  [ɔpta]  ‘path’
b.  /ɔtpa/  →  ɔ-pt-a  [ɔpta]  ‘a fish’
(255) a.  /ikpa/  →  i-pt-a  [ipta]  ‘mud’
b.  /iba/  →  i-pt-a  [ipta]  ‘nothing’

4.2.12 Howler Monkey Talk

Howler monkeys are called /arun/ in Arara. The ludling for this species of monkeys is
labeled in Arara [arun lumbanbɔ] ‘to make the tongue of a howler monkey’. The
linguistic process the Arara people use to build the howler monkey’s ludling is
phonological, i.e., the placement of nasalization on the vowels of the base words:

\(^\text{102}\) The expected form is [taptupa] (see Appendix 3, example (352d)).
<table>
<thead>
<tr>
<th>Base Language</th>
<th>Ludling</th>
<th>English Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. nu</td>
<td>/nu, [nas]/</td>
<td>[nũ](^{103}) ‘abcess, tumor’</td>
</tr>
<tr>
<td>b. wɔt</td>
<td>/wɔt, [nas]/</td>
<td>[wɔt] ‘fish’</td>
</tr>
<tr>
<td>c. kɔk</td>
<td>/kɔk, [nas]/</td>
<td>[kɔk] ‘night’</td>
</tr>
<tr>
<td>d. aẽ</td>
<td>/aẽ, [nas]/</td>
<td>[ãẽ] ‘a wasp’</td>
</tr>
<tr>
<td>e. kuɗen</td>
<td>/kuɗen, [nas]/</td>
<td>[kuɗdẽn] ‘manioc flour’</td>
</tr>
<tr>
<td>f. ikpa</td>
<td>/ikpa, [nas]/</td>
<td>[ɪkpa] ‘mud’</td>
</tr>
<tr>
<td>g. kutkut</td>
<td>/kutkut, [nas]/</td>
<td>[kũtkũt] ‘night monkey’</td>
</tr>
<tr>
<td>h. abat</td>
<td>/abat, [nas]/</td>
<td>[ãbãt] ‘manioc bread’</td>
</tr>
<tr>
<td>i. eduet</td>
<td>/eduet, [nas]/</td>
<td>[ẽdũẽt] ‘hammock’</td>
</tr>
<tr>
<td>j. jõru</td>
<td>/jõru, [nas]/</td>
<td>[jõrũ] ‘tortoise’</td>
</tr>
<tr>
<td>k. ãpũ</td>
<td>/ãpũ, [nas]/</td>
<td>[ãpũ] ‘yam’</td>
</tr>
</tbody>
</table>

To my ear, the nasalization here is slightly weaker than the (allophonic) nasalization that occurs on a vowel after a nasal consonant and before silence (see Section 3.1.1).

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (257) below (see Appendices 3 and 4).

(257) a. i-ẽnma-n, [nas] [iẽnmã̃] ‘my path’
1Abs-path-Poss, LUD
b. k-ɔd-ẽmia-gurugue-da, [nas] [kõdẽmiãgurugœdã] ‘I am going to wash my own hand (near)’
1Erg-Refl-hand-wash-Near, LUD
c. in-deke-lu, [nas] [ĩndẽkẽlũ] ‘I wrote it’
1Erg-write-Rec, LUD
d. wuruup-pe, [nas] [wũrũpẽ] ‘it is bad’
big-Adjr, LUD

Besides occurring in polymorphemic words, like all of the ludlingants, this ludlingant occurs in sentences:

O                 V
(258) a. kãrã  ĩn-wõ-tkẽ-lũ
macaw.(sp.), LUD 1Erg-kill-Iter-Rec, LUD
Oblique
b. kõgõŋẽ  tãukãrã  bãk
yesterday, LUD inga.tree, LUD on, LUD
‘I repeatedly killed macaws yesterday in the inga tree’

\(^{103}\) CV content monosyllabic words in Arara are very rare. When they are spoken in isolation, a final glottal stop is added.
As can be seen above, the nasalization spreads across the whole utterance. Since this ludling spreads nasalization over a whole utterance, it occurs with all syllable types from the base language:

(260) a. V a.ê aê ‘a wasp’
    b. CV ku.ðen kûðên ‘cassava’
    c. VC ìk.pà ìkpà ‘mud’
    d. CVC kût.kût kûtût ‘night monkey’

4.2.13 Tortoise Talk

Tortoise are called [joru] in Arara. The ludling for this species of animals is labeled in Arara [joru lumbanbot] ‘to make the tongue of a tortoise’. There is no morphological process to form this ludling. Instead, there are two phonological processes used by the Arara people to build the tortoise’s ludling: murmuring the whole base word, plus lowering and/or fronting the first vowel, some vowels, or even all the vowels. In this case, the optimal vowel to be achieved in Arara is [æ], which is at the same time the most advanced and the lowest vowel. It is interesting to note that this vowel is not part of the Arara phonemic inventory. Here are some examples:

(261) a. nu → [næ] (murmured) ‘abcess, tumor’
    b. kôk → [kak] (murmured) ‘night’
    c. æ → [æe] (murmured) ‘a wasp’
    d. ikpa → [ikpæ] (murmured) ‘mud’
    e. abat → [æbæt] (murmured) ‘manioc bread’
    f. ku.ðen → [kæðen] (murmured) ‘cassava’
    g. kôk → [kækæ] (murmured) ‘my uncle’
    h. muni → [mæni] (murmured) ‘brother’
    i. kût.kût → [kækæt] (murmured) ‘night monkey’
    j. òlù → [òlele] (murmured) ‘sister’
    k. ëmuru → [emuru] (murmured) ‘his testicles’

This ludlingant, like the other ones, can occur within polymorphemic words, such as nouns, verbs, and adjectives, as can be seen in (262) below (see Appendices 3 and 4).
Besides occurring in polymorphemic words, like all of the ludlingants, this ludlingant occurs in sentences:

(263) a. kæræ in-wa-tkæ-le
    macaw.(sp.), LUD 1Erg-kill-Iter-Rec, LUD
    Oblique
    ‘I repeatedly killed macaws yesterday in the inga tree’

(264) tæpæræ tægæ w-æbe-le eduæ-n-dubæ-p (Mur)
    empty, LUD very, LUD 1Erg-arrive-Rec, LUD forest-Ela-Former-now, LUD
    ‘I arrived from the forest without any load’

As can be seen above, this ludlingant spreads across the whole utterance. Since this ludling spreads frontness and murmuring over a whole utterance, it occurs with all syllable types from the base language:

(265) a. V a æ ‘a wasp’
    b. CV ko ko køækæ ‘my uncle’
    c. VC ik pa ikpæ ‘mud’
    d. CVC kut kut kætkæt ‘night monkey’

4.3 **Summary of the Ludlings**

In the Arara ludling constructions surveyed above, the most frequently used strategy is to add prefixes to the base words, in a total of nine out of thirteen cases. Among the other four strategies, two involve the addition of an infix, one the addition of nasalization, and the last one the lowering and fronting of vowels, as well as murmuring. Below a
A summary of all the ludlings described above is presented, with /abat/ ‘manioc bread’ as the base word.

**abat**  
**manioc bread**

(266) a. [abaŋat] ‘capuchin monkey’
b. [idibat] ‘duski titi monkey’
c. [wibat] ‘large birds: chicken, muscovy duck, Brazilian merganser, guan, and curassow’
d. [pɔbat] ‘trumpeter and woodpecker’
e. [nubat] ‘coati’
f. [pibat] ‘agouti’
g. [tɔbat] ‘peccary and dog’
h. [eŋnabat] ‘small birds: macaw, parrot, orange-cheeked parrot, and parakeet’
i. [eŋnarabat] ‘toucan’
j. [unbat] ‘spider monkey’
k. [aptat] ‘squirrel monkey’
l. [әbәt] ‘howler monkey’
m. [әbәt] (murmured) ‘tortoise’

A summary of some of the phonological processes triggered by the addition of the ludlingants to the base language forms is also presented. Some of these processes include voice-voiceless contrast, neutralization of a voicing contrast, haplology, and quasi-absence of haplology.

<table>
<thead>
<tr>
<th>(267) Voice-Voiceless Contrast</th>
<th>Neutralization of Voicing Contrast</th>
<th>Haplology</th>
<th>Few Haplology</th>
</tr>
</thead>
<tbody>
<tr>
<td>idi- wi- po- nu- pi- to- eŋna- eŋnara-</td>
<td>un-</td>
<td>wi- po- nu- pi- to- eŋna- eŋnara-</td>
<td>idi- un-</td>
</tr>
</tbody>
</table>

Ludlingant prefixes ending in a vowel show contrast among voice and voiceless stops at the beginning of the following root. The ludlingant prefix ending in a nasal consonant (/un-/ neutralizes this contrast, as can be seen in the first two columns in the chart above. Ludlingants ending in a vowel, except /idi-/, trigger haplology. The ludlingant ending in a
nasal consonant (/un-/), with rare exceptions, does not feed haplology. The ludlingant /idi-/ does not trigger haplology like the other ludlingant prefixes ending in a vowel do. However, it has more examples triggering haplology than /un-/ does. To show this, it is placed between the column that causes haplology and the one which usually does not. The other ludlingants are not crucial for these phonological processes.
CHAPTER 5
CONCLUSION

In this thesis I have described thirteen different ludlings extant in the Arara language. As can be seen, they are used only by some elderly Arara people living in the village of Laranjal. And despite their large number, the ludlings fulfill a very restricted sociolinguistic purpose: speaking to pets.

All ludlingants seem to occur with different word classes of the Arara base language. There is even an example of \(-qV/-\) in an auxiliary word: *kogəlone nifəgah* ‘leave it for tomorrow’. In future research I intend to directly attempt to elicit ludlings in conjunction with functional parts of speech such as postpositions, interjections, etc.

Based on the descriptions presented in this thesis, the ludlingants can be grouped in six different ways:

<table>
<thead>
<tr>
<th>(V)CV-</th>
<th>un-</th>
<th>-qV-</th>
<th>-pt-</th>
<th>nasalization</th>
<th>fronting/murmuring</th>
</tr>
</thead>
</table>

The first form above includes all of the prefixes except /un-/: /idi-/; /wi-/; /pə-/; /nu-/; /pi-/; /tə-/; /eŋna-/, and /eŋnara-/. These eight prefixes are grouped together because they form a specific ludling class that shares a similar deletion process triggered on the stems of the base language. The addition of the other five types of ludlingants also triggers deletion and other phonological processes on the stems of the base language. Some of these processes include copying of vowels, nasalization, murmur, and lateralization of taps.
Sherzer (1982) claims that there are similarities and differences among the linguistic structures of play languages vs. ordinary languages. In Arara, these similarities include stress, syllable patterns, word order, ergativity, restrictions on consonant occurrence, etc. For the sake of illustration, the addition of the ludlingant /-pt-/ on monosyllabic words, such as /nu/, /wɔt/, and /kɔk/, would result in the unacceptable forms *nupt, *wɔpt, and *kɔptk, respectively. However, for these forms to accommodate the canonical Arara syllable pattern, the vowel from the syllable nucleus is copied directly after the ludlingant /-pt-/ resulting in /nuptu/, /wɔptɔt/, and /kɔptɔk/, respectively. Another example is the use of the allomorph buftingɔm ‘our (incl.) leg’ instead of the allomorph -pʃingɔm. Using the latter would result in a sequence of three consonants, *[nptʃ] and the consequently unacceptable form *unpʃingɔm, which violates Arara syllable structure. However, the use of the first allomorph produces the acceptable form [unbʃingɔm]. In addition to this, the ludling for capuchin monkeys has the same child speech substitution of a flap for a lateral, such as in /jɔru/ → [jɔlu] ‘tortoise’ (as stated above it was through this similarity that I came to know about these Arara ludlings).

