Establishing Reference in Máíhiki

by

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University of California, Berkeley

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Establishing Reference in Máíhâkì

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Abstract

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In this dissertation, I investigate the hierarchical nominal lexicon of Máihêki, an endangered Western Tukanoan language spoken in northern Peruvian Amazonia. With data from original fieldwork, I establish eight types of nouns in Máihêki, each of which patterns distinctly from the others with respect to at least seven different morphosyntactic behaviors. I argue that these patterns can be predicted from the inherent semantic properties of the nouns, and provide a formal account of the parameters that govern the structure of the proposed hierarchy. In particular, I establish the notion of a ‘reference ratio’—the ratio of properties that are requisite to the entities in some set to the properties that are incidental of those entities.

The first half of the dissertation provides an in-depth grammatical description of Máihêki. A chapter on Máihêki phonetics and phonology includes a detailed description of the language’s nasal spreading and tone systems, and a chapter on Máihêki morphosyntax includes extensive treatments of deixis, event structure, and clause-linking devices.

The latter half of the dissertation discusses the semantics of Máihêki nouns and nominal morphology. I provide a summary of the literature on nominal hierarchies, then argue for one such hierarchy in Máihêki based on the distinct morphosyntactic behaviors of nouns. I look at two of these morphosyntactic behaviors—the availability of plural morphology and the ability to be suffixed with or serve as a nominal classifier—in depth. A chapter on noun classification provides background on the typology of the phenomenon, including a discussion of the features of noun categorization devices common to northwest Amazonia. In addition to the typological survey, I provide a novel semantic analysis of Máihêki classifiers that has implications for the theory of both classification and nominal compounding. In a chapter on plurality, I provide a formal semantic analysis that addresses the complexities of number marking in Máihêki, including the availability of multiple pluralization strategies and their apparent optionality. The role of both classifiers and plurals in altering the reference ratio of nouns is examined throughout.
For the Máihûnà
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Chapter 1

Introduction

1.1 The goals and contributions of this dissertation

Determiners, classifiers, and plural markers seem to pattern in a non-random way across the world’s languages. The presence or absence of any one of these features has been claimed to be tied up in the presence or absence of another, e.g. by Greenberg (1974), Chierchia (1998b), and Corbett (2000). The question that drives this dissertation is, why might such a correlation exist (if it does at all)? I explore this question through a detailed semantic investigation of the plural and classifier systems of Máïhìkì, a Western Tukanoan language spoken in northern Peruvian Amazonia. In particular, I investigate the roles of plurality and classification in creating referential nouns.

The contributions of this dissertation to the study of noun classification and nominal plurality are both typological and theoretical. The amount of literature on noun classification in Amazonia has increased significantly in recent years but is still sparse in comparison to what has been written about East Asian and African classifiers. The growing body of work on Amazonian classifier systems, of which this dissertation is a part, has the potential to inform our understanding of the connection between gender systems and numeral classifier systems, as the languages of Northwest Amazonia (including Máïhìkì) tend to have elements of both. The formal semantic analysis of classification in Máïhìkì provided herein is, as far as I know, the first of its kind for an Amazonian language. Because of the similarities between Máïhìkì classifier constructions and nominal compounds, this analysis has important theoretical implications for the study of compounding as well as classification.

The descriptive literature on plurality in Amazonia is likewise extremely lacking. Where discussions of plurality exist, they tend to mention only that a pluralizing morpheme is present in the language without going into detail about its distribution and usage. The Máïhìkì system of nominal plurality, which is complicated by multiple pluralizing morphemes, some of which may occur simultaneously on the same element, and by ‘optional’ plural morphemes, whose distribution is semantically conditioned, suggests that such an approach to the description of plurality is inadequate. The formal semantic analysis of plu-
Chapter 1. Introduction

rality in Máňhìkí provided in this dissertation is a response to both the inadequacies of many descriptions of plurality in Amazonian languages, and the failure of the formal semantic literature on plurality in general to address plural data from understudied languages.

In accounting for the distribution of plural markers and classifiers in Máňhìkí, this dissertation addresses the issue of a tiered or hierarchical nominal lexicon—that is, a lexicon in which elements exhibit different morphosyntactic behavior based on their inherent semantic properties. In Máňhìkí, the presence of a hierarchy that governs the morphosyntactic behavior of nouns is extremely apparent: I show that there are eight distinct classes of nouns, no two of which pattern in precisely the same way. My hope is that the treatment of Máňhìkí nouns provided in this dissertation, which makes distinctions much finer than ‘mass’ vs. ‘count’ or ‘animate’ versus ‘inanimate’, will serve as a model for descriptive work on the morphosyntax of nominal elements in other understudied languages.

The remainder of this introduction will be divided into two parts. First, in §1.2 through §1.3, I will provide background on Máňhìkí and its speakers as well as a summary of the collection and presentation of my data. This will serve as an introduction to Part I of the dissertation, which is a grammatical sketch of Máňhìkí. Next, in §1.4 and 1.5, I will discuss the notions of reference and the Nominal Mapping Parameter (Chierchia 1998b) in preparation for Part II of the dissertation, which explores the establishment of referential noun phrases.

1.2 Background: The language and its speakers

1.2.1 Language classification

Máňhìkí is one of four living members of the Western Tukanoan subgroup of the Tukanoan language family. The extant Western Tukanoan languages include Máňhìkí, spoken in the Napo and Putumayo River basins of Peru; Siona, spoken in the Sucumbíos province of Ecuador along the Aguarico, Cuyabeno, and Eno Rivers (Bruil 2014) and in the Putumayo River basin of Colombia along the Orito and Hacha Rivers (Wheeler 1987); Sekoya, spoken in the Sucumbíos province of Ecuador and in northern Peru (Johnson & Levinsohn 1990); and Koreguaje, spoken in the Caquetá and Putumayo provinces of Colombia along the Orteguaza and Caquetá Rivers (Cook & Criswell 1993). Extinct languages attributed to the Western Tukanoan subgroup include Teteté, reportedly spoken in the Sucumbíos province of Ecuador; Tama, reportedly spoken along the Orteguaza River in Colombia; and Macaguaje, reportedly spoken in the Putumayo province of Colombia along tributaries of the Caquetá River.

1Throughout this dissertation, I will use the word Máňhìkí to refer to the language in question and Máňhìnà to refer to the ethnic group that includes the people who speak this language. Máňhìkí is morphologically composed of máň, which means ‘people’ or ‘we (inclusive)’, and hìkì, which means ‘speech’ or ‘language’. Máňhìnà is morphologically composed of máň plus the group classifier -huna.
Mason (1950) was the first to propose Tukanoan as a linguistic family and the first to offer an internal classification of the languages based on the linguistic comparative method. He argues for a Western clade consisting of a ‘Piojé-Sioni’ group including what he calls ‘Secoya-Gai’ (Sekoya) and ‘Sioni’ (Siona); a ‘Correguaje-Tama’ group including ‘Correguaje’ (Koreguaje); and a ‘Coto’ group including ‘Coto’ (Máhíki).

Since Mason first proposed a Western Tukanoan subgroup, its internal classification has been somewhat of a matter of debate. Waltz & Wheeler (1972), equipped with comparative lexical data gathered by linguists affiliated with the Summer Institute of Linguistics (SIL) in the 1970s, suggests an internal classification of the Western Tukanoan clade in which Máhíki was the first language to diverge, followed by Koreguaje. Like Mason, the authors propose a Siona-Sekoya subgroup. Chacon (2014) supports this account, suggesting based on that Máhíki is the most divergent Western Tukanoan language. However, Skilton (2013) argues that Chacón’s reconstruction relies too heavily on the dubious presence of preglottalized stops in the phonological inventory of Máhíki (see §2.1.1 for a discussion of this phenomenon). Her own phonological and morphological comparison suggests that Koreguaje is the most divergent Western Tukanoan language, followed by Máhíki, and that Siona and Sekoya indeed form an ‘Upper Napo’ subgroup.

\[
\text{Proto-Tukanoan} \\
\quad \text{Proto-Western Tukanoan} \\
\quad \quad \text{Koreguaje} \quad \text{Proto-Napo} \\
\quad \quad \quad \text{Máhíki} \quad \text{Proto-Upper Napo} \\
\quad \quad \quad \quad \text{Siona} \quad \text{Sekoya}
\]

Figure 1.1: Western Tukanoan internal classification (Skilton 2013)

As will become apparent in the discussion of linguistic variation within Máhíki (§1.2.3), the speech varieties subsumed under the label ‘Máhíki’ are diverse but mutually intelligible. The continuum between varieties of Siona and Sekoya is likely more complex, as a comparison of the work by Wheeler on Colombian Siona, Bruil on Ecuadorian Siona, Schwartz on Ecuadorian Sekoya, and Vallejos on Peruvian Sekoya suggests.

### 1.2.2 Present-day communities

The Máhíhùnà, with an ethnic population of around 400, live primarily along the Yanayacu, Sucusari, and Algodón rivers. The Yanayacu (Máhíkì Túdíyà), a tributary of the
Napo (Máihíki Háiyà), is home to the Máihùnà communities of Puerto Huamán and Nueva Vida (Máihíki Mámádài). Several Máihùnà families have moved upstream from Nueva Vida to found a community they call Nuevo Progreso. The community of Sucusari (Máihíki Sókósànì\textsuperscript{2}) is located on the Sucusari River, another tributary of the Napo, and the community of San Pablo de Totolla (Máihíki Tótòyà) is located on the Algodón River, a tributary of the Putumayo (Máihíki Chúchíyà).

Speakers of Máihíki and other ethnic Máihùnà have also settled in the urban centers of Mazán (on the Napo River), San Antonio del Estrecho (on the Putumayo River), and Iquitos. A small number of Máihìki speakers live in the community of Tutapishco, located at the confluence of the Yanayacu and Napo, and in the community of Zapote on the Zapote River. These communities are shown below in Figure 1.2.2.

\textsuperscript{2}The use of the term Sókósànì ‘tip of the capirona (Capirona decorticans)’ to refer to the community of Sucusari is a recent phenomenon likely spurred by folk etymology.
Chapter 1. Introduction

1.2.3 Linguistic variation

The varieties of Máihíki spoken in each of the major geographical zones described above (i.e., the Yanayacu, Sucusari, and Algodón River basins) are characterized by a number of distinctive phonological and grammatical features. While linguistic diversity in Máihíki cannot be described solely in terms of geography (see Skilton (2015) for a fascinating account of the numerous and nuanced sociological factors that have likely contributed to the development of Máihíki dialects and idiolects), it will be helpful nevertheless to refer to three broad geographical varieties: Western Máihíki (WM, spoken in the Yanayacu River basin); Eastern Máihíki (EM, spoken in the Sucusari River basin), and Northern Máihíki (NM,
spoken in the Algodón River basin and in the town of San Antonio del Estrecho, situated on the Putumayo River). What follows is a description of the major points of phonological and morphosyntactic variation among these three dialects.

Phonological variation

EM may be distinguished phonologically from both WM and NM by the absence of morpheme-initial /g/. The absence of /g/ holds for nominal and verbal roots like áá ‘water snail’ (cf. WM, NM gáá) or áá ‘coil up’ (cf. WM, NM gáá); for noun classifiers like -ara ‘clump’ (cf. WM, NM -gara); and for certain verbal suffixes, like -oño ‘causative’ (cf. WM, NM -goño) or -ani ‘iterative’ (cf. WM, NM -gani). The past tense inflectional suffixes -oño and -go, however, maintain initial /g/ in EM.

EM is also characterized by the absence of the voiced labialized velar stop, /g w/, which has merged with /b/.

In nasal contexts, this /b/ surfaces as [m] (see §2.4.2 for a description of nasal allophony). Examples of the correspondence between EM /b/ and WM and NM /g w/ are shown below in Table (1.1).

<table>
<thead>
<tr>
<th>WM</th>
<th>NM</th>
<th>EM</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>g wáá</td>
<td>g wáá</td>
<td>báá</td>
<td>‘think’</td>
</tr>
<tr>
<td>g wéná</td>
<td>g wéná</td>
<td>méná</td>
<td>‘dent (tr.)’</td>
</tr>
<tr>
<td>g wú</td>
<td>g wú</td>
<td>bú</td>
<td>‘be afraid’</td>
</tr>
</tbody>
</table>

Table 1.1: The absence of voiced labialized velars in EM

NM has three distinctive phonological features. First, morpheme-internal intervocalic /h/ has been lost, as evidenced by words like nió ‘wife’ (cf. EM, WM níhó) or gâé ‘go down’ (cf. EM, WM gáhè). Second, in NM, high tone does not spread from inherently high-toned verb roots to adjacent inflectional morphology. This is apparent in the contrast between NM sáuyi ‘I am going’ with EM/WM sáuyi ‘I am going’. (The Máhi system of tone will be described in greater detail in §2.4.1.) Finally, the sequence /k wV/ EM and WM corresponds in NM to /ko/ (in the case of a low or mid vowel) or /ku/ (in the case of a high vowel) if it is the initial mora of a root. Note that this generalization does not hold for the second mora of NM roots that correspond to /k wV/ sequences in EM/WM, as is exemplified by the root meaning ‘count’ in Table 1.2 below. In this case, the vowel quality is preserved while labialization is absent. A possible explanation for this state of affairs is that /k wV/ roots in EM and WM arose via labial harmony; that is, Proto-Máhi /kwVkV/ became /kukV/ or /kokV/ in NM and /kwVkwV/ in EM/WM.

---

3For several speakers of EM, /g w/ has merged with /w/. Both /wégá/ and /bégá/, for example, exist as variants of the word meaning ‘grandfather’ in the EM speech community, which corresponds to WM and NM /g wégá/.
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<table>
<thead>
<tr>
<th>WM</th>
<th>NM</th>
<th>EM</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>kwâkô</td>
<td>kôkô</td>
<td>kwâkô</td>
<td>‘cook’</td>
</tr>
<tr>
<td>kwékwé</td>
<td>kôkê</td>
<td>kwékwé</td>
<td>‘count’</td>
</tr>
<tr>
<td>kwirí</td>
<td>kûrî</td>
<td>kwirí</td>
<td>‘extract by pulling’</td>
</tr>
</tbody>
</table>

Table 1.2: NM correspondences with EM, WM voiceless labialized velars

Morphosyntactic variation

Much of the work on morphosyntactic variation among dialects of Máíhìkì was carried out by Amalia Skilton in 2012 and 2013 and reported in Skilton (2014).

A major locus of variation between the three dialects is past tense inflection. In WM, the non-third person past tense declarative suffix -gu exists alongside -bi. Speakers of WM tend to use one or the other (-gu is the preferred form for JMM, NMM, and HMR, and has been attested in the speech of LMM). This suffix has not been noted outside of the Yanayacu River basin.