Another important conclusion is that the Arara ludlings are different from the base language. For example, the alveolar stop of the ludlingant /-pt-/ used to address squirrel monkeys, does not undergo palatalization before the vowel /i/, as occurs in the base language. This can be illustrated with the base word /ibirinda/ ‘companion’, which after the addition of the ludlingant is realized as [iptinda], not *[iptʃinda]. Furthermore, in the normal Arara language there is no front low vowel [æ]. However, in the tortoise ludling this is the optimal vowel to be achieved.

Perhaps the Arara ludlings were developed in the early Arara culture because in their mythic past, animals played an important part, the capuchin monkey being the most
important. He did many things as the Arara mythic hero, including transforming the kapok tree branches into manioc and transforming a vine nodule into his younger brother. He and his younger brother are referred to as [pamdaŋmɔ], for which name I do not have a translation. I only know that the suffix [-ŋmɔ] marks the plural form. The agouti was the sister of the capuchin monkey; the tapir was his relative; the vulture was his friend.

In the mythic past, it was believed that the Arara people reproduced through eggs, like birds do. But Pamdaŋmɔ made them understand that there was another way. So it is not a surprise that the Arara people are extremely connected to their pets, even to the point of inventing a specialized way to address them.
APPENDICES
Appendix 1

Contrast Among Consonants

- \([p]\) and \([b]\):

(1) a. \([\text{upu}]\) ‘yam’
    b. \([\text{ubu}]\) ‘stone’

(2) a. \([\text{tapare}]\) ‘without load/baggage’
    b. \([\text{tabore}]\) ‘open arm/wing’

- \([p]\) and \([m]\):

(3) a. \([\text{orepi}]\) ‘bare-faced curassow’
    b. \([\text{orem}\text{̃i}]\) ‘a fish’

(4) a. \([\text{pobu}]\) ‘a palm tree’
    b. \([\text{mobu}]\) ‘mahogany, canoe’

- \([p]\) and \([w]\):

(5) a. \([\text{marapa}]\) ‘paddle’
    b. \([\text{karawa}]\) ‘manioc root’

(6) a. \([\text{pera}]\) ‘a wild fruit’
    b. \([\text{wer}\text{̃a}]\) ‘wild cat’

- \([b]\) and \([m]\):

(7) a. \([\text{ibit}]\) ‘her younger sister’
    b. \([\text{imit}]\) ‘its root’

(8) a. \([\text{ubu}]\) ‘stone’
    b. \([\text{imu}]\) ‘his/her father’

- \([b]\) and \([w]\):

(9) a. \([\text{ibet}]\) ‘his/her leg’
    b. \([\text{iwet}]\) ‘his/her excrement’

(10) a. \([\text{abelu}]\) ‘it dried’
    b. \([\text{ewelu}]\) ‘his/her necklace’
- [m] and [n]:

(11) a. [mok] ‘that one (animate)’
    b. [nak] ‘who?’

(12) a. [imun] ‘his son’
    b. [inun] ‘his/her kidney’

(13) a. [mumbɔ] ‘a wild fruit’
    b. [munbɔ] ‘rat, mouse’

(14) a. [eŋum] ‘wasp’
    b. [uŋən] ‘man’

- [m] and [ŋ]:

(15) a. [emu/uni027Eu] ‘his testicles’
    b. [eŋu/uni027Eu] ‘his/her eye’

(16) a. [inme] ‘s/he does not want/like it’
    b. [inŋe] ‘it is sour’

(17) a. [imu] ‘his/her father’
    b. [uŋu] ‘grub, larva’

- [m] and [w]:

(18) a. [mɔk] ‘that one (animate)’
    b. [wɔk] ‘a medicinal vine’

(19) a. [amu] ‘head louse’
    b. [awu] ‘blue-and-yellow macaw’

- [t] and [d]:

(20) a. [muta] ‘monkey’
    b. [muda] ‘wait!’

(21) a. [karatɔ] ‘gourd container’
    b. [arada] ‘bamboo’

- [t] and [tʃ]:

(22) a. [muta] ‘monkey’
    b. [mutʃan] ‘skin ulcer’

(23) a. [karatʃu] ‘spoon’
    b. [kajatu] ‘peach fronted parakeet’

- [t] and [ŋ]:

(24) a. [muta] ‘monkey’
    b. [muna] ‘over there (in that direction)’
(25)  a. [tuna]  ‘a proper name for a boy’
b. [nunə]  ‘moon’
(26)  a. [iput]  ‘his/her hair’
b. [ipun]  ‘his/her foot’

- [t] and [r]:
(27)  a. [kuto]  ‘a toad’
b. [urə]  ‘I’
(28)  a. [kutu]  ‘a proper name for a woman’
b. [juru]  ‘puddle’

- [t] and [l]:
(29)  a. [patut]  ‘porcupine, coendou’
b. [alut]  ‘core, the one from inside’
(30)  a. [taatat]  ‘flute (type of)’
b. [lagat]  ‘lizard’

- [d] and [n]:
(31)  a. [idun]  ‘his/her jealousy’
b. [inun]  ‘his/her liver’
(32)  a. [amdet]  ‘handle, strap’
b. [amnet]  ‘blood vessel, vein’

- [d] and [r]:
(33)  a. [adɔ]  ‘fish’
b. [arɔ]  ‘his, her lung’
(34)  a. [adutu]  ‘s/he tore it’
b. [arutu]  ‘s/he looked at it’

- [d] and [l]:
(35)  a. [adutu]  ‘a small wild fruit’
b. [alutu]  ‘core, the one from inside’
(36)  a. [warada]  ‘a honey’
b. [warala]  ‘a palm tree’

- [ʃ] and [j]:
(37)  a. [karatʃu]  ‘spoon’
b. [kururu]  ‘small gourd container’
(38)  a. [ʃaŋa]  ‘food cooked in palm leaves’
b. [jɔŋə]  ‘bee’
- [ʧ] and [r]:

(39) a. [muʧan]  ‘skin ulcer’
    b. [jurʧan]  ‘pepper’

(40) a. [karatʃu]  ‘spoon’
    b. [turu]  ‘a tree’

- [n] and [ŋ]:

(41) a. [manan]  ‘a herbaceous plant’
    b. [manŋan]  ‘a coconut bug’

(42) a. [ʧanɔ]  ‘a poison’
    b. [wɔŋɔ]  ‘game, meat’

(43) a. [anŋna]  ‘mortar’
    b. [onŋon]  ‘cacao’

- [ŋ] and [r]:

(44) a. [ponɔnt]  ‘a palm tree’
    b. [porʌt]  ‘catfish’

(45) a. [onɔnt]  ‘barbasco plant’
    b. [ɔɾɔt]  ‘wild cashew’

- [l] and [r]:

(46) a. [ilu]  ‘his/her tongue’
    b. [iru]  ‘his older brother’

(47) a. [walɔ]  ‘a hawk’
    b. [arɔ]  ‘lung’

- [k] and [ŋ]:

(48) a. [akulu]  ‘it darkened’
    b. [agulu]  ‘he ate it’

(49) a. [wakat]  ‘alligator, cayman’
    b. [waga]  ‘vulture’

- [ŋ] and [ŋ]:

(50) a. [εguru]  ‘its stain, spot’
    b. [εŋuru]  ‘his/her eye’

(51) a. [aŋon]  ‘graze it, clear it (field)!’
    b. [aŋon]  ‘fallen on the ground (fruit)’

- [ŋ] and [w]:

(52) a. [taŋi]  ‘cricket’
    b. [pawi]  ‘curassow’
(53)  a.  [eqũ]  ‘throat, cartilage from the curassow's throat to its anus’
    b.  [awũ]  ‘blue-and-yellow macaw’
Appendix 2

Contrast Among Vowels

- [i] and [e] (and [e])

(1) a. [kubi] ‘a fish’
    b. [kube] ‘arrow (type of)’

(2) a. [itkə] ‘lay down!’
    b. [etkə] ‘take it, catch it!’

(3) a. [erin] ‘an insect’
    b. [eren] ‘his/her liver’

(4) a. [ibit] ‘her younger sister’
    b. [ibet] ‘his/her leg’

- [i] and [u]

(5) a. [pawi] ‘curassow’
    b. [awu] ‘blue-and-yellow macaw’

(6) a. [ibit] ‘her younger sister’
    b. [ibut] ‘his wife’

(7) a. [niba] ‘let him/her take a bath’
    b. [nuba] ‘let him/her give him/her a bath’

(8) a. [iburur] ‘his arrow’
    b. [uburur] ‘my arrow’

- [u] and [o]

(9) a. [kutkut] ‘monkey’
    b. [kɔtkɔt] ‘bird’

(10) a. [ɔgum] ‘wasp’
    b. [ɔgɔm] ‘blind-snake’

(11) a. [kui] ‘a parakeet’
    b. [koi] ‘leaf that dogs eat to become brave’

(12) a. [tudɔ] ‘an awl’
    b. [tɔdɔ] ‘leporinus fish’
- [u] and [uu]

(13) a. [uwelu]  ‘my flashlight’
b. [uwelui]  ‘my necklace’

(14) a. [imu]  ‘its egg’
b. [imu]  ‘his/her father’

(15) a. [muaŋ]  ‘an insect’
b. [muaŋ]  ‘a fish’

- [a] and [e] (or [e])

(16) a. [kuba]  ‘an armadillo’
b. [kube]  ‘an arrow’

(17) a. [pawi]  ‘curassow’
b. [pewit]  ‘a hawk’

(18) a. [amuru]  ‘manioc beer’
b. [emuru]  ‘his testicles’

- [a] and [ɔ]

(19) a. [waga]  ‘vulture’
b. [wagɔ]  ‘a sloth’

(20) a. [purak]  ‘arrow (with four points)’
b. [purɔk]  ‘a parakeet’

(21) a. [tarik]  ‘big’
b. [tɔrik]  ‘several’
Appendix 3

Chart with Ludlings

In this appendix I present examples of ludling data in three large charts, with all ludlingants using the same base words or sentences, to show all ludlings present in the Arara language. I obtained these data through a broad phonetic transcription that I made in 2010 on location in Laranjal village (see Chapter one and Chapter two). I recorded the data from Tjimi Arara, a 73 year old male, after being authorized by him to do so. Since he does not know how to read or write, I read aloud an Informed Consent document to him. He agreed with the terms presented in the document and impressed his thumbprint on it. We had several meetings. In the process of eliciting these data, I told him a base word or a base sentence and asked him to say each ludling for that word or sentence. I repeated the base word or sentence each time he was going to say a ludling. So these big charts are formed from elicited data. Consequently, a few variations in the speaker’s pronunciation were attested in this material, such as for the word ‘tree’, which seems not to follow any pattern. I did not record these charts electronically, as I did for Appendix 4. For each base word or sentence in the charts, there is a gloss. In this appendix there is a table with isolated nominals, a table with isolated verbs, and a table with sentences.

Isolated Nominals

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(7) Gloss | armadillo | penis | head | a fruit |
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(8) Gloss | a beetle | uncles | an arrow | wood tick |
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(9) Gloss | her vagina | club | his wife | wasp |
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<td>ƙaŋmẹngeni</td>
<td>ƙamẹp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### (12) Gloss

<table>
<thead>
<tr>
<th>Base Word</th>
<th>Gloss</th>
<th>men</th>
<th>banana (type of)</th>
<th>banana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> Capuchin Monkey</td>
<td>ṭuun</td>
<td>ugongōm</td>
<td>taupa</td>
<td>womjum</td>
</tr>
<tr>
<td><strong>B</strong> Titi Monkey</td>
<td>idiuun</td>
<td>idigongōm</td>
<td>idiupa</td>
<td>idimium</td>
</tr>
<tr>
<td><strong>C</strong> Squirrel Monkey</td>
<td>uktun</td>
<td>uktēngom</td>
<td>tuptupa</td>
<td>wōptium</td>
</tr>
<tr>
<td><strong>D</strong> Curassow</td>
<td>wiuun</td>
<td>wigingom</td>
<td>wiuupa</td>
<td>wimium</td>
</tr>
<tr>
<td><strong>E</strong> Trumpeter</td>
<td>poun</td>
<td>pogōngom</td>
<td>pōupa</td>
<td>pōmium</td>
</tr>
<tr>
<td><strong>F</strong> Coati</td>
<td>nuun</td>
<td>negingom</td>
<td>nuupa</td>
<td>numium</td>
</tr>
<tr>
<td><strong>G</strong> Agouti</td>
<td>piun</td>
<td>pignēbe</td>
<td>piupa</td>
<td>pimium</td>
</tr>
<tr>
<td><strong>H</strong> Peccary, Dog</td>
<td>toun</td>
<td>tōngom</td>
<td>tōupa</td>
<td>tōmium</td>
</tr>
<tr>
<td><strong>I</strong> Macaw</td>
<td>eŋnaun</td>
<td>eŋnagōngom</td>
<td>eŋnaupa</td>
<td>eŋnamium</td>
</tr>
<tr>
<td><strong>J</strong> Toucan</td>
<td>eŋnaraun</td>
<td>eŋnaraagonom</td>
<td>eŋnaraupa</td>
<td>eŋnamarium</td>
</tr>
<tr>
<td><strong>K</strong> Spider Monkey</td>
<td>ununuun</td>
<td>ununqēnbē</td>
<td>unaupa</td>
<td>unium</td>
</tr>
<tr>
<td><strong>L</strong> Howler Monkey</td>
<td>ũūn</td>
<td>ũŋnēbē</td>
<td>ũāupā</td>
<td>wōmium</td>
</tr>
<tr>
<td><strong>M</strong> Tortoise</td>
<td>eun</td>
<td>uŋgōngom</td>
<td>tēepē</td>
<td>wōmjuim</td>
</tr>
</tbody>
</table>

### (13) Gloss

<table>
<thead>
<tr>
<th>Base Word</th>
<th>our (all) leg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> Capuchin Monkey</td>
<td>uquptēngom</td>
</tr>
<tr>
<td><strong>B</strong> Titi Monkey</td>
<td>idipēngom</td>
</tr>
<tr>
<td><strong>C</strong> Squirrel Monkey</td>
<td>uquptēngom</td>
</tr>
<tr>
<td><strong>D</strong> Curassow</td>
<td>wiqptēngom</td>
</tr>
<tr>
<td><strong>E</strong> Trumpeter</td>
<td>pōqptēngom</td>
</tr>
<tr>
<td><strong>F</strong> Coati</td>
<td>nupptēngom</td>
</tr>
<tr>
<td><strong>G</strong> Agouti</td>
<td>piqptēngom</td>
</tr>
<tr>
<td><strong>H</strong> Peccary, Dog</td>
<td>tōptēngom</td>
</tr>
<tr>
<td><strong>I</strong> Macaw</td>
<td>eŋapptēngom</td>
</tr>
<tr>
<td><strong>J</strong> Toucan</td>
<td>eŋnarapptēngom</td>
</tr>
<tr>
<td><strong>K</strong> Spider Monkey</td>
<td>unnutptēngom</td>
</tr>
<tr>
<td><strong>L</strong> Howler Monkey</td>
<td>ũquptptēngom</td>
</tr>
<tr>
<td><strong>M</strong> Tortoise</td>
<td>eŋuptptēngom</td>
</tr>
</tbody>
</table>

### Isolated Verbs and Adjectives

<table>
<thead>
<tr>
<th>Base Word</th>
<th>Gloss</th>
<th>slept</th>
<th>I’m going to sleep (near)</th>
<th>make her/him sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> Capuchin Monkey</td>
<td>tōwnungut</td>
<td>ūwunnguda</td>
<td>iuŋunŋuŋpēkō</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong> Titi Monkey</td>
<td>tōwnungugut</td>
<td>ūwunnguda</td>
<td>iuŋuŋuŋpēkō</td>
<td></td>
</tr>
<tr>
<td><strong>C</strong> Squirrel Monkey</td>
<td>tōptungut</td>
<td>ūptunguda</td>
<td>iuŋuŋuŋpēkō</td>
<td></td>
</tr>
<tr>
<td><strong>D</strong> Curassow</td>
<td>wiwungut</td>
<td>wiwunnguda</td>
<td>wiwunŋuŋpēkō</td>
<td></td>
</tr>
<tr>
<td><strong>E</strong> Trumpeter</td>
<td>pōwungut</td>
<td>pōwunnguda</td>
<td>pōwunŋuŋpēkō</td>
<td></td>
</tr>
<tr>
<td><strong>F</strong> Coati</td>
<td>piwungut</td>
<td>piwunnguda</td>
<td>piwunŋuŋpēkō</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Peccary, Dog</td>
<td>twungungut</td>
<td>twungunguda</td>
<td>twungungunepka</td>
</tr>
<tr>
<td>I</td>
<td>Macaw</td>
<td>enajawungut</td>
<td>enajawunguda</td>
<td>enajawungunepka</td>
</tr>
<tr>
<td>J</td>
<td>Toucan</td>
<td>enajarawungut</td>
<td>enajarawunguda</td>
<td>enajarawungunepka</td>
</tr>
<tr>
<td>K</td>
<td>Spider Monkey</td>
<td>ununungut</td>
<td>unununguda</td>
<td>unununepka</td>
</tr>
<tr>
<td>L</td>
<td>Howler Monkey</td>
<td>tswungut</td>
<td>tswungudã</td>
<td>tswungunepka</td>
</tr>
<tr>
<td>M</td>
<td>Tortoise</td>
<td>taeængæget</td>
<td>tæængægedææ</td>
<td>tæængænæepkaæ</td>
</tr>
</tbody>
</table>

(15) **Gloss**  
**Base Word**  
A | Capuchin Monkey | aqulu | uwuna | indekelu |
B | Titi Monkey | idigulu | idiwuna | idindekelu |
C | Squirrel Monkey | aptulu/aktulu | uptuna | iptelulu |
D | Curassow | wiqulu | wiwuna | windekelu |
E | Trumpeter | pɔqulu | pɔwuna | pondekelu |
F | Coati | nuqulu | nuwuna | nundekelu |
G | Agouti | pïgulu | piwuna | pindekelu |
H | Peccary, Dog | tɔgulu | twuuna | tɔndekeulu |
I | Macaw | eŋnaqulu | eŋnawuna | ẽndekełu |
J | Toucan | eŋnaragulu | eŋnarawuna | eŋnarandekelu |
K | Spider Monkey | ungulu | ʊnuwuna | undekelu |
L | Howler Monkey | ągulu | ʊwʊnã | ĩdekełu |
M | Tortoise | ægule | ʊwænæ | ĩdeækælæ |

(16) **Gloss**  
**Base Word**  
A | Capuchin Monkey | kɔdemiaqurugeda | kurẹp | wurupe |
B | Titi Monkey | kɔdemiaqurugeda | kurẹep | wurupege |
C | Squirrel Monkey | kɔptemiaqurugeda | kuptep | wuptupe |
D | Curassow | widemiaqurugeda | wîrep | wîrûpe |
E | Trumpeter | pɔdemiaqurugeda | pɔrep | pɔrûpe |
F | Coati | nuđemiaqurugeda | nurep | nûrûpe |
G | Agouti | pîdemiaqurugeda | pîrep | pîrûpe |
H | Peccary, Dog | tɔdemiaqurugeda | tɔrep | tɔrûpe |
I | Macaw | ẽnjademiaqurugeda | ẽnjarep | ẽnjarepe |
J | Toucan | ẽnjademiaqurugeda | ẽnjarep | ẽnjarepe |
K | Spider Monkey | undemiaqurugeda | unŋurep | unûrûpe |
L | Howler Monkey | kɔdeqmiã Awayrutegèda | kûrẹp | wûrtûpe |
M | Tortoise | kædemiaqurugedaæ | kurẹp | wæræpe |