Also unique to WM is the presence of a distinct local person/plural present tense interrogative suffix, -ye, in the speech of certain individuals. Speakers of both other dialects, along with a majority of speakers of WM, use -yi as the local person/plural present tense interrogative.

Several speakers of NM use -ai and -ao as third person singular masculine past declarative and third person feminine past declarative suffixes, respectively, where all other speakers use -gi and -go.

Finally, the past tense of -ni-class verbs (a class of verbs with irregular inflectional suffixes—see §3.9 for a more detailed description) exhibits considerable variation within the NM dialect. This variation, exemplified below in Table (1.3) with the verb sál ‘go’, is the subject of Skilton’s (2015) investigation into the sociolinguistic parameters governing dialect and idiolect formation in Máíhìkì. The speakers represented are all biological or classificatory siblings. The past tense form in the first row is standard for both WM and EM; both other forms are innovative and unattested in WM and EM.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA</td>
<td>sálhê</td>
</tr>
<tr>
<td>PLA</td>
<td>sábê</td>
</tr>
<tr>
<td>OLG</td>
<td>sââbê</td>
</tr>
</tbody>
</table>

Table 1.3: Past tense of -ni verbs for four speakers of NM

Both the form of the copular suffixes and the syncretism of the copular paradigm is subject to variation across dialects of Máíhìkì. In WM, the copular suffixes -agi and -ago are used for third person masculine and feminine singular nouns, while -ha is used for inanimates, local persons, and plurals. This pattern of syncretism is also found in EM, but the masculine and
feminine singular forms are -gi and -go, respectively. In NM, the phonological counterparts to WM -agi and -ago—ai and -ao—are used for singular animate nouns of all persons, while -ha is reserved for inanimates and plurals.

<table>
<thead>
<tr>
<th>Copular suffix</th>
<th>Copular suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL.ANIM</td>
<td>-ha</td>
</tr>
<tr>
<td>1SG.FEM</td>
<td>-ha</td>
</tr>
<tr>
<td>1SG.MASC</td>
<td>-ha</td>
</tr>
<tr>
<td>2SG.FEM</td>
<td>-ha</td>
</tr>
<tr>
<td>2SG.MASC</td>
<td>-ha</td>
</tr>
<tr>
<td>3SG.FEM</td>
<td>-ago/-go</td>
</tr>
<tr>
<td>3SG.MASC</td>
<td>-agi/-gi</td>
</tr>
<tr>
<td>INAN</td>
<td>-ha</td>
</tr>
</tbody>
</table>

Table 1.4: Declarative copular paradigm: EM, WM  
Table 1.5: Declarative copular paradigm: NM

The interrogative copular suffixes exhibit similar diversity. In EM and WM, the third person singular animate interrogative copular suffixes are identical to their declarative counterparts. The interrogative counterpart to -ha is -ayi (or -aye for those speakers of WM who also have the interrogative suffix -ye described above). In NM, -aye is used for 1st person animates and inanimates, while -ai and -ao are used for 2nd and third person masculine and feminine singulars.

<table>
<thead>
<tr>
<th>Copular suffix</th>
<th>Copular suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL.ANIM</td>
<td>-aye/aye</td>
</tr>
<tr>
<td>1SG.FEM</td>
<td>-aye/-aye</td>
</tr>
<tr>
<td>1SG.MASC</td>
<td>-aye/-aye</td>
</tr>
<tr>
<td>2SG.FEM</td>
<td>-aye/-aye</td>
</tr>
<tr>
<td>2SG.MASC</td>
<td>-aye/-aye</td>
</tr>
<tr>
<td>3SG.FEM</td>
<td>-ago/-go</td>
</tr>
<tr>
<td>3SG.MASC</td>
<td>-agi/-gi</td>
</tr>
<tr>
<td>INAN</td>
<td>-aye/-aye</td>
</tr>
</tbody>
</table>

Table 1.6: Interrogative copular paradigm: EM, WM  
Table 1.7: Interrogative copular paradigm: NM

---

These forms are also attested in the speech varieties of some individuals on the Yanayacu basin, including HMR, LTN, and EMR. HMR also uses -h̃ instead of -hg as the inanimate/plural copular suffix.
1.2.4 Language endangerment and attitude

The Máihúnà ethnic population is around 400. A recent survey by the Máihākī Documenta-
tion Project estimates that there are approximately 80 to 90 fluent speakers of Máihākī, 75
of whom live in one of three major zones described above, and the rest of whom live either in
the urban centers of Iquitos or Mazán or in multiethnic communities along the Napo River.
The youngest known speakers of Máihākī were born in approximately 1980; although they are
able to communicate effectively in Máihākī with others, their language diverges significantly
from that of older speakers both phonologically and morphosyntactically. The oldest living
speakers of Máihākī were born in approximately 1935. All speakers are bilingual in Spanish
to varying degrees.

A series of interviews conducted by Goodrich (2014) indicate that the intergener-
ational transmission of Máihākī in the Yanayacu River basin ceased in the 1970s as a result
of a surge in the presence of mestizos in the Máihúnà communities. The arrival of mestizos
led to an increase in the utility and prestige of Spanish among the Máihúnà, as well as the
devalorization of indigeneity in general. Skilton (p.c.) reports that the shift to Spanish in
the Putumayo River basin occurred slightly later as a result of the activities of Franciscan
missionaries. Women in the Putumayo basin recall that until the 1970s, Spanish was almost
never used in the Northern Máihúnà communities.

This rapid shift has led to a situation in which the language has nearly been wiped out
in the course of a lifetime. The oldest generation—the great-grandparents—are most com-
fortable speaking Máihākī, and were monolingual for much of their lives. Their children—the
grandparents—are fluent in both Spanish and Máihākī. The older members of this gener-
ation seem to have acquired Spanish in early childhood as a second language, while the
younger members report both Spanish and Máihākī as native languages. The generations
of grandchildren and great-grandchildren are effectively monolingual in Spanish, although
recent efforts by the Máihākī Documentation Project to revitalize and revalorize the lan-
guage have resulted in a push to communicate with the youngest generation in Máihākī.
In general, the youngest generation is enthusiastic about learning to speak Máihākī, and it
is reported that several infants may be acquiring the language via their grandparents and
great-grandparents.

Despite the apparently dire state of the language, Máihākī remains the preferred means
of communication among many of its older speakers. In my experience on the Yanayacu
River, Máihākī is spoken daily and is used in all domains of local life.

1.3 Data collection and presentation

The research for this dissertation was conducted from June through August of 2010, 2011,
2012, 2013, and 2014, funded by the National Science Foundation as part of the Máihā
kì Documentation Project (Grant #1065621). Additional funding for the winter of 2013
and the summer of 2014 was provided by the Robert L. Oswalt Graduate Student Support
Endowment for Endangered Language Documentation.

Linguistic fieldwork was conducted primarily in the community of Nueva Vida on the Yanayacu River with speakers of WM. During the summers of 2011, 2012 and 2013, a linguistic workshop was held with representatives from Nueva Vida, Puerto Huamán, Sucusari and Tótóyà. Additional fieldwork was carried out by Amalia Skilton on NM (in San Antonio del Estrecho) and EM (in Sucusari) from the fall of 2013 to the spring of 2014.

Data for this dissertation comes both from bilingual (Spanish/ Máñiki) grammatical elicitation and from a corpus of approximately 500 recorded and written texts, collected and transcribed by various members of the Máñiki Documentation Project from 2010 to 2015. These texts are of a broad range of genres, including personal and cultural histories, conversations, procedures, oral literature, songs, and ethnographies. Throughout the dissertation, examples obtained through elicitation will be tagged with the letter ‘E’, followed by the consultant’s initials, the elicitor’s initials, and the date, month, and year of the elicitation. Examples obtained from texts are cited using a three-letter text code followed by the line of the text in which the example appears. A list of three-letter codes for texts and their corresponding authors can be found in Appendix C. In most cases, I have provided both a Spanish and English translation of the Máñiki sentences. In the case of textual examples, the Spanish translation was provided by the consultant. In the case of examples taken from elicitation contexts, the Spanish was typically provided by the linguist as a prompt. I have noted cases where a consultant’s back-translation disagreed with the linguist’s original prompt. It should also be noted that the variety of Spanish spoken in the Loreto region of Peru is non-standard, and that Spanish is in most cases the native language of neither the linguistic consultant nor the linguist.

Grammatical elicitation was conducted by one or more linguists with one or more linguistic consultants. Sessions were recorded with a solid-state digital recorder using either shotgun or lavaliere microphones. All linguists also kept written records of elicitation session in notebooks. Beginning in 2012, I used a Livescribe Echo pen during all elicitation sessions as a convenient method for time-aligning my written notes with an audio recording of elicitation. A variety of elicitation techniques were employed over the course of the Máñiki Documentation Project, tailored to the varied skills of the consultants and the varied needs of the linguists. These methods ranged from simple translation from Spanish into Máñiki or vice versa, to targeted text elicitation (e.g., “tell me a story in which someone says ‘X’”), to elicitation via audio, video, or interactional prompts. Where possible in this dissertation, I have attempted to support my analyses with ‘natural’ (i.e. textual) data. The nuanced semantics of the questions I explore in my discussion of nominal reference, however, often require speaker introspection (for example, judgments of scopal properties); in these cases, I typically rely on elicited data, and always try my best to document the context and commentary have caused me to arrive at a given analysis.

The orthography used in this dissertation is based on the one developed by speakers of Máñiki in collaboration with the linguists of the Máñiki Documentation Project during the linguistic workshops of 2011, 2012, 2013. It is a modified version of the alphabet developed by Daniel and Virginia Velie during their fieldwork and employed in Velie (1975), Velie et al.
(1976), and Velie & Velie (1981), in addition to various pedagogical materials. Modifications to the Velies’ orthography include:

- the replacement of <c> and <qu> with <k> to represent /k/;
- the replacement of <cu> with <kw> to represent /kw/;
- the replacement of <gu> with <g> before front vowels;
- the replacement of <j> with <h> to represent /h/;\(^{5}\)
- the addition of <w> to represent [w];
- the addition of <r> to represent [r].

During the linguistic workshop, Māñha’u linguists were trained to recognize phonemic contrasts, and opted to remove redundant or ambiguous graphemes from their alphabet. Many of these changes (\(<c>/\<qu> \rightarrow \<k>\), \(<gu> \rightarrow \<g>\), \(<j> \rightarrow \<h>\)) represent the de-hispanicization of the alphabet. The Māñha’u also voted to introduce the non-phonemic graphemes <w> and <r>, and to mark tone on every vowel (the Velies, by contrast, marked tone only where they were aware of a tonal minimal pair involving the form). The correspondences between IPA symbols, the Māñha’u orthography developed by the Māñha’u Documentation Project, and the Velies’ orthography are shown below in Table 1.8.

\(^{5}\)This convention is used for English-speaking audiences. For Spanish-speaking audiences, <j> is maintained.
Chapter 1. Introduction

<table>
<thead>
<tr>
<th>IPA</th>
<th>Máiháki orthography</th>
<th>Velie orthography</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>ã</td>
<td>a</td>
<td>ã</td>
</tr>
<tr>
<td>b, β</td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>tf, ñf</td>
<td>ch</td>
<td>ch</td>
</tr>
<tr>
<td>d, r</td>
<td>d, r</td>
<td>d</td>
</tr>
<tr>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>ë</td>
<td>e</td>
<td>ë</td>
</tr>
<tr>
<td>g, y</td>
<td>g</td>
<td>g, gu</td>
</tr>
<tr>
<td>gw</td>
<td>gw</td>
<td>gu</td>
</tr>
<tr>
<td>h</td>
<td>h</td>
<td>j</td>
</tr>
<tr>
<td>k</td>
<td>k</td>
<td>k, cu</td>
</tr>
<tr>
<td>kw</td>
<td>kw</td>
<td>cu</td>
</tr>
<tr>
<td>m</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td>n, ñ</td>
<td>n</td>
<td>ñ</td>
</tr>
<tr>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>ò</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>s, ts</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td>t</td>
<td>t</td>
<td>t</td>
</tr>
<tr>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>ū</td>
<td>ū</td>
<td>ū</td>
</tr>
<tr>
<td>w</td>
<td>w</td>
<td>u</td>
</tr>
<tr>
<td>j, dʒ</td>
<td>y</td>
<td>y</td>
</tr>
</tbody>
</table>

Table 1.8: Correspondences between the IPA and two orthographies

The characters <f>, <l>, and <ll>, taken from standard Spanish orthography, are often used to spell loan words or proper names, and correspond to IPA [φ]/[f], [l], and [dʒ]/[j], respectively.

In all examples and interlinear glosses, the Máiháki Documentation Project orthography will be used as a broad transcription of the phonetic (surface) form. In the interlinear gloss, tone will only be marked where it is underlying. (For a description of tone in Máiháki, see §2.4.1.)
Chapter 1. Introduction

1.4 Reference

This section will introduce and define the concept of ‘reference’, which will play a significant role in the discussion of the latter half of this dissertation.

The term ‘reference’ has historically been used in two subtly different ways. First, reference may be thought of as a relationship that holds between a linguistic sign and some object when that sign identifies that object. A term may be said to ‘have reference’ or ‘be referential’ or ‘refer’\(^6\). These terms are often called ‘referring expressions’, and include proper names, pronouns, and definite noun phrases.

Second, as a translation of Frege’s *Bedeutung*, ‘reference’ has been used in opposition to ‘sense’ (Frege’s *Sinn*). In this case, a term’s reference is the object in the world that it identifies, rather than the relationship that holds between that term and that object. The reference of ‘the morning star’ is the particular planet that we call ‘the morning star’; the reference of ‘John’ is the particular man that we call ‘John’, etc.

Throughout this dissertation, I will use the term ‘reference’ in the first sense (i.e., to mean an identificational relationship between an expression and an object). I will also speak throughout of the morphosyntactic mechanisms, including noun classifiers, determiners, and plural markers, involved in ‘establishing’ or ‘promoting’ reference. I will argue that while referentiality is binary (an expression is either a referring expression or it isn’t), non-referring expressions vary with respect to the ease with which they may be made referential, and thus in the morphosyntactic properties that they exhibit.

To illustrate this idea, let’s imagine two languages: Language A and Language B. In Language A, everything you encounter has a distinct label—a proper name. Each grape in each bunch has a name, and each bunch on each vine has a name. Each hair on your head and everyone else’s has a name, and even the parts of those hairs, so long as you can distinguish them, have separate names. In some sense, this is a very good naming scheme, as there is absolutely no ambiguity: wherever we perceive differences, we assign labels. But Language A is of course not a very good language, as it does not allow us to make generalizations, and is altogether inefficient.