102
Sentences

<table>
<thead>
<tr>
<th>(17)</th>
<th>Gloss</th>
<th>I came from the forest without any load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Sentence</td>
<td>tapore tagie webulu iduandubôrp</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Capuchin Monkey</td>
<td>taporege tagie webulu iduandubôrp</td>
</tr>
<tr>
<td>B</td>
<td>Titi Monkey</td>
<td>idipore tagie webulu ididuandubôrp</td>
</tr>
<tr>
<td>C</td>
<td>Squirrel Monkey</td>
<td>tapore tagie webulu iptuandubôrp</td>
</tr>
<tr>
<td>D</td>
<td>Curassow</td>
<td>wipore tagie webulu widuandubôrp</td>
</tr>
<tr>
<td>E</td>
<td>Trumpeter</td>
<td>pôpare tagie webulu poduandubôrp</td>
</tr>
<tr>
<td>F</td>
<td>Coati</td>
<td>nupore tagie webulu nuduandubôrp</td>
</tr>
<tr>
<td>G</td>
<td>Agouti</td>
<td>pipore tagie webulu piduandubôrp</td>
</tr>
<tr>
<td>H</td>
<td>Peccary, Dog</td>
<td>tapore tagie webulu tduandubôrp</td>
</tr>
<tr>
<td>I</td>
<td>Macaw</td>
<td>ẓnaptore tagie webulu ẓnadaundubôrp</td>
</tr>
<tr>
<td>J</td>
<td>Toucan</td>
<td>ẓnaraapore tagie webulu ẓnaraaduandubôrp</td>
</tr>
<tr>
<td>K</td>
<td>Spider Monkey</td>
<td>unbore tagie webulu unduandubôrp</td>
</tr>
<tr>
<td>L</td>
<td>Howler Monkey</td>
<td>tãpôrē tãgiē wēbūlū īduāndūḇōp</td>
</tr>
<tr>
<td>M</td>
<td>Tortoise</td>
<td>tēpērē tēgie wēbele eduandubôrp</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(18)</th>
<th>Gloss</th>
<th>my deceased father ate the tropical fruit (spp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Sentence</td>
<td>pitp jemilup papamgeni</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Capuchin Monkey</td>
<td>pitpōtjēmilup papagamgeni</td>
</tr>
<tr>
<td>B</td>
<td>Titi Monkey</td>
<td>iditōtjēmiliup idipamgeni</td>
</tr>
<tr>
<td>C</td>
<td>Squirrel Monkey</td>
<td>piptōtjēmilup papamgeni</td>
</tr>
<tr>
<td>D</td>
<td>Curassow</td>
<td>wipōtjēmiliup pipamgeni</td>
</tr>
<tr>
<td>E</td>
<td>Trumpeter</td>
<td>potōtjēmiliup pōpamgeni</td>
</tr>
<tr>
<td>F</td>
<td>Coati</td>
<td>nūtōtjēmiliup nūpamgeni</td>
</tr>
<tr>
<td>G</td>
<td>Agouti</td>
<td>pitōtjēmiliup pipamgeni</td>
</tr>
<tr>
<td>H</td>
<td>Peccary, Dog</td>
<td>tōtōtjēmiliup taramgeni</td>
</tr>
<tr>
<td>I</td>
<td>Macaw</td>
<td>ẓnjatōtjēmiliup ẓnnapamgeni</td>
</tr>
<tr>
<td>J</td>
<td>Toucan</td>
<td>ẓnjaraatōtjēmiliup ẓnjarapamgeni</td>
</tr>
<tr>
<td>K</td>
<td>Spider Monkey</td>
<td>unbitōtjēmiliup unbamgeni</td>
</tr>
<tr>
<td>L</td>
<td>Howler Monkey</td>
<td>pātōtjēmīlīup pāpāmgeni</td>
</tr>
<tr>
<td>M</td>
<td>Tortoise</td>
<td>pētātjēmīle pēpēmgeni</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(19)</th>
<th>Gloss</th>
<th>the tayra did not eat the tropical fruit (spp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Sentence</td>
<td>pitp jemibura gumuk wajugô</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Capuchin Monkey</td>
<td>pitpōtjēmibura gumuk wajugô</td>
</tr>
<tr>
<td>B</td>
<td>Titi Monkey</td>
<td>iditōtjēmibura gumuk idiwajugô</td>
</tr>
<tr>
<td>C</td>
<td>Squirrel Monkey</td>
<td>piptōtjēmibura gumuk waptuŋô</td>
</tr>
<tr>
<td>D</td>
<td>Curassow</td>
<td>wipōtjēmibura gumuk wipûŋô</td>
</tr>
<tr>
<td>E</td>
<td>Trumpeter</td>
<td>potōtjēmibura gumuk pójôŋô</td>
</tr>
<tr>
<td>F</td>
<td>Coati</td>
<td>nūtōtjēmibura gumuk nûjugô</td>
</tr>
<tr>
<td>G</td>
<td>Agouti</td>
<td>pitōtjēmibura gumuk piugô</td>
</tr>
<tr>
<td>H</td>
<td>Peccary, Dog</td>
<td>tōtōtjēmibura gumuk tōjugô</td>
</tr>
<tr>
<td>I</td>
<td>Macaw</td>
<td>ẓnjatōtjēmibura gumuk ẓnajugô</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
| J | Toucan | ᨀᨇᨃᨀᨊᨃᨃᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊ臬ᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊᨊ臬ᨊ臬ᨊ臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬臬влечен臬꼈臬 Petscience in the table below:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(20)</td>
<td>Gloss</td>
<td>I killed repeatedly macaws yesterday on the inga tree</td>
</tr>
<tr>
<td>Base Sentence</td>
<td>kara inwōtkelü koŋŋe tēukara bōk</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Capuchin Monkey</td>
<td>kalaga inwōtkelü koŋŋege tēukalaga bōk</td>
</tr>
<tr>
<td>B</td>
<td>Titi Monkey</td>
<td>idiara inwōtkelü idigonge idiukara bōk</td>
</tr>
<tr>
<td>C</td>
<td>Squirrel Monkey</td>
<td>kapta inwōtkelü kōptōne tautpa bōk</td>
</tr>
<tr>
<td>D</td>
<td>Curassow</td>
<td>wira inwōtkelü wigōne wīukara bōk</td>
</tr>
<tr>
<td>E</td>
<td>Trumpeter</td>
<td>poɾa inwōtkelü poŋ̕ōne pōukara bōk</td>
</tr>
<tr>
<td>F</td>
<td>Coati</td>
<td>nura inwōtkelü nutōne nūukara bōk</td>
</tr>
<tr>
<td>G</td>
<td>Agouti</td>
<td>pira inwōtkelü pigōne piukara bōk</td>
</tr>
<tr>
<td>H</td>
<td>Peccary, Dog</td>
<td>tōra inwōtkelü tōŋ̕ōne tōukara bōk</td>
</tr>
<tr>
<td>I</td>
<td>Macaw</td>
<td>ᨀᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇ.fromCharCode(166,130)</td>
</tr>
<tr>
<td>J</td>
<td>Toucan</td>
<td>ᨀᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇᨇفذتفس Tween in the table below:</td>
</tr>
<tr>
<td>K</td>
<td>Spider Monkey</td>
<td>ungara inwōtkelü ungōŋ̕ōne unaukara bōk</td>
</tr>
<tr>
<td>L</td>
<td>Howler Monkey</td>
<td>kārā inwōtkelü kōŋ̕ōŋ̕ē tāukārā bōk</td>
</tr>
<tr>
<td>M</td>
<td>Tortoise</td>
<td>kəræ inwatkele këgen̕e tēukəræ bēk</td>
</tr>
</tbody>
</table>
Appendix 4

Recording of Ludlings

In this appendix I present examples of ludling data in the context of larger syntactic units, including phrases, clauses, sentences, and discourse. I have transcribed (phonetically) these data based on recordings I made in 2010 on location in Laranjal village (see Introduction and Chapter one). The recordings were made using the program Audacity; the microphone used was a Galaxy Audio on an HDR2 (handheld digital recorder). The speaker is Tjimi Arara, a 73 year old male. I asked him to make up one story or conversation about each of the different ludlings. I suggested that he use the Arara base word /taupa/ ‘species of banana’ as a consistent topic for each one of these texts. Each ludling story in this appendix is separated into its own distinct table. Glosses of each individual morpheme appear right below the Arara forms (in the same cell), and a free translation is given in the column to the right. When I could not make out certain words that Tjimi said in the recordings, I use numbers in the free translation column to refer to the location in the Audacity file where that portion of speech occurs.

It is noteworthy that Tjimi is the only Arara speaker who still remembers all thirteen ludling forms. Furthermore, he appears to be the only speaker who can fluently put these words together into larger utterances of this type, i.e., conversations. However, it is very evident in these recordings that he frequently hesitates, as though he finds the task difficult. In addition, the ludling which he hesitates with the most is the squirrel monkey ludling (see the third section below “Squirrel monkeys ludling”). All other Arara
speakers familiar with this ludling consistently form it by infixing /-pt-/ after the first vowel. Nevertheless, while Tjimi uses /-pt-/ in most cases, such as in this appendix, he sometimes changes this empty morpheme to /-kt-/ or even /-tt-, as in Appendix 3.

Capuchin Monkey ludling: /-qV-/; /t/ > [l] (see Section 4.2.1)

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>(1)</td>
<td>taupa-ga  dəŋ</td>
<td>‘it is a banana’</td>
</tr>
<tr>
<td></td>
<td>banana-LUD  be</td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>təupə</td>
<td>‘banana’</td>
</tr>
<tr>
<td>(3)</td>
<td>taupa-ga</td>
<td>‘banana’</td>
</tr>
<tr>
<td></td>
<td>banana-LUD</td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td>tolek-kom-be-ge  tɔgίε rαγία ṭαγία ḏόδε: big-Pl-Adjr-LUD  very  Ideoph  Ideoph  Ideoph</td>
<td>‘they are very big, very big, very big’</td>
</tr>
<tr>
<td>(5)</td>
<td>i-enba-ga-n</td>
<td>‘it is my (soft) food’</td>
</tr>
<tr>
<td></td>
<td>1Abs-food-LUD-Poss</td>
<td></td>
</tr>
<tr>
<td>(6)</td>
<td>i-nba-n</td>
<td>‘it is your food’</td>
</tr>
<tr>
<td></td>
<td>2Abs-food-Poss</td>
<td></td>
</tr>
<tr>
<td>(7)</td>
<td>i-enba-ga-n</td>
<td>‘it is my food’</td>
</tr>
<tr>
<td></td>
<td>1Abs-food-LUD-Poss</td>
<td></td>
</tr>
<tr>
<td>(8)</td>
<td>ūhū, i-enba-n  bige (matu) Ideoph 1Abs-food-Poss few</td>
<td>‘yes, it is my little bit of food (matu: speech error?)’</td>
</tr>
<tr>
<td>(9)</td>
<td>(m)-enep-tɔmε-ge  mondo lon (2Erg)-bring-Fut-LUD there  Emph</td>
<td>‘you will bring it from there’</td>
</tr>
<tr>
<td>(10)</td>
<td>imbala-ga  ja Neg?-LUD Emph?</td>
<td>‘no (emphatic)’ (location in the file: 15)</td>
</tr>
<tr>
<td>(11)</td>
<td>ug-enba-ga-n-gom</td>
<td>‘it is our food’ (change in the order of the ludlingant)</td>
</tr>
<tr>
<td></td>
<td>12Abs-food-LUD-Poss-Pl  be</td>
<td></td>
</tr>
<tr>
<td>(12)</td>
<td>enŋa  (həhə) agreement (hesitation)</td>
<td>‘good idea!’</td>
</tr>
<tr>
<td>(13)</td>
<td>taupa-ga  tɔrik-kom-be-ge  tahie kumuk banana-LUD  big-Pl-Adjr-LUD  emph Rem.Imperf</td>
<td>‘the bananas were very big’ (fricativization of /g/: tahie)</td>
</tr>
<tr>
<td>(16)</td>
<td>man  m-an-enep…</td>
<td>‘look, you start bringing…’</td>
</tr>
<tr>
<td></td>
<td>attention 2Erg-Inc-bring</td>
<td></td>
</tr>
<tr>
<td>(17)</td>
<td>m-an-enep-tɔme  (ũh)  2Erg-Inc-bring-fut (hesitation)</td>
<td>‘you will start bringing them’</td>
</tr>
</tbody>
</table>
Titi monkeys ludling: /idi-/ (see Section 4.2.2)