Next, let’s imagine Language B, which is equally peculiar: everything in Language B shares a label. Each grape in each bunch is called ‘grape’, as is the bunch of grapes itself. Each hair on each head is also called ‘grape’. You and I are called ‘grape’, and so is my cat and the sky and everything else. In contrast with Language A, Language B is an extremely efficient naming scheme; like Language A, however, it is not a good system of communication. Such a language would require us to perpetually rely on context to understand one another. We would essentially need to be mind readers.

Finally, we can imagine an actual human language as a compromise between the clarity of assigning a separate label to each item at the expense of economy and the economy of assigning the same label to each item at the expense of clarity. We can expect this

\(^6\)Strawson (1950:326) disputes the felicity of saying that an expression refers: “referring is not something an expression does; it is something that someone can use an expression to do.”
compromise to be apparent in the nominal lexicon of a language: some terms, like proper names, will denote single, spatially discrete entities that we wish, for whatever reason, to distinguish from everything else. Other terms, like mass nouns, will apply more liberally to possibly spatially discontinuous substances whose parts we cannot or do not wish to distinguish. Between these extremes, certain common nouns will denote sets of individuals that have some but not all properties in common, and we can expect there to be some mechanism that allows us to specify (i.e., to make more like a proper name) or to generalize (i.e., to make more like a mass). This dissertation is a study of those mechanisms in Mā́ihíkí.

1.5 Determiners, classifiers, plurals, and the Nominal Mapping Parameter

In his influential 1998 paper (Chierchia 1998b), Gennaro Chierchia observes that the absence of definite and indefinite determiners, the presence of numeral classifiers, and the absence of obligatory plural marking pattern together crosslinguistically. Similar observations had long been made, for instance by Greenberg (1974), who states that ‘numeral classifier languages generally do not have compulsory expression of nominal plurality’ (25). Chierchia attempts to account for this apparently non-coincidental distribution by appealing to the notion of a ‘semantic parameter’—some semantic feature of a given language’s lexicon from whose variable specification falls out a particular set of morphosyntactic operators (plural markers, classifiers, determiners) related to the apportionment and specification of nouns. The parameter in this case, which he calls the Nominal Mapping Parameter, is the argumental or predicative status of bare nouns. Languages, according to Chierchia, come in three types: 1) those for which bare nouns are in the lexicon as already argumental; 2) those for which bare nouns are predicative and must project D in order to serve as the arguments of verbs; and 3) those whose nouns may ‘choose’ to be either argumental or predicative. Chierchia claims that in languages of the first type, all nouns have mass denotations, and thus “come out of the lexicon already pluralized” (347). This observation follows from Chierchia’s somewhat non-standard view of massness, first developed in Chierchia (1996) and reconsidered in Chierchia (2010), which abandons the commonly held notion that mass denotations are non-atomic and instead proposes that the atoms of masses are “somewhat vague” but discrete nonetheless. This leads Chierchia to posit that masses are simply the “neutralization of the singular/plural distinction” (347) and may be represented as a complete join semilattice in the style of Link (1983), shown below in Figure 1.3.

---

7The set of languages on which Chierchia bases this his crosslinguistic claim is rather small; it includes English, Chinese, Russian, and several Romance languages.
The idea here is that if a, b, and c represent atomic units (pieces) of furniture (which Chierchia considers here to be a mass noun—cf. Chierchia (2010) for a different approach), then any plurality formed of those atoms will also be furniture. Because mass nouns are in this way a “neutralization” of singular and plural, languages with exclusively argumental nouns will have no need for plural markers. Because they are already argumental, they will have no need for determiners. And because nouns in these languages are exclusively mass, they will need to recruit apportioning morphology (i.e., classifiers) in contexts of enumeration. Chierchia suggests Mandarin Chinese as representative of a [+arg, −pred] language.

Languages of the second type—those in which nouns are inherently predicates—will have a mass/count distinction, and count nouns will be sensitive to a further distinction in singularity versus plurality. These nouns will always need to project D in order to be argumental—that is, they will never surface bare. Chierchia suggests Italian as representative of a [−arg, +pred] language.

Finally, some languages—those that are [+arg, +pred] in Chierchia’s typology—will allow bare nouns to be either argumental or predicative. Mass nouns are inherently argumental in these languages, while count nouns are predicative. Predicative nouns may become argumental via Chierchia’s ‘down-operator’ ⊓, which turns properties into kinds. The down-operator, ⊓, is undefined for singular properties, so all count kinds will be plural. Therefore, [+arg, +pred] languages are expected to have bare mass nouns, bare plurals, and no bare singulars (i.e., singular nouns will require a determiner to be argumental). Chierchia cites English as an example of a language of this type.

The analysis presented in Chierchia (1998b) is in many ways appealing. It seems to account for a pattern in the distribution of plurals, classifiers, and determiners, that, due to their shared ‘apportioning’ function, feels non-coincidental. But there are several problems with Chierchia’s typology. First, some authors (e.g. Cheng & Sybesma (1999)) have disputed the claim that [+arg, −pred] languages do not have a mass/count distinction. Second, Chierchia’s definitions of plurality and massness have been challenged in ways that threaten the coherence of the Nominal Mapping Parameter, e.g. by Schwarzschild (2011) and by Chierchia himself in later work. Third, it appears that the distribution of these three features (classifiers, plurals, and determiners) is not as straightforward as the Nominal Mapping Parameter predicts, as numerous authors have provided contradictory evidence from a variety of languages (e.g. Schmitt & Munn (1999, 2002) for Brazilian Portuguese, Chung (2000) for
Indonesian, Li (1999) for Mandarin, among others).

Máhiköi is among the languages that pose a challenge for the Nominal Mapping Parameter: it has no definite or indefinite articles (like a [+arg, −pred] language), but does exhibit a robust mass/count distinction and an extensive system of noun classification. For these reasons, Máhiköi makes an interesting case study for the investigation of where the Nominal Mapping Parameter goes wrong. In particular, we will see that a more nuanced understanding of classification, plurality, and even massness will be required before we can make typological predictions based on these phenomena. The theoretical part of this dissertation will be dedicated to elucidating the nuances of these phenomena in Máhiköi through formal semantic analyses. We will see, particularly in Chapter 4, that Chierchia’s typology might work better as a typology of nouns than a typology of languages.

1.6 Outline

The sketch grammar of Máhiköi is confined to Chapter 2 (phonetics and phonology) and Chapter 3 (morphology and syntax). Chapter 4 will address the notion of a ‘hierarchical’ lexicon—one whose nouns exhibit different morphosyntactic behaviors based on their inherent semantic properties. I will survey previous literature on nominal hierarchies, as well of a range of morphosyntactic behaviors in Máhiköi that may be attributed variably to nouns based on their position in a hierarchy. I will propose a formal semantic analysis of this hierarchy based on what I call the ‘reference ratio’, which is a means of calculating degree of similarity between the members of some set. In Chapter 5, I turn to the semantics and morphosyntax of noun classification in Máhiköi. This chapter is framed in terms of a discussion about the place of Amazonian classifier systems in the broader typology of noun categorization devices, and focuses on the wide range of syntactic functions and morphosyntactic loci of classifiers in these systems. I argue that Máhiköi classification may be analyzed as part of a broader system of compounding, and that classifiers serve a primarily lexicogenerative role. In Chapter 6, I address the apparent optionality and multiplicity of nominal plural marking in Máhiköi and provide a formal analysis before concluding in Chapter 7.
Part I

The grammar of Máíhãkì
Chapter 2

Phonetics and phonology

This chapter will examine the phonetics and phonology of Máñkí, including the vowel and consonant inventories, allophonic processes, phonotactics, and suprasegmental phenomena. The tonal system of Máñkí will be described in detail, as it provides a foundation for the discussion of morphosyntax in Chapter 3.

2.1 Phonemic inventory

2.1.1 Consonants

Across all varieties of Máñkí there are ten phonemic consonants, listed below in Table 2.1. The voiced labialized velar stop, /gʷ/, is only found in the speech varieties of the Yanayacu and Algodón river basins (WM an NM). In EM, /kʷ/ corresponds to /b/. In NM, /kʷ/ before /a/ has become /go/, but has been preserved in all other environments.

<table>
<thead>
<tr>
<th>Voiceless Stop</th>
<th>Bilabial</th>
<th>Alveolar</th>
<th>Postalveolar</th>
<th>Velar</th>
<th>Glottal</th>
<th>Labiovelar</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>t</td>
<td></td>
<td></td>
<td>k, kʷ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voiced Stop</td>
<td>b [b, β, m]</td>
<td>d [d, r, n]</td>
<td>g [g, γ, gʷ]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td>tʃ [tʃ, j], dʒ [dʒ, j], ʃ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td>s [s, š]</td>
<td></td>
<td></td>
<td>h</td>
<td></td>
<td>w</td>
</tr>
<tr>
<td>Approximant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1: Máñkí Phonemic Consonant Inventory

The phonemic consonant inventory above differs from that presented by Velie (1975) in that Velie describes two preglottalized consonants, /ʔb/ and /ʔd/, which contrast with /b/ and /d/. I am skeptical of the proposed contrast for two reasons: first, later work by Virginia and Daniel Velie (Velie & Velie 1981) makes no mention of preglottalized consonants and

1In EM, /kʷ/ corresponds to /b/. In NM, /kʷ/ before /a/ has become /go/, but has been preserved in all other environments.
collapses the distinction in his transcription of what were cited in earlier work as minimal pairs. Second, phonetic work by members of the Máññikí Documentation Project, including an analysis of the speech of one of Daniel Velie’s primary linguistic consultants, showed no sign of a phonemic contrast between preglottalized and non-preglottalized consonants.

The phonemic inventory presented above also includes /gʷ/ and /kʷ/ as phonemes, whereas Velie (1975) treats them as consonant-vowel sequences. My reasons are primarily phonotactic: if these were consonant-vowel sequences as Velie suggests, then roots such as those in (1) would need to be analyzed as trimoraic; consequently, nearly all trimoraic roots would begin with /gu/ or /ku/, as trimoraic roots are otherwise unattested.

(1)  a. /gʷásá/ ‘think’
    b. /gʷásé/ ‘order’
    c. /kʷái/ ‘roast’
    d. /kʷáò/ ‘serve seconds’

Further evidence is that in EM, segments corresponding to /gʷ/ have become /b/, while /g/ has simply been lost before vowels, including /u/. Examples of these correspondences are shown in Table (2.2).

<table>
<thead>
<tr>
<th>WM</th>
<th>EM</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>gũì</td>
<td>ūì</td>
<td>‘dig’</td>
</tr>
<tr>
<td>gũì</td>
<td>ūì</td>
<td>‘go get’</td>
</tr>
<tr>
<td>gũà</td>
<td>ūà</td>
<td>‘bad’</td>
</tr>
<tr>
<td>gʷásá</td>
<td>básá</td>
<td>‘think’</td>
</tr>
<tr>
<td>gʷásé</td>
<td>másé</td>
<td>‘order’</td>
</tr>
<tr>
<td>gʷũ</td>
<td>bũ</td>
<td>‘fear (v)’</td>
</tr>
</tbody>
</table>

Table 2.2: Voiced labialized velar correspondences

For these reasons, I have included /gʷ/ and /kʷ/ as phonemes in the Máññikí consonantal inventory.

### 2.1.2 Vowels

Máññikí has six contrastive vowels (Table 2.3), each of which has an oral and a nasal allophone. For a discussion of the non-phonemic status of nasal vowels, see §2.4.2.
Chapter 2. Phonetics and phonology

### 2.2 Allophony

As noted above in Tables 2.3 and 2.1, vowels and voiced consonants in Máihıklı́ (with the exception of /g/) have nasal allophones. This allophony will be discussed below in § in the broader context of nasalization.

In addition to [n], /d/ has two allophones: [d] and [ɾ]. The conditions of this allophony are not well understood, and are complicated by dialectal variation, as an extended discussion by Máihünkà Linguistic Workshop participants revealed. In general, I have observed that [d] occurs somewhat reliably word-initially and after HL sequences, while [d] and [ɾ] appear to be in free variation elsewhere, with [ɾ] more frequent in fast speech. Because this phenomenon awaits further investigation, I have transcribed these phones throughout as I or other linguists heard them. This is in keeping with the Máihkı̱ orthography.

Other fast speech phenomena, which occur particularly in intervocalic contexts, include the realization of /dʒ/ as [j], /tʃ/ as [ʃ], and /b/ as [w] or [β]. Additionally, /s/ may be realized as [ts] word-initially.

### 2.3 Phonotactics

All bimoraic\(^2\) roots are of the shape (C)V(C)V. Examples of the four logical possibilities for roots are shown below in (2.4) for nouns and verbs.

#### Table 2.4: Possible root shapes

<table>
<thead>
<tr>
<th>Example</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>VV</td>
<td>áó</td>
</tr>
<tr>
<td>VCV</td>
<td>ichí</td>
</tr>
<tr>
<td>CVV</td>
<td>yáí</td>
</tr>
<tr>
<td>CVCV</td>
<td>hàsò</td>
</tr>
</tbody>
</table>

Unattested vowel-vowel sequences include /ei/, /oi/, /ui/, /ii/, and /iu/. Even when there is an intervening consonant (i.e., in a CVCV root), vowels may not occur in these

---

\(^2\)There are no prosodic or segmental phenomena that require me to posit the existence of syllables in Máihękí.
sequences. The sequence /ae/ is only found in NM, where intervocalic /h/ has been lost; for instance, WM/NM gâhê ‘go down’ corresponds with NM gâê. Further phonotactic constraints are that before /o/, there is no contrast between /i/ and /u/, and that after /a/, there is no contrast between /o/ and /u/. The phonotactics of nasality will be addressed in §2.4.2.

2.4 Suprasegmental phenomena

2.4.1 Tone

Máfïkí is one of two living Western Tukanoan languages, along with Koreguaje (cf. Gralow (1985)), that has been analyzed as exhibiting contrastive tone. A pretheoretical summary of the tonal system of Máfïkí is provided below. A more detailed description and analysis can be found in Farmer & Michael (Forthcoming) (forthcoming). As noted in §1.2.3, tone in NM is systematically different from tone in EM and WM. I will begin with a description of the properties that the three dialects share before discussing the ways in which NM diverges.

In all varieties of Máfïkí, there are two contrastive tone heights (H and L) and three basic tonal root shapes (HH, HL, and LL). A minimal triplet showing the three-way contrast between HH, HL, and LL nominal roots is shown in (2.5).