| (18) | m-enep-tome-ge  
2Erg-bring-Fut-LUD | ‘you will bring them’ |
| (19) | kɔŋlone n-itʃ-a-gah  
tomorrow Abs-Aux-Perm-LUD | ‘leave it for tomorrow’ (extra /h/ in the ludlingant) |
| (20) | heŋa (hũ) agreement (hesitation) | ‘good idea!’ (extra /h/ in the word for agreement) |

| (21) | idi-upa  
LUD-banana | ‘banana’ |
| (22) | taupa | ‘banana’ |
| (23) | idi-upa (hũhũ)  
LUD-banana (hesitation) | ‘banana’ |
| (24) | idi-ɔmjum-ururu  
LUD-banana-field | ‘banana field’ |
| (25) | hɔhɔ ɔdo ɔmjum-ururu  
? ? banana-field | ‘banana field’ |
| (26) | malon-ne  
to-bin-de  
enough-only T-ripe-Nmlz | ‘(in the field there are) only ripened (yellow) ones’ |
| (27) | eʔʃid edare-ge-n  
? ? | ‘(location in the file: 49-50)’ |
| (28) | idi-rik-kom-be taqgie  
LUD-big-Pl-Adjr very | ‘they (bananas) are very big’ |
| (29) | ka-am-bura wuna dite...  
high-Loc-Neg ? ? | ‘they (the trees) are short, …’ |
| (30) | m-an-enep-tɔ(me)  
2Erg-Inc-bring-Fut | ‘you will start bringing (them)’ |
| (31) | m-an-enep-tɔme botkum  
2Erg-Inc-bring-Fut very | ‘you will start bringing (them, emphatic)’ |
| (32) | idi-nakta  
LUD-? | ‘(location in the file: 57)’ |
| (33) | idi-gəlæne n-itʃ-ʃ  
tetʃiŋ  
LUD-tomorrow 3-Aux-Perm ? | ‘leave it for tomorrow’ |
| (34) | malon  urɔ tekte  hũ  
enough I ? babbling | ‘(location in the file: 1:00-1:05)’ |
| (35) | n-eneb-a  
wu-stringuru...  
3Abs-bring-Perm 1Erg-say-Prog | ‘let him bring (them), I say’ |
| (36) | idi-ʃe-ta-nbom  
LUD-bring?-Dist-later | ‘you bring (them) later’ |
| (37) | idi-ʃe lan  
LUD-? Emph | ‘(location in the file: 1:06.0)’ |
(38) **idi-upa tɔrìk-kom-be tɔ(gie)**  
LUD-banana big-pl-Adjr very  
‘the bananas are very big’

Squirrel monkeys ludling: /-pt/- or /-kt/- (see Section 3.2.11)

<table>
<thead>
<tr>
<th>Line</th>
<th>Translation</th>
<th>Notes</th>
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</thead>
</table>
| (39) | ta-pt-ɔpa (hũũ)  
banana-LUD-banana (hesitation) | ‘banana’ |
| (40) | tɔmhep tɔ-biu-n-de a-womjum-urru  
? T-bridge-?-? 3Abs-banana-field | ‘? .... his banana field’ |
| (41) | ta-pt-ɔpa  
lan undik-kom-be tagalia  
banana-LUD-banana big-pl-Adjr very? | ‘the bananas themselves are very big’ |
| (42) | lili (w)adí(te)  
? how.is.it | ‘? .... oh boy! (lit.:how is it)? (location in the file: 1:20-1:25)’ |
| (43) | ẽ, womjum-urru-p tarik-kom  
Ideoph banana-field-Adjr big-pl | ‘yes, the banana field is big’ |
| (44) | womjum top tarik-kom-be kun-ɗa-dui-k, ehe  
banana ? big-pl-Adjr Rem-say-pl-? yes | ‘yes, they say that the bananas are big’ |
| (45) | tɔ-pt-ɔpa  
banana-LUD-banana  
tu-wɔ-pt-jum-urru-p  
1Abs-banana-LUD-banana-field-Adjr | ‘it is a banana, my banana field’ |
| (46) | ūũũ, malon kun-it-ta-g  
lan Ideoph enough Rem-Aux-always-? Emph | ‘yes, it is always good’ |
| (47) | tan’dakpomamiŋ tarik-kom matanaŋ gaje  
? big-pl ? ? | ‘(location in the file: 1:34.0-1:35.0)’ |
| (48) | i-ep-tome …  
1Erg-come-Fut | ‘I will come …’ |
| (49) | èhũũhũ i-enba-n  
Ideoph 1Abs-food-Poss | ‘yes, my food’ |
| (50) | i-enba-n m-an-enep-tome  
1Abs-food-Poss 2Erg-Inc-bring-Fut | ‘you will start bringing my food’ |
| (51) | i-enep-tome  
1Erg-bring-Fut | ‘I will bring (it)’ |

Curassows, chicken, hen, muscovy ducks, Brazilian merganser, guans ludling: /wi-/ (see Section 4.2.3)

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<tr>
<th>Line</th>
<th>Translation</th>
<th>Notes</th>
</tr>
</thead>
</table>
| (52) | (wi-u) wi-upa  
(LUD-banana…) LUD-banana | ‘(bana…), banana’ |
| (53) | taupa | ‘banana’ |
| (54) | wi-upa wi-rik-kom-be da(gie)  
LUD-banana LUD-big-pl-Adjr very | ‘the bananas are very big’ |
| (55) | we-regən | LUD-Ideoph | ‘they are standing up’ |
| (56) | eː kɔ-ɔm-bura gun-it-ta-k ? high-Loc-Neg Rem-Aux-always-? | ‘it (the tree) is always short’ |
| (57) | puɾ-sptadɔtʃuamo ? | ‘(location in the file: 1:52.0-1:53.0)’ |
| (58) | we-ri-kom-be LUD-big-Pl-Adjr | ‘they are big’ (/we-/ instead of /wi-/ ‘LUD’) |
| (59) | wi-mɔ... wi-m... LUD-bana LUD-bana | ‘bana(na), ba(nana)’ |
| (60) | wi-wɔmjuŋ-uɾtu LUD-banana-field | ‘the banana field’ |
| (61) | ùhû malon-ne Ideoph enough-only | ‘yes, that’s good’ |
| (62) | i-enba-n m-an-enep-ta-nbom 1Abs-food-Poss 2Erg-Inc-bring-Dist-later | ‘later you start bringing my food’ |
| (63) | i-enep-ta 1Erg-bring-Dist | ‘I am going to bring it (from there)’ |
| (64) | wi-nep-ta-nbom LUD-bring-Dist-later | ‘later I will bring it (from there)’ |
| (65) | wi-nereŋ LUD-Ideoph | ‘it (the stalk) is hanging down’ |
| (66) | wi-mom-dji bɔk LUD-head-Poss on | ‘(bring them) on your head’ |
| (67) | odu-ba- pan-ba .... what-doubt ? | ‘oh boy!’ |
| (68) | m-enep-ta-nbom botkun 2Erg-bring-Dist-later very | ‘later you will bring it (emphatically)’ |
| (69) | i-enep-ta | ‘I am going to bring it (from there)’ |
| (70) | wi-dɔ dud wi-it-tup LUD-go want LUD-Aux-if | ‘if you want to go’ |
| (71) | wi-kpu-a wi-bara kamuŋ ja LUD-good-Perm LUD-Neg Rem. Imperf Emph? | ‘let it get ripe; it was not ripe’ |
| (72) | n-akpu-a bohtkuŋ anumere pətpeŋin 3Abs-good-Perm Emph ? ? | ‘let it get ripe (emphatically)’ (extra h) |
Trumpeters and woodpeckers ludling: /pɔ-/ (see Section 4.2.4)

| (73)   | pɔ-upa LUD-banana | ‘banana’ |
| (74)   | taupa             | ‘banana’ |
| (75)   | pɔ-upa pɔ-rik-kom-be taqie LUD-banana LUD-big-Pl-Adjr very | ‘the bananas are very big’ |
| (76)   | pɔ-neren ̣ LUD-Ideoph | ‘it (the stalk) is hanging straight down’ |
| (77)   | hẽhẽ kɔ̣-m-mura tu-mɔ̣rɛn Ideoph high-Loc-Neg T-? | ‘they (the banana trees) are short’ ([muura] instead of [bura]) |
| (78)   | uŋ-enba-n ūhũ 12Abs-food-Poss Ideoph | ‘yes, it is our food’ |
| (79)   | pɔ-q-enba-n  qa-k … LUD-12?-food-Poss Q-3 | ‘is it our food …?’ |
| (80)   | pɔ-upa tarik-kom-be pɔ-rik-kom-be taqie LUD-banana big-Pl-Adjr LUD-big-Pl-Adjr very | ‘the bananas are big, very big’ |
| (81)   | pɔ-neren ̣ LUD-Ideoph | ‘it (the stalk) is hanging straight down’ |
| (82)   | (pɔ-) pɔ-m-bura taqihe LUD LUD-Neg very | ‘they (the banana trees) are very short (extra [h] in “taqie”’ |
| (83)   | ka-am-bura  gun-it-tɔ̣-k high-Loc-Neg Rem-Aux-always-? | ‘they are always short’ |
| (84)   | tɔ̣deŋbɔ aptandakpɔ̣-ŋmɔ̣ emi-am ?-Pl hand-Loc | ‘? … in the hand’ (location in the file: 2:42.0) |
| (85)   | pɔ-lɔnɔ pɔ-tɔ̣ŋ LUD-? LUD-? | ‘?’ (location in the file: 2:45.0-2:46.0) |
| (86)   | m-on-ip-tome 2Erg-Inc-come?-Fut | ‘you will start coming’ |
| (87)   | wini ni-piqaqun-de-Nmlz-naŋurru  3Abs-ripe-Verb-Caus-Prog | ‘it (something) is causing it to become ripe (yellow)’ |
| (88)   | i-nba-(n)  lɔn 2Abs-food-Poss Emph | ‘it is your own food’ |
| (89)   | hũ pɔ-nba-(n)  lɔn dɛŋ-gu Ideoph LUD-food-Poss Emph be-Imperf | ‘yes, it was my food, later’ |
| (90)   | pɔ-da-nbom LUD-?-later | ‘later … (hesitation?)’ (location in the file: 2:50) |
| (91)   | pɔ-qɔlɔne n-itʃ-ɔ LUD-tomorrow 3Abs-Aux-Perm | ‘leave it for tomorrow’ |
| (92)   | enŋe agreement | ‘good idea’ |
Coati ludling: /nu/- or /ne-/ (see Section 4.2.5)