<table>
<thead>
<tr>
<th>TONE SHAPE</th>
<th>EXAMPLE</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>tótó</td>
<td>‘buttress root’</td>
</tr>
<tr>
<td>HL</td>
<td>tòtò</td>
<td>‘clay’</td>
</tr>
<tr>
<td>LL</td>
<td>tòtò</td>
<td>‘Brazilian porcupine (Coendou prehensilis)’</td>
</tr>
</tbody>
</table>

Table 2.5: A minimal triplet showing possible nominal tone shapes

The tone-bearing unit is the mora, and the overwhelming majority of both nominal and verbal roots are bimoraic.\(^3\) There are a handful of trimoraic nominal elements (e.g. ménígó ‘land tortoise’ (Chelonoidis denticulata) or pípírí ‘vulture’ (Coragyps atratus)) that are synchronically unanalyzable as multimorphemic. The leftmost morpheme in a noun will exhibit surface HH, HL, or LL tone, and the subsequent morphemes will be assigned tone according to following rules:

- If a single mora follows the leftmost root, that mora will be assigned L tone.
- If more than one mora follow the leftmost root, the first of these morae will be assigned H tone in case of a LL root, and low tone otherwise. All subsequent morae will be assigned L tone.

\(^3\)There is a bimoraic minimality constraint on all roots except the singular pronominal roots yi ‘I’ and mì ‘you’.
These rules are exemplified in (2) and (3). In (3a), we see an example of a HH nominal root, \( k\acute{i}\acute{u} \) ‘metal’ followed by a monosyllabic classifier suffix, \(-r\tilde{o} \) ‘CL: concave’. The inherently toneless classifier suffix receives low tone after the HH root. This is also true in (3b) and (3c), where inherently toneless classifier suffixes surface low after HL and LL roots, respectively.

(2) a. \( \textbf{ki\acute{o}r\grave{o}} \) (HH)
\[
\begin{align*}
\text{k\acute{i}\acute{u}} & \ -\text{do} \\
\text{metal} & \ -\text{CL:CONCAVE} \\
\text{‘metal pot’}
\end{align*}
\]
b. \( \textbf{\dagger\tilde{e}\grave{g}\grave{a}} \) (HL)
\[
\begin{align*}
\tilde{\acute{i}\acute{d}\grave{e}} & \ -\text{ga} \\
\text{peach.palm} & \ -\text{CL:seed} \\
\text{‘peach palm fruit’}
\end{align*}
\]
c. \( \textbf{\dagger\grave{h}\grave{a}\grave{s}\grave{o}\grave{n}\grave{i}} \) (LL)
\[
\begin{align*}
\text{h\acute{a\grave{s}}\grave{o}} & \ -\text{\dagger{d}\grave{z}\grave{i}} \\
\text{manioc} & \ -\text{CL:stalk} \\
\text{‘manioc plant’}
\end{align*}
\]

In (3), we see that the first mora of a multimoraic morpheme receives H tone following a LL root like \( \text{h\acute{a\grave{s}}\grave{o}} \) in (3c), but L tone after a HH (3a) or HL (3b) root.

(3) a. \( \textbf{ki\acute{u}g\grave{a}b\grave{a}} \) (HH)
\[
\begin{align*}
\text{k\acute{u}} & \ -\text{gaba} \\
\text{metal} & \ -\text{CL:loop} \\
\text{‘ring’}
\end{align*}
\]
b. \( \textbf{\dagger\tilde{e}\grave{g}\grave{\acute{o}}n\grave{o}} \) (HL)
\[
\begin{align*}
\tilde{\acute{i}\acute{d}\grave{e}} & \ -\text{\dagger{godo}} \\
\text{peach.palm} & \ -\text{CL:beverage} \\
\text{‘peach palm beverage’}
\end{align*}
\]
c. \( \textbf{\dagger\grave{h}\grave{a\grave{s}\grave{o}}t\grave{\acute{t}}\grave{k\grave{a}}} \) (LL)
\[
\begin{align*}
\text{h\acute{a\grave{s}}\grave{o}} & \ -\text{tika} \\
\text{manioc} & \ -\text{CL:stick} \\
\text{‘manioc stick’}
\end{align*}
\]

The status of a morpheme as a root or a suffix does not affect its tonal behavior; all that matters is whether it is leftmost. In cases of adjectival modification and noun-noun compounding, the modified root will lose its inherent tone and will instead be assigned tone based on the rules above. We call this process, exemplified in (4), ‘tonal erasure’. In (4a), the inherently HH nominal root \( \tilde{t\acute{a}\acute{k}\acute{e}} \) (\( \tilde{/t\acute{a}\acute{k}\acute{e}/} \)) becomes LL after the inherently HH adjectival root \( \text{b\acute{o\acute{o}}} \) (\( \text{/b\acute{o\acute{o}/} \)) ‘white’. In (4b), the inherently HH root \( \text{h\acute{o\acute{h}}\acute{o}} \) (\( \text{/h\acute{o\acute{h}}\acute{o}/} \)) ‘toad’ becomes...
LL after the HL root ñè (/[ñè]/) ‘peach palm’. In (4c), the inherently LL root wè ‘house’ ([/ùè/]) becomes HL after the LL root yàrì (/dʒàdì/) ‘small’ and before the diminutive suffix -maka (/-/baka/). In all cases, the inherent tone of each morpheme is shown in the interlinear gloss.

(4)  
\begin{align*}
a. & \text{ bótàkè} \\
& \text{bóó } \text{-tákè} \\
& \text{white monkey} \\
& \text{‘White-fronted capuchin monkey (Cebus albifrons)’ (lit: white monkey)} \\
b. & \text{ ñèhòhò} \\
& \text{žèdè hòhò} \\
& \text{red peach.palm} \\
& \text{‘toad sp.’ (lit: peach palm toad)} \\
c. & \text{ dʒàrìwèmàkà} \\
& \text{dʒàdì wè - baka} \\
& \text{small house -DIM} \\
& \text{‘small house’}
\end{align*}

Tonal erasure does not occur in possessive constructions or proper names. To reflect the prosodic independence of the components, they are transcribed as separate prosodic words, as shown below in (5).

(5)  
\begin{align*}
\text{órápèrè dʒìósàrò} \\
& \text{ódápèrè } \text{dʒìò } \text{-sado} \\
& \text{proper.name swidden -CL:opening} \\
& \text{‘tributary of the Sucusari River’ (lit: ‘passage to Orapere’s swidden’)}
\end{align*}

EM and WM differ from NM with respect to the assignment of tone to verbal suffixes. In both EM and WM, there are four classes of verbal suffixes, while in NM there are three.

In all varieties of Máiñhí, Class I suffixes include the sentential negator -ma (/-/ba/) and the single patient suffix -hó (/-/hó/). These have inherent H tone in present and past tense declarative contexts. In EM and WM, this H tone is spread rightward to adjacent Class II suffixes. Class II suffixes include all present tense inflectional suffixes as well as all regular (i.e., non-\text{-ni-}class) past tense inflectional suffixes. These have no inherent tone, and in EM and WM, are always assigned the same tone as the mora to their left. In NM, the suffixes that belong to EM and WM Class II pattern instead with the suffixes of Class III, which include non-finite verbal inflection, aspectual suffixes, future tense suffixes, past tense -\text{-ni-class} suffixes, and all interrogative inflectional suffixes. These suffixes, which may be monomoraic or bimoraic, exhibit the same tonal behavior as the non-leftmost morphemes in nominal constructions: they have L(L) tone after a HH or HL root and H(L) tone after a LL root. An exception is when a monomoraic suffix following a LL root is word-final, in which
case it surfaces with L tone. In the case of multiple Class III verbal suffixes, all subsequent suffixes will exhibit low tone. Finally, in all varieties of Máihkíí, Class IV suffixes include the causative \(-(g)o\̃o \((/-(g)odʒo/\)), the benefactive \(-kai \((/-kai/\)), and the terminative \(-ti\ (/-ti/\)). These suffixes surface as LL after a HH root, HH after a HL root, and HL after a LL root.

In Tables 2.6 and 2.7, we see a summary of the tone of the various verbal suffix types for EM/WM and NM, respectively. Class IIIa shows the behavior of a bimoraic Class III suffix or a monomoraic Class III suffix that is not word-final. Class IIIb shows the behavior of a word-final monomoraic Class III suffix. Note that Table 2.7 reflects the absence of Class II suffixes, as all would-be Class II suffixes belong to Class III in NM.

<table>
<thead>
<tr>
<th>ROOT</th>
<th>CLASS I</th>
<th>CLASS II</th>
<th>CLASS IIIA</th>
<th>CLASS IIIB</th>
<th>CLASS IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>H</td>
<td>H</td>
<td>L(L)</td>
<td>L</td>
<td>LL</td>
</tr>
<tr>
<td>HL</td>
<td>H</td>
<td>L</td>
<td>L(L)</td>
<td>L</td>
<td>HH</td>
</tr>
<tr>
<td>LL</td>
<td>H</td>
<td>L</td>
<td>H(L)</td>
<td>L</td>
<td>HL</td>
</tr>
</tbody>
</table>

Table 2.6: Tone assignment to verbal suffixes in EM and WM

<table>
<thead>
<tr>
<th>ROOT</th>
<th>CLASS I</th>
<th>CLASS IIIA</th>
<th>CLASS IIIB</th>
<th>CLASS IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>H</td>
<td>L(L)</td>
<td>L</td>
<td>LL</td>
</tr>
<tr>
<td>HL</td>
<td>H</td>
<td>L(L)</td>
<td>L</td>
<td>HH</td>
</tr>
<tr>
<td>LL</td>
<td>H</td>
<td>H(L)</td>
<td>L</td>
<td>HL</td>
</tr>
</tbody>
</table>

Table 2.7: Tone assignment to verbal suffixes in NM

Serial verb constructions, in which two verb roots form a single prosodic word, exhibit different tonal behavior from verb + suffix sequences. All possible tonal patterns for two-root SVCs are exemplified below in Table 2.4.1.

<table>
<thead>
<tr>
<th>ROOT 1</th>
<th>ROOT 2</th>
<th>SVC TONE</th>
<th>EXAMPLE</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>HH</td>
<td>HHHH</td>
<td>dêró + tîyó</td>
<td>bend and break</td>
</tr>
<tr>
<td>HH</td>
<td>HL</td>
<td>HLLL</td>
<td>hâńú + tîtô</td>
<td>awaken by dousing</td>
</tr>
<tr>
<td>HH</td>
<td>LL</td>
<td>HLLL</td>
<td>sáá + chîmà</td>
<td>jump and slip</td>
</tr>
<tr>
<td>HL</td>
<td>HH</td>
<td>HLLH</td>
<td>gêo + yéřê</td>
<td>learn to set a trap</td>
</tr>
<tr>
<td>HL</td>
<td>HL</td>
<td>HLLL</td>
<td>nágu + tîtô</td>
<td>step on and awaken</td>
</tr>
<tr>
<td>HL</td>
<td>LL</td>
<td>HLLL</td>
<td>nágu + chîmà</td>
<td>step and fall</td>
</tr>
<tr>
<td>LL</td>
<td>HH</td>
<td>LLHH</td>
<td>bôtê + tômé</td>
<td>break apart and fall</td>
</tr>
<tr>
<td>LL</td>
<td>HL</td>
<td>LLHL</td>
<td>chîmà + tânî</td>
<td>slip and fall</td>
</tr>
<tr>
<td>LL</td>
<td>LL</td>
<td>LLLL</td>
<td>tôtê + tîtê</td>
<td>pound and break up</td>
</tr>
</tbody>
</table>
2.4.2 Nasality

As mentioned in §2.1, vowels and voiced consonants (with the exception of /g/) have nasal allophones. Minimal pairs exhibiting a contrast in the nasality of vowels is shown in (6) and of consonants in (7).

(6) a. gáá ‘a water snail’
   b. gáá ‘meat’
   c. hüiyì ‘I am wearing’
   d. hüiyì ‘I am sick’

(7) a. béá ‘corn’
   b. méá ‘ant sp.’
   c. dóyì ‘I am rowing’
   d. nòyì ‘I am carving out’
   e. ínì ‘Look (imperative)’
   f. yìa ‘egg’

While the presence of minimal pairs suggests that nasality is phonemic in Máihìki, the distribution of nasal segments is rather peculiar. For instance, if T, D, N, V, and Ŋ are voiceless oral consonants (plus /g/), voiced oral consonants (minus /g/), nasalized consonants, oral vowels, and nasalized vowels, respectively, then Table 2.8 shows attested and unattested morae types in Máihìki.

<table>
<thead>
<tr>
<th>Attested Oral</th>
<th>Attested Nasal</th>
<th>Unattested Nasal</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>TV</td>
<td>—</td>
</tr>
<tr>
<td>DV</td>
<td>NV</td>
<td>*DV, *NV</td>
</tr>
<tr>
<td>V</td>
<td>Ŋ</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 2.8: Nasal and oral syllables in Máihìki

Due to these distributional facts, Sylak-Glassman et al. (In prep.) analyze nasality in Máihìki as a floating, morpheme-associated feature that docks to the leftmost nasal target. If the nasal feature first docks to a vowel, it may spread rightward from to an adjacent tautomorphemic vowel. If the nasal feature first docks to a consonant, it will spread rightward to other tautomorphemic consonantal nasal targets, skipping over intervening vowels. This leads to the bimoraic root types shown in Table 2.4.2.
The account provided in Sylak-Glassman et al. (In prep.) treats /h/ as transparent to nasal harmony, as evidenced by forms such as those in 8.

(8)  a. [hūhū] ‘be sick; lose consciousness (pluractional)’
    b. [gūhī] ‘tooth’

In the above example, the nasal feature docks to the leftmost nasal target (in these cases, the leftmost vowel), then spreads rightward in spite of the presence of intervocalic /h/.
Chapter 3

Morphosyntax

3.1 Introduction

This chapter will provide a sketch of Máihi kí morphosyntax. After discussing basic constituent order, the chapter will be divided generally into nominal phenomena (including case marking, classification, plurality, and nominal modification) and verbal or clausal phenomena (including inflectional paradigms, negation, event structure, and clause-linking devices).

A recurring theme throughout this chapter will be the distinction between ‘regular class’ and ‘-ni-class’ verbs. -ni class verbs are an irregular morphological class with cognates throughout the Western Tukanoan subgroup. The stem alternations that they exhibit are summarized in Appendix B.

3.2 Constituent order

3.2.1 Basic constituent order

When prompted to translate Spanish declarative SV sentences, speakers of Máihi kí consistently produce SV translations. Declarative SVO sentences with two non-pronominal arguments are consistently translated into Máihi kí using SOV word order. Examples of intransitive (SV) and transitive (SVO) sentences are shown below in (9) and (10), respectively. While the translation of sentences in isolation is certainly a problematic method for eliciting word order—a phenomenon whose characterization in many languages relies heavily and delicately of the management and transferal of information across discourse—it can be helpful in establishing what has been variably called ‘basic’ or ‘neutral’ word order. The examples in (9) and (10) have in common that none of the referents have been mentioned in previous discourse, and that the speaker is not contesting his or her interlocutor’s beliefs about the reference of any of the event’s participants. As might be expected, transitive sentences in which both S and O arguments are full, never-before-mentioned noun phrases are rather rare in our corpus despite being in some sense ‘basic’.
Chapter 3. Morphosyntax

(9) a. [báทยะ]_[bıyàkò]_[V]
   báทยะ  bıyà  -ko
   dolphin swim -3.SG.FEM.PRES.DECL
   ‘The dolphin is swimming’ (E.SJF.AMM.7feb2013)
   ‘El bufeo está nadando’

   b. [yáทย]_[yihì]_[V]
      yáทย  yihì  -hì
      jaguar roar -3.SG.MASC.PRES.DECL
      ‘The jaguar is roaring’ (E.LTN.SJF.26jul2013)
      ‘El tigre está rujando’

   c. [ókò]_[tómèh]_[V]
      ókò  tómé  -hì
      water fall  -3.SG.MASC.PRES.DECL
      ‘It’s raining’ (lit: ‘Water is falling’)
      ‘Está lloviendo’

(10) a. [báròbi]_[hànà]_[wàkò]_[V]
     bárò  -bi  hànà  áí  -ko
     ‘The sloth is eating leaves’ (E.SJF.EMR.21jan2013)
     ‘El pelejo está comiendo hojas’

     b. [mámáko]_[kíòr]_[dóákò]_[V]
       mámáko  kíò  -ro  dóákò  -ko
       child.FEM metal -CL:concave wash -3.SG.FEM.PRES.DECL
       ‘The girl is washing the pot’ (E.SJF.AMM.LMM.30jun2010)
       ‘La niña está lavando la olla’

     c. [Mámsó]_[ánnà]_[kwèékò]_[V]
       Mámsó  ánnà  -na  -re  kwèékò  -ko
       proper.name snake -ANIM.PL -NON.SUBJ look.for -3.SG.FEM.PRES.DECL
       ‘Mámsó is looking for snakes’ (E.SJF.EMR.22jan2013)
       ‘Mámsó está buscando víbora’

3.2.2 Argument elision and non-basic constituent orders

While the ‘basic’ constituent order in Máhìkì is SOV, both syntactic subjects and objects may be omitted when their reference is clear from context. Examples are shown in (11) for the verb kúkú ‘bite (pluractional)’. In (11a), the consultant omits the subject yáhound ‘dog’, which had been established earlier in the elicitation session. In (11b), the consultant has
been talking about the tendency of the collared peccary to bite dogs, and omits both the subject and object. Finally, in (11c), the consultant omits only the object.

(11) a. \[tèrè\]O \[kūkūg]\V
tè -i -re kūkū -gi
one -CL:masc -NON.SUBJ bite.PLACT -3.SG.MASC.PAST.DECL
‘It bit (something) multiple items’ (E.EMR.SJF.2jul2013)
‘Ha mordido a uno varias veces’
b. \[kūkúmēh\]V
kūkū méá -ẖí
bite.PLACT kill -3.SG.MASC.PRES.DECL
‘They bite and kill them’ (gus 44.1)
‘(El sajino) puede morder y matar (al perro)’
c. káókwà tè kūkūrè húñhò téahàyè
káókwà tè kūkū -re húñhò téahàyè
Pecari.tajacu tèa same.manner
‘The peccary also bites (the dog) and then it dies’ (gus 45)
‘Después de que el sajino muerde (al perro), está muriendo’

Perhaps the most commonly omitted arguments are pronominal subjects. Examples of this phenomenon are shown in (12). In cases where verbal inflection renders the reference of the omitted subject ambiguous (as is the case with the present-tense suffix -yi, which may mark first person singular, second person singular, or plural), the reference of the subject is inferred. The declarative sentence in (12a) is interpreted as having a first person singular subject absent of any previously mentioned first person pronoun. The interrogative sentence in (12b) is interpreted as having a second person singular subject absent of a previously mentioned second person pronoun.

(12) a. sáiyí
sáí -yi
go -1.SG.PRES.DECL
‘I’m leaving’ (aho 68.1)
‘Me voy’
b. káro sákkò?
ká -ro sáí -ko
which -CL:place go -3.SG.FEM.PRES.INTERR
‘Where are you going?’ (iy4 68.1)
‘Adónde vas?’
3.3 Case marking

In comparison to other Western Tukanoan languages, Mâihíhí has a very limited system of case marking. A single case suffix, -re, marks non-subject arguments. In (13), we see that -re may be suffixed to nouns with the semantic role of patient (13a), experiencer (13b), recipient (13c), subject matter (13d), or instrument (13e). The precise semantic role of the argument in question is apparently pragmatically inferred.

(13)  a. ̀níòrè hásò̀bi

  `níò -re hásò -bi
  3.SG.FEM.PRON -NON.SUBJ shoot -1.PL.PAST.DECL

  ‘We shot her (the tapir)’ (bek 16.1)
  ‘Le hemos matado’

b. yírè hùngàhi

  yì -re hùì gùá -hì
  1.SG.PRON -NON.SUBJ deteriorate.in.health feel -3.SG.MASC.PRES.DECL

  ‘I feel ill’
  ‘Siento enfermo’

c. tèànàrà mámàkìnàrè ákwèbè ̀íchísàòbè

  tè -o -na -ra mámàkì -na -re ákwè -bi
  one -CL:fem -ANIM.PL -LIM child.MASC -ANIM.PL -NON.SUBJ fruit -CL:round
  ̀íchì -sao -bì
  give -UNIV.QUANT -3.PL.PAST.DECL

  ‘Each woman gave a fruit to the children’ (E.LTN.SJF.20jun2013)
  ‘Cada mujer ha dado a cada niñ o una fruta’

d. ̀ígèrè óíkò?

  ̀ígè -re óí -ko
  what -NON.SUBJ cry -3.SG.FEM.PRES.INTERR

  ‘What are you crying about?’ (mbd 226.1)
  ‘¿Por qué estás llorando?’

e. diòrè kwééyi, diòrè...

  díò -re kwéé -yi, díò -re
  ax -NON.SUBJ cut -1.PL.PRES.DECL ax -NON.SUBJ

  ‘We cut it with an ax’ (yo3 8.1)
  ‘Cortamos con hacha’

By contrast, -re is not used to mark agents, locations, or goals.


3.4 Noun classification

Máihikí has a large number of classificatory morphemes, listed in Appendix E, that may be suffixed to mass and abstract nouns as well as to verbal, adjectival, demonstrative, and numeral roots, deriving count nouns. In general, Máihikí classifiers specify information about the shape, consistency, or utility of the nouns that they derive. Examples of various classifiers suffixed to the mass noun *kù ‘metal’* are shown below in (14).

(14) a. kùgò
   *kù* -go
   metal -CL:loop
   ‘chain’

b. kùgànì
   *kù* -gani
   metal -CL:skin
   ‘corrugated metal’

c. kùmè
   *kù* -me
   metal -CL:rope
   ‘wire’

d. kùñàkà
   *kù* -ñaka
   metal -CL:pointy
   ‘nail’

e. kùntòtò
   *kù* -toto
   metal -CL:flat.rigid
   ‘sheet of metal’

For a more detailed description and semantic analysis of noun classification in Máihikí, see Chapter 5.

3.5 Nominal plurality

As the topic of nominal plurality plays a major role in the second part of this dissertation (in particular in Chapter 6), it will be given a cursory treatment here. There are two plural suffixes in Máihikí: the animate plural *-na*, shown below in (15), and the inanimate plural *-ma*, shown in (16). These morphemes may be suffixed directly to a count nominal stem, which may either be monormorphemic or consist of a root (mass nominal, verbal, or adjectival) plus a noun classifier.
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(15) a. kámà hásóbí dóbèkìnà
   kámà hásó  -bi  dóè  -aki  -na
   thus shoot -3.PL.PAST.DECL before -CL:masc.being -ANIM.PL
   ‘That’s how the ancestors hunted’ (bek 22.1)
   ‘Así mataban los antiguos’

b. túkùnà tàyèkìnàrè nèshè
   tùkù -na  tàyè  -ki  -na  -re  nèshè
   firefly -ANIM.PL pass.PLACT -MASC.SS.SIM -ANIM.PL -NON.SUBJ grab.PLACT
   -hì
   -3.SG.MASC.PRES.DECL
   ‘When fireflies passed by, he would grab them’ (hab 8.1)
   ‘Luciérnago que pasaba, él les agarraba’

(16) a. mài wèènà dòtòkò àsákó Sòkàtìrò
   máì wèè  -ma  dòtò  -ko  àsá  -ko
   people house -INAN.PL creep -FEM.SS.SIM listen -3.SG.FEM.PRES.DECL
   Sòkàtìrò
   proper.name
   ‘Sòkàtìrò crept around people’s houses, listening’ (soc 4.1)

b. máròmà chùnì tòáyì nòmì
   márò -ma  chù  -hì  tòá  -yi  nòmì
   hat -INAN.PL wear.hat -PL.SS.SIM grind -3.PL.PRES.DECL women
   ‘The women, wearing hats, grind’ (pfv 19.1)
   ‘Las mujeres, poniendo gorras, están moliendo’

In addition to these plural suffixes, there are some inherently plural animate roots, listed in Table 3.1 below with their masculine and feminine singular counterparts. Inherently plural animates may not be suffixed with -ma or -na.

<table>
<thead>
<tr>
<th>Plural</th>
<th>Masc sg</th>
<th>Fem sg</th>
</tr>
</thead>
<tbody>
<tr>
<td>dōì</td>
<td>‘siblings’</td>
<td>dōikì</td>
</tr>
<tr>
<td>hóyà</td>
<td>‘domestic animals’</td>
<td>hòyi</td>
</tr>
<tr>
<td>máí</td>
<td>‘people’</td>
<td>máì</td>
</tr>
<tr>
<td>náhè</td>
<td>‘grandchildren’</td>
<td>náhì</td>
</tr>
<tr>
<td>nòmì</td>
<td>‘women’</td>
<td>-</td>
</tr>
<tr>
<td>ñìñì</td>
<td>‘children’</td>
<td>ñìñìù</td>
</tr>
</tbody>
</table>

Table 3.1: Inherently plural animates and their masculine and feminine singular counterparts

Inherently plural animates may also be suffixed with the group classifier -huna or the dual classifier -pe, as in nòmìpé ‘pair of women’ or hògàhùnà ‘group of domestic animals’.
A subset of noun classifiers may undergo a regular pluralization process involving rightward nasal spreading plus the suffixation of -ña or -a. These forms are listed below in Table (3.3).

<table>
<thead>
<tr>
<th>SINGULAR FORM</th>
<th>PLURAL FORM</th>
<th>THINGS CLASSIFIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>-bi</td>
<td>-mia</td>
<td>round fruits</td>
</tr>
<tr>
<td>-bi</td>
<td>-mía</td>
<td>buckets, canoes, plantains</td>
</tr>
<tr>
<td>-ga</td>
<td>-gaña</td>
<td>small round objects</td>
</tr>
<tr>
<td>-go</td>
<td>-goña</td>
<td>loops, pulleys, chain links</td>
</tr>
<tr>
<td>-gohe</td>
<td>-goña</td>
<td>holes</td>
</tr>
<tr>
<td>-hao</td>
<td>-haña</td>
<td>leaves, sheets of paper</td>
</tr>
<tr>
<td>-ka</td>
<td>-kaña</td>
<td>branches</td>
</tr>
<tr>
<td>-ka</td>
<td>-kaña</td>
<td>cloth-like objects</td>
</tr>
<tr>
<td>-kwa~ko</td>
<td>-kwaña~koña</td>
<td>sheets, blankets</td>
</tr>
<tr>
<td>-ńaka</td>
<td>-ńañá</td>
<td>spines, needles, quills</td>
</tr>
<tr>
<td>-ńi</td>
<td>-ńía</td>
<td>trees, stalks</td>
</tr>
<tr>
<td>-raka</td>
<td>-ńañá</td>
<td>portions of water</td>
</tr>
<tr>
<td>-reo</td>
<td>-neña</td>
<td>disc-shaped objects</td>
</tr>
<tr>
<td>-ro</td>
<td>-noa</td>
<td>pots, inner ears</td>
</tr>
<tr>
<td>-ri</td>
<td>-ńía</td>
<td>hammocks, machetes, paddles</td>
</tr>
<tr>
<td>-tete</td>
<td>-teña</td>
<td>temporary shelters, gourd vessels</td>
</tr>
<tr>
<td>-toto</td>
<td>-toña</td>
<td>scales, tables, planks</td>
</tr>
<tr>
<td>-yo</td>
<td>-ñoa</td>
<td>slender sticks, digits</td>
</tr>
</tbody>
</table>

Table 3.3: Singular and plural classifiers

Animate plural subjects, whether they are inherently plural, bear a classifier, or are suffixed with -na, trigger plural agreement on the predicate. Inanimate subjects, both singular and plural, trigger singular subject agreement on the predicate.

3.6 Diminutives and augmentatives

The inanimate diminutive suffix -maka~-gka or its plural counterpart -maña may be suffixed to count nouns to express the small size of or the speaker’s affection toward the referent, as shown in (17) below. The diminutive may be suffixed directly to roots, as in (17a) and (17b), or may follow noun classifiers, as in (17c) and (17d).