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<tr>
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<th>Translation</th>
<th>Segment</th>
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<tbody>
<tr>
<td>(93)</td>
<td>idɔ tɔt  itkəβə ü ü  ü  go  want ?  hesitation</td>
<td>‘? if (you) want to go …’ (location in the file: 2:55)</td>
</tr>
<tr>
<td>(94)</td>
<td>nɔ-упa  hɔ  LUD-banana  hesitation</td>
<td>‘banana’</td>
</tr>
<tr>
<td>(95)</td>
<td>ne-wɔmjum-uh  ələnənəmu  LUD-banana-?  ?</td>
<td>‘banana’</td>
</tr>
<tr>
<td>(96)</td>
<td>tərik-kom-be  ga-k  big-Pl-Adjr  Q-3</td>
<td>‘are they big?’</td>
</tr>
<tr>
<td>(97)</td>
<td>ni-rək-kəm-be  ḡaŋ  LUD-big-Pl-Adjr  be?</td>
<td>‘they are big (location in the file: 3:05)’</td>
</tr>
<tr>
<td>(98)</td>
<td>enen-da  see-Dist</td>
<td>‘go there to see (them)’</td>
</tr>
<tr>
<td>(99)</td>
<td>nɛrɛŋ  ü  Ideoph  hesitation</td>
<td>‘it (the stalk) is hanging straight down’</td>
</tr>
<tr>
<td>(100)</td>
<td>(i)-mara-ŋəma  ḡagana  tərik-kom-be  te  3-small-Pl  ?  big-Pl-adjr  ?</td>
<td>‘are they small, or big …?’ (location in the file: 3:10)</td>
</tr>
<tr>
<td>(101)</td>
<td>nɔ-rək-kom-be  LUD-big-Pl-Adjr</td>
<td>‘they are big’</td>
</tr>
<tr>
<td>(102)</td>
<td>nɔ-upa  ne-mi-am  LUD-banana  LUD-hand-Loc  nɔ-rək-kom-be  tah  LUD-big-Pl-Adjr  very?</td>
<td>‘the bananas in his/her hand are very big’</td>
</tr>
<tr>
<td>(103)</td>
<td>nɔnɔnɔɾsh  te  ?</td>
<td>‘?’ (location in the file: 3:15)</td>
</tr>
<tr>
<td>(104)</td>
<td>i-enba-n  m-enep-ta  m-enep-ta-nbom  1Abs-food-Poss  2Erg-bring-Dist  2Erg-bring-Dist-later</td>
<td>‘later you will bring my food’</td>
</tr>
<tr>
<td>(105)</td>
<td>idɔ  te  it-tu(p)  go  want  Aux-if</td>
<td>‘if s/he wants to go’ (missing /t/ in [te])</td>
</tr>
<tr>
<td>(106)</td>
<td>idɔ  te(t)  m-it-tup  wəŋpə hɔ  go  want  2Erg-Aux-if  ?  hesitation</td>
<td>‘if you want to go …’</td>
</tr>
<tr>
<td>(107)</td>
<td>ug-eremak-tadam-ane-ba  2Erg.1Abs-hurry-Iter-Admon-Aff</td>
<td>‘do not hurry me!’</td>
</tr>
<tr>
<td>(108)</td>
<td>n-ɲəb-a  3Abs-eat-Perm</td>
<td>‘let her/him eat it’ (different word for ‘eat’)</td>
</tr>
<tr>
<td>(109)</td>
<td>nə-gələn  n-itʃə-a  LUD-tomorrow  3-Aux-Perm</td>
<td>‘leave it for tomorrow’</td>
</tr>
<tr>
<td>(110)</td>
<td>enə  kəɡələn  agreement tomorrow</td>
<td>‘good idea, tomorrow!’</td>
</tr>
</tbody>
</table>
(111) kṣ₃l₃n-ne (n)-i-gune-luᵢ moṇ tomorrow-only by-3Abs-sweat-Rec Aux ‘only tomorrow it will have gotten hot’

(112) udu i-pᵢ …pᵢ tɨᵢjᵢ be.careful 3-Adjr ? sun ‘be careful; it is sunny’ (if you carry bananas on it) (location in the file: 3:30)

(113) o-mum-dʒi-kpₐ-taŋ 2Abs-head-Poss-sore-Fut ‘your head will be sore’ (location in the file: 3:35)

(114) iu-məm-dʒi ?-head-Poss ‘my head’

(115) ñ₄-mum-dʒi muren mum-dʒi-kpₐ-tane LUD-head-Poss small head-Poss-sore-Admon ‘my little head can get sore!’

(116) ehe ëtu Ideoph be.careful ‘hey, be careful’

(117) abudu-p ꜱum₁-kpₐ mum-/uni02A4i-kp/uni0254-nb/uni0254 sore-Adjr Rem-Aff head-Poss-sore-Nmlz.Past? ‘usually our head gets sore (if we carry something on it)’

Agoutis ludling: rodents: /pi-/ (see Section 4.2.6)

| (118) | pi-upa  |
|       | LUD-banana |
|       | ‘banana’ |

| (119) | taupa |
|       | ‘banana’ |

| (120) | pi-upa ŋh₃ |
|       | LUD-banana babbling |
|       | ‘banana’ |

| (121) | pi-wɔ̄mjum-ur₃u |
|       | LUD-banana-field |
|       | ‘banana field’ |

| (122) | pi-nɔraŋ |
|       | LUD-ideoph |
|       | ‘it (the stalk) is hanging straight down’ |

| (123) | tɔ̄:rik-kom-be ꜱun-it-ta-k-p(a) erɔ h₃ big-Pl-Adjr Rem-Aux-always-Aff this babbling |
|       | ‘they are always big’ |

| (124) | pe-rik-k₃m-βᵢ |
|       | LUD-big-Pl-Adjr |
|       | ‘they are big’ |

| (125) | (pi-5) pi-5mjum-ur₃u |
|       | (LUD-) LUD-banana-field |
|       | ‘banana field’ |

| (126) | pi-tanbₐ |
|       | LUD-? |
|       | ‘?’ (location in the file: 40:0) |

| (127) | m-enep-tₐme botkₐun 2Erg-bring-Fut very |
|       | ‘you will bring them (emphatically)’ |

| (128) | n-ipigagun-de-Nmlz-taŋduβtudₐ 3Abs-ripen-Verb-Caus-? |
|       | ‘let it get ripe (yellow)’ |

| (129) | pi-pigₐ 3n-ne LUD-? even-only |
|       | ‘?’ (location in the file: 4:0-4:05) |
| (130) | pi-nba-(n) lən dŋ-gu LUD-food-(Gen) even be-Imperf | ‘it was my food’ |
| (131) | ne-kuba-p kumuk-pa LUD-beer-Purp Rem-Aff | ‘it (the banana) is good for making beer’ (different LUD) |
| (132) | pi-kuba dŋ-gu LUD-beer be-Imper | ‘it was beer’ |
| (133) | pi-nba-n LUD-food-Poss | ‘it was my food’ |
| (134) | ēnɛ agreement | ‘yes, that’s right’ |
| (135) | m-etamu hū kəŋũ 2Erg-? ? ? | ‘?you …’ (location in the file: 4:10) |
| (136) | lalale mapilɔ ? ? | ‘?’ (location in the file: 4:10-4:15) |
| (137) | pi-ra lən bep-tome LUD-? even ?-Fut | ‘?’ (location in the file: 4:15) |
| (138) | pi-tʃiŋ LUD-? | ‘?’ (location in the file: 4:15-4:20) |

### Peccary and Dog ludling: /tɔ-/ (see Section 4.2.7)

| (139) | tɔ-upa LUD-banana | ‘banana’ |
| (140) | taupa | ‘banana’ |
| (141) | tɔ-upa dŋ LUD-banana | ‘it is a banana’ |
| (142) | tɔ-mjum-urũ-p tɔ-rik-kom-be ta(qie) LUD-banana-field-Purp LUD-big-Pl-Adjr very | ‘the banana field is very big’ |
| (143) | dɔ-nereŋ LUD-Ideoph | ‘it (the stalk) is hanging down’ |
| (144) | tarik-kom-be gun-it-ta-k-pa erɔ big-Pl-Adjr Rem-Aux-always-?-Aff this | ‘these (bananas) are always very big’ |
| (145) | tɔ-rik-kom-be (tɔ-ɔ) tɔ-upɔ LUD-big-Pl-Adjr (LUD-LUD) LUD-banana | ‘the bananas are big’ |
| (146) | taupa endɔ-duu(duu)-k-pa-nba edet banana here-PL(Pl)-?-Aff also name | ‘what else? banana is its name’ |
| (147) | tɔ-upa lən LUD-banana even | ‘banana itself (is its name)’ |
| (148) | ūt malən botkum Ideoph enough very | ‘? yes, that’s it (emphatic)’ |
| (149) | lənba oŋgaraumɔ wɔ taupa hũ also Arara? for banana even | ‘also for the Arara (its name) is banana’ |
(150) ü malan
Ideoph enough

‘yes, that’s it’

(151) nu-menara kure-p ku(mu)k-p(a) uade-kọba-p
? -drink? good-Adjr Rem-Aff ?-beer-Purp

‘it has been good …’ (location in the file: 4:45)

(152) terek tôn tə-wəɬə-rəu gede-h kəbəgan
many be? self-drink-Poss 3? ? ?

‘there is a lot to be drunk …’ (location in the file: 4:45)

(153) kọba: eŋ m-enep-təme botkum
? ? 2Erg-bring-Fut very

‘… you will bring it (emphatic) (location in the file: 4:50)’

(154) inəmne nui-dəme ihihì
? ?-Fut hesitation

‘? … (location in the file: 4:50-4:55)’

(155) uktəmenin:abulu tətənbo
? ?

‘? …’ (location in the file: 4:55)

(156) tə-galen-ne tə-tʃiŋ
LUD-tomorrow-only LUD-?