(17)  a.  ñàwèmàkà bàıyì
      ñà  wèë  -maka  bài  -yi
      small house -INAN.DIM live -1.SG.PRES.DECL
‘I live in a small house’ (E.LTN.SJF.31jul2014)
‘Yo vivo casa pequeña’
b. méá-kire dóbè yi ókóm màñà
   méá -kire   dóbè -yi ókó
drip -MASC.DS.SEQ fill.container.with.liquid.PLACT -3.PL.PRES.DECL water
   -mía -mañà
   -CL:vessel -INAN.DIM.PL
   ‘While it dripped, they would fill their little dishes’ (by1 27.1)
   ‘Cuando goteando, ellos llenaban otra vez sus mocahuitas’
c. òò chō-màkà ètāññì òò
   òò chó -maka étá -rai
   3.SG.FEM.PRON head -INAN.DIM emerge -ASS.MOT.TOWARD.SPEAKER
   -hî
   -3.SG.MASC.PRES.DECL
   ‘Her little head is emerging’ (nm4 63.1)
   ‘Su cabecita está saliendo’
d. tótdèò-màkà ìnì dòe sàhì dòe
   tóto -reo -maka ìnì dòe sá-hì dòe
   clay -CL:disc -INAN.DIM already grasp.NI go -3.SG.MASC.PRES.DECL already
   ‘Grabbing his little dish, he left’ (nm6 10.1)
   ‘Agarrando su tazoncito, él se fue ya’

-maka-~-aka may also be suffixed to numeral, quantificational, and adjectival roots. In these cases, the resultant form has adverbial meaning, as is exemplified in (18). The adverbializing function of the inanimate diminutive marker is, by token, its most common function.

(18)  a. tè-màkà tàyò-hì
   tè -maka tàyò -hì
   one -INAN.DIM pass -3.SG.MASC.PRES.DECL
   ‘[The illness] passes once’ (epi 86.1)
   ‘Pasa una sola vez’
b. dià-màkà àsàbì
   dìà -maka àsà -bì
   slow -INAN.DIM perceive -1.PL.PAST.DECL
   ‘We learned slowly’ (tc2 108.1)
   ‘Hemos aprendido despacio’
c. bèóbèsè-kà dàòhì bàhì
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The animate diminutive suffix, -\textit{ni}~\textit{-i}, is suffixed to nominal roots to express small size or the speaker’s affection, as in (19) below.

(19) a. m\text{"a}m\text{"a}k\text{"i}n\text{"a}n d\text{"a}\text{"o}h\text{"i} h\text{"i}k\text{"a}y\text{"i}
   \text{child.MASC} -\text{ANIM.DIM} -\text{ANIM.PL} \text{walk} -\text{PL.SS.SIM} \text{talk} -\text{3.PL.PRES.DECL}
   ‘The little children were walking and talking’ (iy6 567.1)
   ‘Los ni\text{"i}nit\text{"o}s andando estaban conversando’ (iy6 567.1)

b. b\text{"a}\text{"o}n\text{"i}n\text{"a}h\text{"a}
   \text{Callicebus.torquatus} -\text{ANIM.DIM} -\text{ANIM.PL} -\text{PL.COP}
   ‘They’re little yellow-handed titi monkeys’ (ada 35.1)
   ‘Son toconitos’

Like -\textit{maka}~\textit{-aka}, -\textit{ni}~\textit{-i} also has an adverbializing function. In (20a), the adverb t\text{"e}\text{"o}\text{"i} ‘alone (feminine)’ is formed via the suffixation of the animate diminutive marker to the numeral t\text{"e} ‘one’, which has been nominalized via the feminine classifier -\textit{o}. In (20b), the noun b\text{"o}s\text{"a} ‘deer’ has been suffixed with -\textit{ni} to indicate that the person in question left as a deer.

(20) a. t\text{"e}\text{"o}\text{"i} n\text{"i}k\text{"a}k\text{"o} h\text{"i}k\text{"a}y\text{"i}
   \text{one} -\text{CL:FEM} -\text{ANIM.DIM} \text{stand} -\text{FEM.SS.SIM} \text{talk} -\text{1.SG.PRES.DECL}
   ‘I was standing talking alone’ (iy6 357.1)
   ‘Solita estaba hablando’

b. b\text{"o}s\text{"a}\text{"i} n\text{"i}h\text{"a}
   b\text{"o}s\text{"a} -\textit{ni} -\textit{h\text{"a}}
   \text{deer} -\text{ANIM.DIM} \text{go} -\textit{NI} -\text{PERF}
   ‘He left as a little deer’ (iy6 468.1)
   ‘En forma de venado se fue’

The augmentative counterpart to -\textit{maka}~\textit{-aka} and -\textit{ni}~\textit{-i} is -\textit{ai}, which indicates the large size of the referent. -\textit{ai} may be suffixed to inanimate or animate roots, as shown in (21a) and (21b), respectively. When a classifier is present, -\textit{ai} follows the classifier, as in (21a).

(21) a. b\text{"a}i\text{"p}\text{"e}\text{"r}\text{"e}\text{"a}\text{"i} d\text{"a}\text{"a}h\text{"i}
   b\text{"a}i\text{"p}\text{"r}\text{"e}
   ‘We used to wander all over’ (apa 63.1)
   ‘Viv\text{"i}amos andando en varios lugares’

‘He brought a huge capillejo, a capillejo of paco’ 9 (hab 67.1)
‘Ha traído tremendo capillejo de paco’

b. biákòàrè ìsèhòrè hàsoàì


‘He shot a sábalò this big’ (bag 1038.1)
‘Él había baleado un sábalò enorme’

 Whereas the diminutive suffix indicates the speaker’s affection toward the referent of the NP, the augmentative suffix may indicate distaste or disdain. In the following example, a woman and a deer exchange a series of insults, all of which consist of a body part marked with the augmentative -ai.

(22) a. “nàmà kòpèài,” óòkò

nàmà kò -pe -ai óò -ko deer nail CL:pair -AUG say.angrily -3.SG.FEM.PRES.DECL

‘“You big-cloven-hooved deer!” she said angrily’ (bdm 39)

b. “mì nòpèài,” óòhì, óòkì

mì nòe -pe -ai óò -hì 2.SG.PRON genital -CL:pair -AUG say.angrily -3.SG.MASC.PRES.DECL óò -kì say.angrily -MASC.SS.SIM

‘“You, with your big labia!” he said angrily’ (bdm 40)

c. “nàmà úkwèsùruài”

nàmà úkwè -suru -ai deer nose -CL:goop -AUG

‘“You big, slimy-nosed deer!”’ (bdm 41)

d. “mì nòesùruài,” óòhì

mì nòe -suru -ai óò -hì 2SG.PRON genital -CL:goop -AUG say.angrily -3.SG.MASC.PRES.DECL

‘“You, with your big, slimy genitals!” he said angrily’ (bdm 42)

e. “nàmà nàkòágàài”

nàmà nàkò -àgà -ai deer eye -CL:malformed -AUG
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“You big, goggle-eyed deer!” (bdm 42)

“You with your big, misshapen genitals!” (bdm 43)

-ai is not regularly used to form adverbials, although there are a small number of examples in our corpus, such as the one shown in (23), that indicate that adverbialization is a potential function of the augmentative suffix. In these cases, the semantic contribution of augmentation is maintained, unlike in the cases of adverbs formed by -maka~-aka, which have no transparent link to diminutive size.

(23) a. \( \text{nihutåà bëèkò dëèkó} \)
   \( \text{nëù ìtà -ai bëë -ko déë -ko} \)
   children belly -AUG lie.in.hammock -SG.SS.SUB hang -3.SG.FEM.PRES.DECL
   ‘She was lying pregnant (hanging in her hammock)’ (hab 132.1)
   ‘Estaba echada embarazada’

It seems that augmentative and diminutive suffixes in Máiłiki have both a semantic and grammatical function. They provide information about either the size of the referent or the speaker’s attitude toward it, but they may also indicate that the NP is an adjunct rather than an argument.

3.7 Nominal modification

3.7.1 Possession

Possession is expressed via the juxtaposition of two NPs: a possessor and a possessum. The possessor always precedes the possessum, and neither NP is marked. Pronouns do not have distinct possessive forms. The possessive construction expresses a relationship between kin, between a whole and its parts, or between an owner or caretaker and his or her property. Examples are shown below in (24).

(24) a. \( \text{[nómùò]_possessor [ãhù]_possessum ábèhù} \)
   \( \text{nómùò ìhù ábì -hi} \)
   woman husband bathe -3.SG.MASC.PRES.DECL
   ‘The woman’s husband is bathing’ (E.JMM.KCN.09jul2012)

b. \( \text{[bèkì]_possessor [chòbi]_possessum kòkòre àítà} \)
   \( \text{bèkì chò -bi kòkò -re àí -ta} \)
   Tapirus.terrestris head -SING cook -SSSEQ eat -INFO
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‘We cooked and ate head of tapir’ (hgt 95.1)
‘Hemos cocinado y comido cabeza de sachavaca’

c. [yì]p\textit{ossessor} [wè]p\textit{ossessum} ímì bāihì
   yì   wèe   ímì bài -hì
1.SG.PRON house man be -3.SG.MASC.PRES.DECL

‘There’s a man in my house’ (E.SJF.NMM.24jan2013)
‘Hay hombre en mi casa’

Possessive constructions may be nested, as in (25). While consultants readily produced examples of this type, nested possession is extremely rare in the text corpus.

(25) Mámásò dòikò mámákò bìákì nùiséùhà
   Mámásò  dòikò mámákò bìákì nùi -seu -hà
   proper.name sister child.FEM father sit -CL:contraption -INAN.COP

‘It’s Mámásò’s sister’s daughter’s father’s chair’ (E.LMM.KCN.07jul20120)

3.7.2 Adjectival modification

There is a small number of basic adjectival roots, listed below in Table 3.4. These may take neither nominal morphology (i.e., plural or non-subject marking), nor verbal inflection.

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>bóó-</td>
<td>‘white, shiny’</td>
</tr>
<tr>
<td>bìhè-</td>
<td>‘short’</td>
</tr>
<tr>
<td>dèò-</td>
<td>‘good’</td>
</tr>
<tr>
<td>dòá-</td>
<td>‘long, tall’</td>
</tr>
<tr>
<td>háí-</td>
<td>‘big’</td>
</tr>
<tr>
<td>máá-</td>
<td>‘red’</td>
</tr>
<tr>
<td>mámá-</td>
<td>‘new’</td>
</tr>
<tr>
<td>míňá-</td>
<td>‘green, young’</td>
</tr>
<tr>
<td>néá-</td>
<td>‘black, dark’</td>
</tr>
<tr>
<td>sìňò-</td>
<td>‘yellow’</td>
</tr>
<tr>
<td>yàrì-</td>
<td>‘small’</td>
</tr>
</tbody>
</table>

Table 3.4: Adjectival roots

Other properties may be attributed to nouns via stative verbs, such as díkì- ‘be thick, be heavy’ and díí ‘be deep’, exemplified below in (26).

(26) a. núí díkíhì
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3.8 Demonstratives, pronouns, and reference tracking

There are a number of Má̱lh̦k̓ roots used to keep track of reference through spatial and discourse deixis. These demonstrative roots are in complementary distribution. They have masculine, feminine, and neuter/plural pronominal forms, and may also be suffixed with a specific classifier (see §5.3.2 for a discussion of general versus specific classification). The demonstrative roots plus their masculine, feminine, and neuter pronominal forms, are listed below in Table 3.5.
### Table 3.5: Demonstrative roots

<table>
<thead>
<tr>
<th>Root</th>
<th>Fem Pron</th>
<th>Masc Pron</th>
<th>Neut Pron</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>ígè</code>-</td>
<td><code>ígi</code></td>
<td><code>ígí</code></td>
<td><code>ígè</code></td>
<td>‘what (kind)’</td>
</tr>
<tr>
<td><code>ítì</code>-</td>
<td><code>ítì</code></td>
<td><code>ú</code></td>
<td><code>ítì</code></td>
<td>‘the aforementioned’</td>
</tr>
<tr>
<td><code>íf</code>-</td>
<td><code>íkò</code></td>
<td><code>íkè</code></td>
<td><code>ígè</code></td>
<td>‘the near’</td>
</tr>
<tr>
<td><code>íšà</code></td>
<td><code>-</code></td>
<td><code>-</code></td>
<td><code>íšà</code></td>
<td>‘this (gestural)’</td>
</tr>
<tr>
<td><code>ká-/-kè</code>-</td>
<td><code>kákò</code></td>
<td><code>kákè</code></td>
<td><code>kée</code></td>
<td>‘the far’/‘which’</td>
</tr>
<tr>
<td><code>ná-</code></td>
<td><code>nà</code></td>
<td><code>nà</code></td>
<td><code>nà</code></td>
<td>‘the same as before’</td>
</tr>
<tr>
<td><code>né-</code></td>
<td><code>né</code></td>
<td><code>dékè</code></td>
<td><code>né</code></td>
<td>‘the unknown’</td>
</tr>
<tr>
<td><code>tè-</code></td>
<td><code>tè</code></td>
<td><code>tè</code></td>
<td><code>tè</code></td>
<td>‘the same’</td>
</tr>
<tr>
<td><code>tí-</code></td>
<td><code>tí</code></td>
<td><code>tí</code></td>
<td><code>tí</code></td>
<td>‘the different; the foreign’</td>
</tr>
<tr>
<td><code>yékè-</code></td>
<td><code>yékò</code></td>
<td><code>yékè</code></td>
<td><code>yékè</code></td>
<td>‘the one or other’</td>
</tr>
</tbody>
</table>

### 3.8.1 Spatial deixis

There is a three-way contrast in spatial deixics. `í-` indicates proximity to the speaker; `ká-` indicates proximity to the interlocutor; and `ká-/-kè-` indicates remoteness from the speech act (i.e., from both the speaker and interlocutor).

An example of the proximal root `í-` suffixed with the classifiers `-rari ‘CL:location’ and -we ‘CL:building’ is shown below in (28). Its feminine, masculine, and neuter/plural pronominal forms are shown in (29). The pronominal forms may occur either in isolation or as modifiers.

(28) `ígè` bààchì `íf`arì, `ífwè?

ígè bàà -chi `í` -rari,
INAN.INTERR.PRON exist.FUT.NI -3.SG.MASC.FUT.DECL.NI PROX.DEM -CL:location
í PROX.DEM house

‘What will there be here in this house?’ (cim 2.1)
‘Qué va a haber aquí en esta casa?’

(29)

a. `íkò` músù, kímà `íkò`ào?

íkò músù kímà -ko -ao
FEM.PROX.PRON cricket how say -FEM.SS.SIM -ANIM.FEM.COP

‘This cricket, what’s it saying?’ (atj 74.10)
‘Qué cosa está diciendo este grillo?’

b. `íkè` yá hôyì

íkè yá hôyì
MASC.PROX.PRON dog
‘This dog’ (E.SJF.AMM.30jul2014)
‘Este perro’
c. àỳì, ígètà àógà!

àỳì ígè -ta àó -ga!

older.brother NEUT.PROX.PRON -INFO food -TOP

‘Brother, now this is food!’ (dos 19.1)
‘Hermano, ésta es comida!’