‘only tomorrow …’ (location in the file: 4:55-5:00)

### Macaws ludling: /eŋna-/ (see Section 4.2.8)

<table>
<thead>
<tr>
<th>(157)</th>
<th>en-spâ hə̃ LUD-banana</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘banana’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(158)</th>
<th>taupa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘banana’</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>(159)</th>
<th>en-spâ LUD-banana</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘banana’</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>(160)</th>
<th>(eŋ)nara-umjum LUD-banana</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘banana’ (different ludlingant)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(161)</th>
<th>unama-umjum-uru-p LUD?-banana-field-Adjr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘it is a banana field’</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>(162)</th>
<th>malan dəŋ omjum-uru-p ọn-nū̀ enough be banana-field-Adjr even-?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘that’s right, it is a banana field (emphatically)’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(163)</th>
<th>nep eŋnara-tə wadite ? LUD-? how.is.it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘? …., how could it be? (location in the file: 5:10)’ (different ludling)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(164)</th>
<th>(iŋ)na-ta-nba LUD?-fetch-also</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘you will fetch it’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(165)</th>
<th>hiŋna-ta-n(ba) LUD?-fetch-also</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘you will fetch it’ (extra [h] in the ludlingant)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(166)</th>
<th>m-et-ta … wu-gi-əŋ 2Erg-fetch-Dist 1Erg-say-Uni</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘I said, “you will fetch it there”’ (incomplete sentence)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(167)</th>
<th>nekup neŋnara-kuβa-dandìəŋ ? ?-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘? … (location in the file: 5:20)’</td>
</tr>
<tr>
<td>(168)</td>
<td>enŋa agreement</td>
</tr>
<tr>
<td>(169)</td>
<td>m-et-ta mūtkūn 2Erg-fetch-Dist very?</td>
</tr>
<tr>
<td>(170)</td>
<td>tɔ-nielumepтан-de bɔra T-?-Nmlz Neg</td>
</tr>
<tr>
<td>(171)</td>
<td>inarag nɔŋkɔmiɲe ? ?</td>
</tr>
<tr>
<td>(172)</td>
<td>eŋna-kuβa dəŋ-ɡu-nbɔ LUD-beer be-Imperf-also</td>
</tr>
<tr>
<td>(173)</td>
<td>enŋa agreement</td>
</tr>
<tr>
<td>(174)</td>
<td>unba lɔn u-wɔŋu-ru lɔn also even 1Abs-drink-Poss even</td>
</tr>
<tr>
<td>(175)</td>
<td>wadite-βa-nbɔ hɔ how.is.it-uncertain-also</td>
</tr>
</tbody>
</table>

Toucans ludling: /eŋnara-/ (see Section 4.2.9)

| (176) | (eŋ)nara-upa hĩ LUD-banana hesitation | ‘banana’ |
| (177) | taupa | ‘banana’ |
| (178) | (eŋ)nara-upa LUD-banana | ‘banana’ |
| (179) | eŋnara-de hũu LUD-? hesitation | ‘? … (location in the file: 5:40)’ |
| (180) | (eŋ)na-rek-kom-be tahie unara-upɔ ũhũ LUD-big-Pl-Adjr very LUD-banana Ideoph | ‘yes, the bananas are very big’ (/unara/ - different ludlingant) |
| (181) | i-mara-ŋma iedadut kɔɓɔn选ɔk 3Abs-small-Pl ? ? | ‘they are small … (location in the file: 5:45)’ |
| (182) | (eŋ)na(ŋa)-lik-kɔm-bɔ LUD-big-Pl-Adjr | ‘they are big’ |
| (183) | (eŋ)nara-wɔmjum-турu hũu LUD-banana-field hesitation | ‘it is a banana field’ |
| (184) | ɔmjum-турu lɔn mɔŋɔ wanæ-p-pa banana-field even it what.for-Adjr-uncertain | ‘oh boy, it (itself) is a banana field’ |
| (185) | m-enep-tɔ ndarata-nbɔ 2Erg-bring-Dist ?-also | ‘you will also bring …’ (location in the file: 5:50-5:55) |
| (186) | (eŋ)nara-ʧiŋ LUD-? | ‘?’ (location in the file: 5:55) |
| (187) | ēhē jumpak Ideoph ? | ‘yes, … (location in the file: 5:55)’ |
| (188) | n-ep-tomẽ botkun hũ 3-come-Fut very hesitation | ‘let him come back’ |
| (189) | (en)nara-tsm (en)nara-upa LUD-? LUD-banana | ‘… the banana (location in the file: 6:00)’ |
| (190) | ūhũ Ideoph | ‘yes, that’s okay (hesitation for: [enŋa])’ |
| (191) | n-akp-t (en)nara-kpu-t potkun 3Abs-ri(pe)-Nmlz LUD-ripe-Nmlz very | ‘let it get ripe, very ripe (yellow)’ |
| (192) | ha akp-lu wadite-β hũ hesitation ripe-Rec how.is.ti-uncertain ? | ‘it got ripe; how could that be?’ |
| (193) | m-et-tome botkun (en)nara-tsmẽ 2Erg-fetch-Fut very LUD-? | ‘you will fetch it (emphatically) … (location in the file: 6:05)’ |

Spider monkeys ludling: /un-/ (see Section 4.2.10)

| (194) | un-aupa LUD-banana | ‘banana’ |
| (195) | taupa | ‘banana’ |
| (196) | un-aupũ LUD-banana | ‘banana’ |
| (197) | kɔmben nunderɛ ? ? | ‘?’ (location in the file: 6:15-6:20) |
| (198) | kɔmbɛn itakpuuɛrũ ú ? ? hesitation | ‘?’ (location in the file: 6:20) |
| (199) | uddu un-ɔpa e-uman wɔmjum-urũ be.careful LUD-banana ?-? banana-field | ‘be careful, the banana, … it is a banana field’ (location in the file: 6:20-6:25) |
| (200) | malon enough | ‘that’s okay’ |
| (201) | m-enep-ta-n(bom) 2Erg-bring-Dist-later | ‘later you will bring it (from there)’ |
| (202) | num-et-ta-nboh LUD?-Fecth-Dist-later | ‘later I will bring it’ (different ludlingant; /h/ instead of /m/) |
| (203) | un-utŋi LUD-? | ‘?’ (location in the file: 6:25-6:30) |
| (204) | ehē-(e)ŋɔ Ideoph-agreement | ‘yes, that’s right’ |
| (205) | idɔ tet it-tu(p) eliõ… go want Aux-if? ? | ‘if s/he wants to go …’ |
| (206)   | (u)t3 tet it-tuh go want Aux-if | ‘if s/he wants to go’ (/h/ instead /p/) |
| (207)   | u|dɔ go | ‘go!’ |
| (208)   | (w)-|udɔ-nɔŋ-gɔ kɔkɔ 1Erg-go-Prog ? | ‘I am going …. (location in the file: 6:30-6:35)’ |
| (209)   | un-t3 lɔn-ne u|dɔ LUD-go even-only go | ‘then go, go!’ |
| (210)   | nehe: Ideoph | ‘yes’ |
| (211)   | m-et-tome 2Erg-fetch-Fut | ‘you will fetch it’ |
| (212)   | ɔ-(w)ɔqu-ru lɔn 2Abs-drink-Poss even | ‘it (itself) is your drink’ |
| (213)   | omɔrɔ e-wɛʃi-(p) moŋ-ne un-ɔŋ-gɔ βɔk you 3-addict-Adjr Aux-Rem LUD-beer on | ‘you usually are addicted to beer’ |
| (214)   | nɔ-muru waditi tɔk LUD-beer how ? | ‘the other kind of beer, how could that be?’ |
| (215)   | ne-wɔŋɔ-rɔ LUD?-drink-Poss | ‘your drink’ |
| (216)   | un-wɔŋɔ-ru dehɛ LUD-drink-Poss be-Imperf | ‘it was my drink’ |
| (217)   | ɔ-wɔŋu-ru lɔn wanɔ-p-pa 2Abs-drink-Poss even what.for-Adjr-uncertain | ‘your drink (itself), oh boy’ |
| (218)   | m-enep-ta-nbom botkun 2Erg-bring-Dist-later very | ‘later you will bring it (from there)’ (emphatically) |
| (219)   | n-anane tegere hũ LUD-one? very? hesitation | ‘only a bit’ |

Howler monkeys ludling: nasalization of vowels (see Section 4.2.12)

| (220)   | taupɔ | ‘banana’ |
| (221)   | taupa | ‘banana’ |
| (222)   | tɔuŋɔ … | ‘banana...’ |
| (223)   | wɔmŋjum na: lɔn hũ banana ? even hesitation | ‘it is a/the banana (itself)’ |
| (224)   | ne-kom-be an te-k pene big?-Pl-Adjr Rhet be-3 also | ‘isn’t it also big? (rhetorical question)’ (variation of pronunciation) |
| (225)   | ne-kɔm-b(e) uː̀ː hũ hɔtɔŋpɔ big?-Pl?-Adjr Rhet? ? banana | ‘isn’t the banana big?’ (variation of pronunciation) |
| (226)   | m-et-tsmu 2Erg-fetch-Fut | ‘you will fetch it’ |
| (227) | ē: i-et-tā-nbōm Ideoph 1Erg-fetch-Dist-later | ‘yes, later I will fetch it’ (variation of pronunciation) |
| (228) | ə-wəgəu-ruu lān paru weṭji-(p) 2Abs-drink-Poss even water addict-Adjr mon-ŋ-ne Aux-Rem | ‘it is your drink (itself); you usually are addicted to water’ |
| (229) | tū-wəgəu-ruu lān hū 1Abs-drink-Poss even babbling | ‘it (itself) is my drink’ |
| (230) | i-et-tā-mbām bə 1Erg-fetch-Dist-later ? | ‘later I will fetch it’ (/mb/ instead /nb/) |
| (231) | jēmē n-ŋnəŋtū-liū mom by-prepare-Rec | ‘it is to be prepared by mom’ |
| (232) | hēmə n-ŋnəŋp-tə-A-A-a agreement 3Abs-prepare-Perm-Imp-Perm | ‘that’s right, let her prepare it’ (new structure: [-ta-g-a]) |
| (233) | wə-n-p-pa hū what.for-Adjr-uncertain hesitation | ‘oh boy’ |
| (234) | m-enep-tome-wə 2Erg-bring-Fut-then | ‘then you will bring it’ |
| (235) | ŋ i-et-tnbom Ideoph 1Erg-fetch-Dist-later | ‘yes, later I will fetch it’ |
| (236) | təpə pɨŋə tŋŋə small? Ideoph? | ‘... small …’ (location in the file: 7:25) |
| (237) | hē hə mālən hū Ideoph enough hesitation | ‘yes, that’s okay’ |

Land tutles ludling: towards [æ] (see Section 4.2.13)

| (238) | tēpæ | ‘banana’ |
| (239) | daupa | ‘banana’ (voicing process) |
| (240) | tēpə dəŋ banana be | ‘it a is banana’ |
| (241) | wamjum | ‘banana’ |
| (242) | tēŋ ga dək have Q be | ‘is there any?’ (Portuguese word: tem ‘have’) |
| (243) | təme darik-kəm-be una tahik ga dək itərə ? big-Pl-Adjr ? Q be ? | ‘... big (location in the file: 7:40)’ |
| (244) | keh tēpə hesitation banana | ‘it is a banana’ |
| (245) | malon | ‘that’s okay’ |
| (246) | m-enep-tome u-wəgəu-ruu bu ra 2Erg-bring-Fut 1Abs-drink-Poss Neg | ‘you will bring it; there is nothing for me to drink’ |
| (247) | e-waŋə re tē fədəf padua 1Abs-drink-Poss ? ? banana | ‘it is my drink ... banana’ |
| (248)  | jækoβa beer | ‘it is beer’ |
| (249)  | enŋa agreement | ‘that’s right’ |
| (250)  | jakuba-p ku(mu)k … kure-p kumuk-p(3) beer-Purp Rem good-Adjr Rem-Aff | ‘usually, it is good for making beer’ |
| (251)  | i-et-tæ-nbɔm jemæ n-enŋæbu-lu iErg-fetch-Dist-later mom by-make-Rec | ‘later I will fetch it for mom to make some’ |
Appendix 5:

Flora and Fauna Identification

In this appendix I present the flora and fauna mentioned in this thesis in alphabetical order by the Arara term. The second column gives an English gloss, the third column a probable (but not certain) scientific identification, and the fourth column the local Portuguese terms. The scientific names are not the result of scientific studies nor were they provided by an expert, but rather based on my personal research using the internet, comparing photographs and descriptions there with my personal experience in the Arara area. They should not be taken as certain identifications but simply as aids for future researchers.