The interlocutor-proximal demonstrative, ká-, is exemplified below in (30). In (30a), the speaker asks his/her interlocutor to hand her a machete that she cannot reach herself. In (30b), a shop owner points to a pencil that is far from her but near her customer. Further evidence that ká- indicates a referent that proximal to the interlocutor is that it is often translated with the Spanish interlocutor-proximal demonstrative de allí, as below.

(30) a. káří kúří íničímah

ká -ri kíù -ri íni íchi -ma

INT.PROX.DEM -CL:manufactured metal -CL:manufactured pick.up give -IMPER

‘Hand me that machete’ (E.EMR.SJF.30jul2014)
‘Alcánzame ese machete’

b. káńáká sáá

ká -ńaka sáá

INT.PROX.DEM -CL:pointy take

‘Take that one (pencil)’ (E.EMR.SJF.21jan2013)
‘Lleva esa (lápiz) de allí’

The feminine, masculine, and neuter/plural pronominal forms of ká- are shown in (31). In (31b), the speaker is asking a woman whether the man who is standing next to her, and presumably across from the speaker herself, is her husband.

(31) a. ígèrè yòòkò káò?

ígè -re yòò -ko

INAN.INTERN.PRON -NON.SUBJ work.on -3.SG.FEM.PRES.INTErr

káò

FEM.INT.PROX.PRON

‘What’s she doing?’ (iy6 461.)
‘Qué está haciendo?’

b. káíla, mì ììà káì?
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That’s your husband?’ (fsl 203.1)
‘Ese hombre es tu marido?’

That’s your food’ (vil 279.1)
‘Eso es tu comida’

The speech-act-distal demonstrative, ké-~ká-, indicates that the referent is far from both the speaker and the interlocutor. This demonstrative is used, for instance, to talk about the other side of the river, the far end of town, or a distant village. ké-~ká- does not encode a greater degree of distance than ká-; the speaker’s choice of demonstrative depends entirely on the location of the interlocutor relative to the entity in question.

Both ká- and ké- trigger the lenis allomorphs\(^1\) of certain classifiers, such as -ti for manufactured objects (fortis -rì), -to for places (fortis -ro), etc.

In example (32a), shown below, the speaker uses the associated motion suffix -hai, which indicates motion away from the speaker. The request that the interlocutor go elsewhere to pick the fruit in question provides clear evidence that the distal demonstrative ké- indicates a referent that is far from all speech act participants.

(32)  a. kégà tìahài
ké -ga tìà -hai
SPACT.DIST.DEM -CL:seed pluck -ASS.MOT.AWAY.FROM.SPEAKER

‘Go pick that fruit’ (hol 89.1)
‘Vete a coger ese huayo’

b. kátò hééchù
ká -to héé -chi
SPACT.DIST.DEM -CL:place cross.FUT.NI -1.SG.FUT.DECL.NI

‘I’m going to cross over there’ (aho 67.1)

Although ké- and ká- are in complementary distribution, the synchronic conditions of their allomorphy are unclear. In our corpus, ké- appears with a more restricted set of classifiers, listed below in 3.6.

\(^1\)Certain Máñíkí morphemes exhibit an allomorphy that can be traced to a historical lenis/fortis distinction.
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<table>
<thead>
<tr>
<th>Classifier</th>
<th>Classified things</th>
</tr>
</thead>
<tbody>
<tr>
<td>-bese</td>
<td>worlds, environments, open spaces</td>
</tr>
<tr>
<td>-ga</td>
<td>seeds, small round objects</td>
</tr>
<tr>
<td>-go(h)e</td>
<td>holes</td>
</tr>
<tr>
<td>-gunu</td>
<td>upright sides</td>
</tr>
<tr>
<td>-huna</td>
<td>groups, herds</td>
</tr>
<tr>
<td>-huru</td>
<td>vicinities and inexact locations</td>
</tr>
<tr>
<td>-rari</td>
<td>locations</td>
</tr>
<tr>
<td>-we</td>
<td>houses, buildings</td>
</tr>
<tr>
<td>-yigo</td>
<td>spans of space and time</td>
</tr>
<tr>
<td>-ti</td>
<td>opposite sides</td>
</tr>
<tr>
<td>-ruru</td>
<td>directions</td>
</tr>
</tbody>
</table>

Table 3.6: Classifiers that may be suffixed to ké

3.8.2 Discourse deixis

In addition to its spatial deictic function, ké- may be used to track a referent previously mentioned in discourse. In (33), the speaker introduces a place, Béáhógâyà, describes it briefly, and refers back to it with the demonstrative pronoun kádàdù, which consists of the demonstrative root ká- suffixed with the classifier -rari ‘CL:location’. In (33b), the speaker mentions a species of fish, yáká, and refers to later it with the pronoun káò.

(33) a. Béáhógâyà bái núí báìkò
    Béáhógâyà bái núí bái -ko
    proper.name fish a.lot exist -3.SG.FEM.PRES.DECL
    ‘There are lots of fish in Béáhógâyà’ (bhg 2.1)
    ‘Hay mucho pescado Béáhógâyà’

dékò, fiśbáišiyòkò báìkò

dékò fiśbáišiyòkò bái -ko
UNKOWN.FEM.PRON fish.sp exist -3.SG.FEM.PRES.DECL
    ‘There’s what’s-it-called—a certain mojarra’ (sla 3.1)
    ‘Hay mucho pez mojara de la clase fiśbáišiyòkò’

kádàdù núí níkáhè béáhò

ká -rari núí níká -hì béáhò
DEM -CL:location a.lot stand -3.SG.MASC.PRES.DECL plant.sp
    ‘In that place (Béáhógâyà) there’s a lot of béáhò’ (sla 4.1)

b. yáká núí báìkò
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There were a lot of carachama' (syk 75.1)
'Hayá harta carachama'

They (our ancestors) killed them’ (syk 73.1)

The functional difference between the discourse deictics ká- and ñí- (whose feminine, masculine, and neuter/plural pronominal counterparts are ñó, ñó, and ñó, respectively) is as yet not well understood; like ká-, ñí- may refer to a previously mentioned referent. Example (34) shows the tracking of two referents—a man named Órapèrè and the stream named after him—over the course of several utterances. Both referents are introduced in the first utterance, (34a). In (34b), the speaker uses ká- to refer to the place, and then ñó to refer to the man, whose name he specifies again. Finally, in (34c), the speaker switches to ñí- to refer to the place.

(34) a. órapèrè báchıkè bákì Órapèrè Yíösàrò
órápèrè bá -chi -ki bá -ki
proper.name exist -PAST.REL -CL:masc live.PAST.NI -3.SG.MASC.PAST.DECL.NI
Órapèrè. Yíösàrò
proper.name

‘The late Órapèrè lived on the Órapèrè Yíösàrò (stream)’ (ora 71.1)
‘El antiguo Órapèrè vivía en Órapèrè Yíösàrò’

b. kádàrì yíò báágì ñó Órapèrè báchıkè
ká -rari yíò báá -gi
DIST.ANAPH.DEM -CL:location swidden have -3.SG.MASC.PAST.DECL
ñí Órapèrè bá -chi -ki
3.SG.MASC.PRON proper.name exist -PAST.REL -CL:masc

‘In that place he had his swiddens, the late Órapèrè’ (ora 72.1)
‘Allá tenía el finado Órapèrè sus chacras’

c. kámá ñáñì, ‘Órapèrè Yíösàrò’ ñáñì ñí- ñídàrì
Thus it’s called “The passage to Órápèrè’s swidden,” this place’ (73.1)
‘Así han llamado a ese lugar “Órápèrè Yōsàrò”’

The ‘proximal’ discourse deictics (ítì, ñtì + classifier, ëò and ëù) are far more common in our corpus than the ‘distal’ discourse deictics (káá, ká- + classifier, káø and káù). The latter occur primarily following utterances in which there is a full NP that is being introduced for the first time, while the former may be used throughout discourse to refer back to the most recent referent that agrees in noun class. The difference here may be that ká- indexes the explicitly aforementioned, while ñtì indexes the referent that the speaker expects the listener, for whatever reason, to have in mind.

### 3.8.3 Interrogatives

The speech-act-distal demonstrative ké~ká- has a discourse deictic counterpart which indicates the speaker’s lack of knowledge about the identity of the individual in question. This demonstrative can be used in questions, in which case it may be translated as ‘which’ or ‘where’, as shown in (35) below.

(35) a. kááítì kùùri kwéèchò?

káá -tí kùù -ri kwéè
INTERR.DEM -CL:manufactured metal -CL:manufactured cut.stick.FUT.NI
-cho?
-2.SG.FEM.PRES.INTERR.NI

‘With which machete will you cut?’ (E.EMR.SJF.2aug2014)
‘Con cuál machete vas a cortar?’

b. këwè kùåkò mì?

ké -we bài -ko mì
INTERR.DEM -CL:building live -3.SG.FEM.PRES.INTER 2.SG.PRON

‘Which house do you live in?’ (E.NMM.SJF.21aug2014) ‘En cuál casa vives usted?’

c. kákòáò?

kákò -ao?
FEM.INTERR.PRON -ANIM.FEM.INTERR.COP

‘Where is she?’ (nao 79.1)
‘¿Dónde está ella?’

d. këë yì àótòtò
ké-ka may also be used in situations where the speaker does not know the identity of the entity in question, but is also not seeking this information from his or her interlocutor. This may be the case either when the speaker is resigned to his or her ignorance about the identity of the entity in question, for instance because the identity cannot be known (e.g. in an irrealis context), in which case the demonstrative may be translated as ‘whichever’; or because the speaker wishes to use his or her ignorance to a rhetorical end (e.g., the speaker wishes to highlight that there is no referent). Examples of each of these uses of ké-ka are shown below in (36). In (36a), the speaker cannot predict precisely which houses will have crying children; in (36b), the speaker highlights her inability to pick out referents in an effort to draw the listener’s attention to the fact that there are no referents.

(36) a. nà kárò sáiko këwë bëëhí ŋũ oyí
   nà kárò sáí-ko kë-ke bëë -hi
   again where go -fem.ss.sim interv.dem -cl:building imperf -pl.ss.sim
   ŋũ óí -yí
   children cry -3.pl.pres.decl
   ‘She would go to whichever house had crying children’ (soc 7.1)
   ‘En cuál casa hay niños que lloran, ella va allá’

b. këë biònànù bááhí kááyo?
   këë biònànù báá -hi káá -yo
   interv.pron bed have -pl.ss.sim sleep.fut.ni -1.pl.fut.decl
   ‘What bed do we have to sleep in?’ (bag 447.1)
   ‘Qué cama tenemos para dormir?’
A number of lexicalized interrogative pronouns appear to be historically derived from \(k\acute{e}\sim k\acute{a}\). These include \(k\acute{a}r\acute{a}\) ‘where’ (\(k\acute{a} + -ro\) ‘CL:place’), \(k\acute{e}m\acute{\acute{a}}\sim k\acute{\acute{m}}\acute{\acute{a}}\) ‘how’ (\(k\acute{e} + -ma\) ‘CL:path’), \(k\acute{e}s\acute{\acute{o}}\) ‘how many/much’ (\(k\acute{e} + -so\) ‘CL:quantity’), etc.

The interrogative \(\acute{\acute{y}}g\acute{e}\) - (whose pronominal counterparts are \(\acute{\acute{y}}g\acute{e}\) (neuter/plural), \(\acute{\acute{y}}gi\sim \acute{\acute{y}}\dot{\v{g}}\dot{o}\) (feminine singular), and \(\acute{\acute{y}}\dot{g}\dot{i}\) (masculine singular)), is used when the speaker wishes to know what or what kind of thing the referent is. Whereas the answer to a question posed with \(k\acute{e}\sim k\acute{a}\) would yield a response containing another demonstrative (e.g. ‘this book’ or ‘that house’), a felicitous response to a question posed with \(\acute{\acute{y}}g\acute{e}\) - would yield a bare noun (or a clause, in cases where \(\acute{\acute{y}}g\acute{e}\) means ‘why’). Examples are shown below in (37).

(37) a. \(\acute{\acute{y}}g\acute{e}\acute{\acute{y}}\acute{\acute{e}} k\acute{\acute{a}}\acute{\acute{a}}?\)
\[\begin{array}{l}
\text{\(\acute{\acute{y}}g\acute{e}\)} \text{-aye} \text{k\acute{\acute{a}}}\dot{\hat{a}} \\
\text{INTERR.DEM} \text{-INAN.COP.INTERR DISTAL.DEM}
\end{array}\]
‘What is that?’ (iy6 543.1)

b. \(\acute{\acute{y}}g\acute{e}\text{t\acute{\acute{k}}\acute{\acute{a}}\acute{\acute{\acute{y}}}i}\)?
\[\begin{array}{l}
\text{\(\acute{\acute{y}}g\acute{e}\)} \text{-tika} \text{-ayi} \\
\text{INTERR.DEM} \text{-CL:stick} \text{-INAN.COP}
\end{array}\]
‘What kind of stick is it?’ (E.AMM.LMM.SJF.2jul2010)
‘¿Qué es este palito?’

c. \(\acute{\acute{y}}g\acute{\acute{i}}\text{g}i\acute{\acute{a}}\acute{\acute{r}} k\acute{\acute{a}}\acute{\acute{\acute{\acute{a}}}i}\)?
\[\begin{array}{l}
\text{\(\acute{\acute{y}}g\dot{i}\)} \text{-agi} \text{k\acute{\acute{a}}}\acute{\acute{\dot{\hat{a}}}} \\
\text{MASC.INTERR.DEM} \text{-ANIM.MASC.COP MASC.DIST.PRON}
\end{array}\]
‘What is that (a dog)?’ (E.JMM.SJF.19jun2013)
‘¿Qué es éso?’

A third demonstrative root may be used interrogatively. This is \(n\acute{e}\)-, which, like \(k\acute{e}\sim k\acute{a}\)-, indicates that the speaker does not know the identity of the entity in question. \(n\acute{e}\)- is the standard interrogative for local speech-act participants, as shown in (38) below.