<table>
<thead>
<tr>
<th>Arara</th>
<th>English Gloss</th>
<th>Scientific names</th>
<th>Portuguese</th>
</tr>
</thead>
<tbody>
<tr>
<td>[abianã]</td>
<td>a peccary</td>
<td><em>Tayassu albirostris</em></td>
<td>queixada, porco do mato</td>
</tr>
<tr>
<td>[adɔ]</td>
<td>a fish</td>
<td><em>Pimelodus</em> sp.</td>
<td>mandi</td>
</tr>
<tr>
<td>[amu]</td>
<td>head louse</td>
<td><em>Pediculus humanus</em></td>
<td>piolho</td>
</tr>
<tr>
<td>[arun]</td>
<td>a howler monkey</td>
<td><em>Alouatta</em> sp.</td>
<td>macaco guariba</td>
</tr>
<tr>
<td>[awuĩ]</td>
<td>blue-and-yellow macaw</td>
<td><em>Ara avara</em></td>
<td>arara canindé</td>
</tr>
<tr>
<td>[erĩ]</td>
<td>a small cicada</td>
<td>Cicadidae</td>
<td>cigarra pequena</td>
</tr>
<tr>
<td>[jarambi]</td>
<td>Brazilian merganser</td>
<td><em>Mergus octosetaceus</em></td>
<td>carará, mergulhão</td>
</tr>
<tr>
<td>[iebereburu]</td>
<td>woodpeckers</td>
<td>Picidae</td>
<td>pica-pau</td>
</tr>
<tr>
<td>[jaguri]</td>
<td>an agouti</td>
<td><em>Dasyprocta</em> sp.</td>
<td>cutia</td>
</tr>
<tr>
<td>[jɔŋɔ]</td>
<td>honey, honey bee</td>
<td><em>Apis</em> sp.</td>
<td>mel, abelha</td>
</tr>
<tr>
<td>[jɔɾu]</td>
<td>turtoises</td>
<td><em>Geochelone</em> sp.</td>
<td>jabuti</td>
</tr>
<tr>
<td>[kaqak]</td>
<td>a toucan</td>
<td><em>Ramphastos</em> sp.</td>
<td>tucano</td>
</tr>
<tr>
<td>[kajatu]</td>
<td>peach-fronted parakeet</td>
<td><em>Aratinga aurea</em></td>
<td>periquito maracanã</td>
</tr>
<tr>
<td>[kara]</td>
<td>a red and green macaw</td>
<td><em>Ara chloropterus</em></td>
<td>arara</td>
</tr>
<tr>
<td>[karaja]</td>
<td>a scarlet macaw</td>
<td><em>Arara macao</em></td>
<td>arara vermelha</td>
</tr>
<tr>
<td>[karatɔ]</td>
<td>a bottle gourd, gourd container</td>
<td><em>Lagenaria</em> sp.</td>
<td>cabaça</td>
</tr>
<tr>
<td>[karaum]</td>
<td>a blue macaw</td>
<td><em>Anodorhynchus</em> sp.</td>
<td>arara azul</td>
</tr>
</tbody>
</table>
[karawa] non-edible cassava/manioc Manihot sp. mandioca braba
[kariamũ] a deer Mazama sp. veado
[kɔtkɔt] yellow-rumped cacique Cacicus cela japu, japurá, rescongo piau
[kɔtʃi] a leporinus fish Leporinus sp. tatu rabo de couro bicudo, caibu, agulhão
[kuba] an armadillo Cabassous unicinctus tatu rabo de couro
[kubi] a fish Ctenolucidae curica
[kui] a parakeet Brotogeris sp. curica
[kuŋdi] a quail Odontophorus capoeira uru
[kuruju] small squash or gourd Cucurbita sp. cabacinha
[kutkut] a night monkey Aotus sp. macaco da noite
[kuts] a toad Bufonidae sapo
[kuʃiamit] a titi monkey Callicebus sp. macaco zogue-zogue
[kudenden] sweet manioc/edible cassava Manihot sp. macacheira, aipim, manioca doce
[kuderai ebui] kapok tree Ceiba pentandra samaúma
[mak keni] muscovy duck Cairina maschata pato
[manan] a herbaceous plant Ischnosiphon aruma arumã
[moʃe] a fruit Spondias mombin cajá, taperebá
[moe] a toad Bufonidae sapo cururu
[muan] a biting midge Culicoides sp. maruim
[mulik] a bird of the cuckoo family Crotophaga sp. anu preto
[mumbɔ] a tree/fruit Bagassa guianensis tatajuba
[mudaimɔ] a large predatory fish Hoplias sp. trairão
[muta] a small monkey Callitrichidae macaco suim
[nabiot] sweet potato Ipomoea batatas batata doce
[ɔet] rubber tree Hevea brasiliensis seringa
[ɔɔɔm] blind snake Scolecophidia cobra cega
[ɔɔum] wasp Vespidae marimbondo
[ɔmiaeɡu] a small predatory fish Hoplias sp. traíra
[onŋon] cacao tree/fruit Theobroma cacao cacau
[onon] the barbasco plant Lonchocarpus urucu urucu
[ɔɾemĩ] a spotted fish Pseudoplatystoma sp. surubim
[ɔɾepi] bare-faced curassow Crax fasciolata mutum pinima
[ɔɾɔt] native cashew tree/fruit Anacardium sp. caju silvestre
[ɔɾɔʃum] cultivated cashew tree/fruit Anacardium sp. caju cultivado
[ɔtɔkiʃɔ] giant armadillo Priodontes maximus tatu canastra
[ɔtɔpa] a catfish Hoplosternum littorale tamoatá, cascudo
[ɔtpidɔ] an armadillo Dasypodidae tatu
<table>
<thead>
<tr>
<th>Patu</th>
<th>Curassow</th>
<th>Porcupine</th>
<th>Coendu sp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pewit</td>
<td>A raptor</td>
<td>A toucan</td>
<td>Ramphastos sp.</td>
</tr>
<tr>
<td>Pilik</td>
<td>A beetle</td>
<td>Piranha</td>
<td>Serrasalmus sp.</td>
</tr>
<tr>
<td>Pomu</td>
<td>A catfish</td>
<td>A parakeet</td>
<td>Brotogeris sp.</td>
</tr>
<tr>
<td>Ponê</td>
<td>A parakeet</td>
<td>A raptor</td>
<td>Falconiforme</td>
</tr>
<tr>
<td>Parat</td>
<td>A peccary</td>
<td>A cricket</td>
<td>Gryllidae</td>
</tr>
<tr>
<td>Pou</td>
<td>An inga tree/fruit</td>
<td>A catfish</td>
<td>Baryancistrus sp.</td>
</tr>
<tr>
<td>Purêk</td>
<td>Capuchin monkey</td>
<td>Brazil nut tree/fruit</td>
<td>Bertholletia excelsa</td>
</tr>
<tr>
<td>Tagi</td>
<td>Cricket</td>
<td>Parrot</td>
<td>Ramphastos sp.</td>
</tr>
<tr>
<td>Taukara</td>
<td>Inga tree/fruit</td>
<td>A cat</td>
<td>Ramphastos sp.</td>
</tr>
<tr>
<td>Tawe</td>
<td>A black biting fly</td>
<td>A black biting fly</td>
<td>Simulium sp.</td>
</tr>
<tr>
<td>Tomgem</td>
<td>A lizard</td>
<td>A tree</td>
<td>Cecropia sp.</td>
</tr>
<tr>
<td>Tonôziri</td>
<td>Brazil nut tree/fruit</td>
<td>A tree</td>
<td>Oenocarpus sp.</td>
</tr>
<tr>
<td>Torômã</td>
<td>Squirrel monkey</td>
<td>Brazil nut tree/fruit</td>
<td>Bertholletia excelsa</td>
</tr>
<tr>
<td>Tjâm</td>
<td>A small wild cat</td>
<td>Brazil nut tree</td>
<td>Bertholletia excelsa</td>
</tr>
<tr>
<td>Tjrêktjarcu</td>
<td>Capuchin monkey</td>
<td>Brazil nut tree</td>
<td>Bertholletia excelsa</td>
</tr>
<tr>
<td>Tjirê</td>
<td>A toucan</td>
<td>Quati</td>
<td>Procyonidae</td>
</tr>
<tr>
<td>Tjuruka</td>
<td>A leporinus fish</td>
<td>A banded leporinus fish</td>
<td>Anostomidae sp.</td>
</tr>
<tr>
<td>Tôdo</td>
<td>An owl</td>
<td>A raptor</td>
<td>Falconiforme</td>
</tr>
<tr>
<td>Tudos</td>
<td>A toucan</td>
<td>A raptor</td>
<td>Cebus sp.</td>
</tr>
<tr>
<td>Tuapko</td>
<td>A lizard</td>
<td>A raptor</td>
<td>Psophia sp.</td>
</tr>
<tr>
<td>Wag</td>
<td>A bird</td>
<td>Brazil nut tree</td>
<td>Bertholletia excelsa</td>
</tr>
<tr>
<td>Wago</td>
<td>Brazil nut tree</td>
<td>Brazil nut tree</td>
<td>Bertholletia excelsa</td>
</tr>
<tr>
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<td>A palm tree/fruit</td>
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</tr>
<tr>
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<td>A guan bird</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Warama</td>
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<td>A spider monkey</td>
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</tr>
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<td>Tapir</td>
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<tr>
<td>Upui</td>
<td>Yam</td>
<td>Brazil nut tree</td>
<td>Bertholletia excelsa</td>
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BIBLIOGRAPHY