(38) a. \(n\acute{e}\acute{\acute{a}}\acute{\acute{y}}\dot{i} (m\acute{\acute{\acute{i}}})?\)
\[\begin{array}{l}
\text{\(n\acute{e}\)} \text{-ayi} \text{m\acute{\acute{\acute{i}}}i} \\
\text{ANIM.INTERR.PRON} \text{-2.SG.INTERR.COP 2.SG.PRON}
\end{array}\]
‘Who are you?’ (E.AMM.SJF.21aug2014)
‘¿Quién eres?’

b. \(n\acute{e}\acute{\acute{a}}\acute{\acute{y}}\dot{i} \text{yi}\)?
\[\begin{array}{l}
\text{\(n\acute{e}\)} \text{-ayi} \text{yi} \\
\text{ANIM.INTERR.PRON} \text{-1.SG.INTERR.COP 1.SG.PRON}
\end{array}\]
‘Who am I?’ (E.AMM.SJF.21aug2014)
‘¿Quién soy yo?’

c. \(n\acute{e}\acute{\acute{a}}\acute{\acute{y}}\acute{\acute{\acute{\acute{i}}}}\dot{k}\acute{\acute{\acute{\acute{\acute{a}}}i}}\)?
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né -ayi yíké
ANIM.INTERR.PRON -1.PL.INTERR.COP 1.PL.INCL.PRON
‘Who are we?’ (E.AMM.SJF.21aug2014)
‘¿Quiénes somos?’

For non-speech-act participants whose gender is known, ígi or ígiō–ígō is used, as in (39).

(39) a. ígiàgi?
    ígí -agi
MASC.INTERR.PRON -ANIM.MASC.INTERR.COP
‘Who is he?’ (E.AMM.SJF.21aug2014)

b. ígōàgō?
    ígō -ago
FEM.INTERR.PRON -ANIM.FEM.INTERR.COP
‘Who is she?’ (E.AMM.SJF.21aug2014)

In cases where the gender of the referent is unknown, né- is used. When the unknown referent is an agent, -bi is suffixed to né-, as in (40a).

(40) a. nébi yirè nèéki?
    né -bi yi -re nèé -ki
INTERR.DEM -SING 1.SG.PRON -NON.SUBJ do -3.SG.MASC.PRES.INTERR
‘Who did this to me?’ (bdb 32.1)
‘¿Quién ha hecho esto a mí?’

When the unknown referent is not an agent, it is assigned case accordingly. Example (41) shows nè- suffixed with the non-subject marker -re.

(41) mì nèré hìkàkò?
    mì né -re hìkà -ko
2.SG.PRON INTERR.DEM -NON.SUBJ speak -3.SG.FEM.PRES.INTERR
‘Who are you talking to?’ (chi 49.1)
‘¿Con quién estás conversando?’

As a possessor, nèé surfaces bare, as in (42) below.

(42) a. nèé yàfhòyìàgi?
    nèé yàfhòyi -agi
ANIM.INTERR.PRON dog -ANIM.MASC.INTERR.COP
‘Whose dog is it?’ (E.AMM.SJF.21aug2014)
‘¿De quién su perro?’
When the demonstrative root *né-* appears with a classifier, it means ‘some kind of X’, as in *némè* ‘some (unspecified) kind of rope’ or *nédòrù* ‘some (unspecified) kind of basket’. By itself, the neuter pronoun *néè* is used as a lexical-search hesitation word, or can mean something like ‘thingamajig’.

The animate pronominal forms of *né-* are likely *dékò* ‘unknown feminine being’ and *dékà* ‘unknown masculine being’. These are generally reserved for situations in which the speaker is searching for the name of a person or an animal that he or she has temporarily forgotten, as exemplified in (43).

(43) a. *dékpà*, mànù háhùnà bàikíñà, dékpàì
dé -ki mànù hái -huna bài -ki -na
INTERR.DEM -CL:masc more big -CL:group live -MASC:cl -ANIM.PL
dé -ki -aì
FURGOTEN.DEM -CL:masc -ANIM.MASC.COP
‘Another group, a bigger group, what’s it called?’ (yar 42.1)

b. *dékò, ūñbàkòñà háyé nòñgìbì*
dé -ko ūñjí báá -ko -na háyé nòñgì
FORGOTEN.DEM -CL:fem tooth have -CL:fem -ANIM.PL a.lot fish.with.hook
-bì
-1.SG.PAST.DECL
‘I also caught a lot of—what’s-it-called—of piranhas’ (aho 63.1)

In sum, *ígè-, ígè, ígì, and ígìò~ígò* are used in situations where the speaker does not know what *kind* of thing an inanimate, third person masculine animate, or third person feminine inanimate entity is, and *ké~kà-, kéè, kákà, and kákò* are used when the speaker does not know which *individual* an inanimate, third person masculine animate, or third person feminine animate entity is. *né-* is used interrogatively when asking about speech-act participants, and assertively when indicating that one does not know what *kind* of inanimate object something is. The animate counterpart to the assertive *néè* is *dékò* (feminine) or *dékà* (masculine).

### 3.8.4 Temporal and spatial continuity

There are a number of demonstrative roots in Máiñiki that indicate temporal or spatial continuity between mentions of an entity. For instance, the demonstrative root *nà-,* whose feminine, masculine, and neuter/plural pronominal counterparts are *nàò, nàè, and nàà,* respectively, indicates that some event participant is the same as the participant in a previous event. Examples of *nà-* are shown below in (44).

---

2I suggest allomorphy here based on the semantic and phonological similarity of these forms, and the fact that *né-* is in complementary distribution with *dé-* inasmuch as there is no other masculine or feminine pronominal element derived from *né-.*
(44) a. nàdáří sòñà nà kàdlàří
   nà -rari sìò -ńia nà ká
   SAME.AGAIN.DEM -CL:location light -ASP again SPEAKER.DIST.DEM
   -rari
   -CL:location
   'Light it again there in the same place' (by5)
   'Prende en ese mismo lugar otra vez'
b. yèkòrè hásóchikorè nàòrè hásò
   yèkò -re hásó -chí -ko -re
   other.PRON.FEM -NON.SUBJ shoot -PAST.REL -CL:fem -NON.SUBJ
   nàò -re hásò
   SAME.AGAIN.DEMM.FEM -NON.SUBJ shoot
   'The one that I shot, I shot the same one again' (pvc 130.1)
   'Yo he baleado otra vez la misma animal que ya había baleado'

A similar demonstrative root, té-, whose pronominal counterparts are téò, téì, and téá, differs from nà- in that it indicates a non-sequential continuity of reference. In (45), Mámásò and Mákòbè are looking for the same snake as each other, rather than the same snake as at some previous point in time, as nāirè āñārè would indicate.

(45) a. Mámásò Mákòbèhànû téìrè āñârè kwèèyi
   Mámásò Mákòbè -hanu téì -re āñà
   proper.name proper.name -COM same.SG.MASC.PRON -NON.SUBJ snake
   -re kwèè -yi
   -NON.SUBJ look.for -3.PL.PRES.DECL
   'Mámásò and Mákòbè are looking for the same snake'
b. yi téáwè bààchù
   yi téá -we bàà -chí
   1.SG.PRON DEM.SAME -CL:building live.FUT.NI -1.SG.FUT.DECL.NI
   'I’m going to live in the same house (as him)' (myg 61.1)

The opposite of té- is minà-, which indicates spatially separate event participants.

(46) minàtòyápmà tòyáýí
   minà tòyá -pi -ma tòyá -yi
   DEM.DIF write -CL:stack -INAN.PL write -1.SG.PRES.DECL
   'I’m writing in different notebooks' (E.NMM.SJF.2feb2013)
   'Estoy escribiendo diferentes cuadernos'

(47) minàbèsè dàóânîhì bàhè mìnàhúrûmà
’We would always wander around to different places’ (apa 87.1)

The demonstrative root *ti*- is the opposite of *ti*- in that it indicates a referent that is different from the one that speaker assumes, for whatever reason, his interlocutor has in mind. This demonstrative is used when the speaker realizes he or she has misspoken, as in (48) below. In (48a), the storyteller establishes a referent—the Yanayacu River—and quickly realizes in that this is not the correct river. He indicates this mistake in (48b), first with the pronoun *tíne*, and later using the demonstrative *ti*- suffixed with the classifier *-ro ‘CL:place’.

(48) a. *ýá, *ýá máh *ý̱kí...Táidiyá
   *ý̱ ty̱ a, *ý̱ ty̱ a m*ý̱ ty̱ kíy̱ *...Tá̱ ñy̱ a d*ý̱ ab*ý̱ á
   PROX.DEM -CL:river PROX.DEM -CL:river go.upriver.PAST.NI
   *-hi yíkí Táidiyá
   -1.PL.PAST.DECL.NI 1.PL.INCL.PRON proper.name
   ‘We went up this river, this river, the Yanayacu’ (agn)

b. *tíne*! *tíne*! *ká* *ti*rórè *kíyí—Táidiyá dáó màyí chí *ítibánù
   incorrect.PRON -INAN.COP incorrect.PRON -INAN.COP DIST.ANAPH.PRON
   *tí* *-ro -re *kíá -yi Táidiyá d*áó
   INCORRECT.DEM -CL:place -NON.SUBJ tell -1.SG.PRES.DECL proper.name walk
   *-má -yi *chí *á *báí -nu
   -NEG -1.PL.PRES.DECL not.yet PROX.DEM live -CL:time
   ‘That’s wrong! That’s wrong! I said the wrong place. We weren’t going on the Yanayacu yet at that point in (my) life’ (agn)

Finally, the demonstrative root *yéké*- sets up an opposition between two referents. In the case of (49), where it is established that there are two wives, *yékó* picks out one wife in opposition to the other. Subsequent uses of *yékó* alternate in reference.

(49) a. *dábí pébá báági níhó
   *dábí pé -bi báá -gi níhó
   shaman pair -SING have -3.SG.MASC.PAST.DECL wife
   ‘The shaman had a pair of wives’ (bdm 4.1)
   ‘El brujo tenía dos mujeres’

b. *yékó* ñámékó
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\[ yékò  ſ̱ámé -ko \]
other.DEF.FEM not.want -3.SG.FEM.PRES.DECL

‘One of them didn’t love him’ (bdm 5.1)
‘Una mujer no le quería’

By itself, \textit{yéké-} and its pronominal counterparts indicate that the entity in question is different from the previous contextually salient referent. This is shown below in (3.8.4).

\[(50) \] \textit{wèè nèèrè bàisèhùnà nà ꜜr̥ àri hànà Pacoposahùrù nà wèè yékèwè nèèbì}

\[ wèè nèè -re bāi -se -huna nà ſ̱ -r̥ àri hànà \]
house make -SS.SEP live -PAST.REL -CL:group again PROX.DEF -CL:location now

\[ Pacoposa -huru nà wèè yékè -we nèè \]
proper.name -CL:vicinity again house other.DEF -CL:building make

\[-bi -1.PL.PRES.DECL \]

‘We build houses and lived in them, and from there built other houses around Pacoposa’ (apa 60.1)
‘Hemos hecho casa y vivido allá, de allí en ese lugar, Pacoposa, hemos hecho casas otra vez’

3.9 Inflectional paradigms

Finite verbs in Máhñi bear an inflectional suffix which encodes tense, person, number, and clause type. The inflectional paradigms may be divided into ‘regular class’ and ‘\textit{-ni} class’ paradigms, whose differences are outlined below for both declarative and interrogative clauses.

3.9.1 Declarative paradigms

The declarative inflectional paradigm for regular class verbs is shown in Table 3.7 below. As mentioned in \\$1.2.3, the local person and plural past tense suffix \textit{-gu} is used primarily in the Yanayacu basin (WM), and the masculine and feminine third person past tense suffixes \textit{-ai} and \textit{-ao} are used by some speakers of NM.

Recall from \$2.4.1 that in WM and EM, the present and past tense regular declarative suffixes are Class II suffixes and therefore receive spreading high tone, while the future suffixes are of Class III. In NM, however, all inflectional suffixes are of Class III.
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Table 3.7: Regular declarative inflectional paradigm

Table 3.8: -ni class declarative inflectional paradigm. As mentioned in §1.2.3 and shown below, there is considerable dialectal and idiolectal variation in the realization of the past tense of -ni class verbs.

Note that in EM and WM, the present tense declarative -ni class suffixes are of Class II (i.e., receive spreading high tone), while the past and future suffixes are of Class III. In NM, all inflectional suffixes are of Class III.

Table 3.8: -ni-class declarative inflectional paradigm

In the past and future tenses, -ni class verbs exhibit stem allomorphy. The past tense stem is equivalent to the first mora of the present tense stem, but always with high tone; the future tense stem consists of the first mora of the present tense stem plus a second vowel of the same quality, which may bear either high or low tone. The tone pattern of the future tense stem corresponds with that of the -ni allomorph. (For a summary of -ni class verb allomorphy, see §3B.

3.9.2 Interrogative paradigms

The regular class interrogative inflectional paradigm is shown below in Table 3.9. All interrogative inflection in all varieties of Māñ̃ik is of tonal Class III. Note that there is some
variation in the realization of the present tense 1st person and animate plural suffix (-yi vs. -ye). -ye is found in the Yanayacu River basin.

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PL.ANIM</td>
<td>-yi, -ye</td>
<td>-re</td>
<td>-yo</td>
</tr>
<tr>
<td>1SG</td>
<td>-yi, -ye</td>
<td>-re</td>
<td>-yi</td>
</tr>
<tr>
<td>2SG.FEM</td>
<td>-ko</td>
<td>-go</td>
<td>-yo</td>
</tr>
<tr>
<td>2SG.MASC</td>
<td>-ki</td>
<td>-gi</td>
<td>-yi</td>
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<td>-ko</td>
<td>-go</td>
<td>-yo</td>
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<td>-ki</td>
<td>-gi</td>
<td>-yi</td>
</tr>
<tr>
<td>INAN</td>
<td>-ki</td>
<td>-gi</td>
<td>-yi</td>
</tr>
</tbody>
</table>

Table 3.9: Regular class interrogative inflectional paradigm

The -ni class interrogative inflectional paradigm is presented below in Table 3.10. Like their regular class interrogative counterparts, these suffixes are of tonal Class III. The stem allomorphy is as described for the -ni class declarative paradigm.

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Past</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL.ANIM</td>
<td>-yi, -ye</td>
<td>-te</td>
<td>-yo</td>
</tr>
<tr>
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<td>-yi, -ye</td>
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<td>-chi</td>
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<td>-ki</td>
<td>-ki</td>
<td>-chi</td>
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<tr>
<td>INAN</td>
<td>-ki</td>
<td>-ki</td>
<td>-chi</td>
</tr>
</tbody>
</table>

Table 3.10: -ni-class interrogative inflectional paradigm

### 3.10 Negation

The negation of a proposition is achieved in Máshikí via the suffixation of the clausal negator -ma to the verb stem, as shown in (51) below. When negating a present-tense or past-tense proposition, -ma behaves as a Class I tonal suffix; that is, it has inherent high tone that spreads to adjacent verbal inflection.

(51) a. yì ñkúmáyì yì
    yì ñkú -má -yì yì
    1.SG.PRON drink -NEG 1.SG.PRES.DECL 1.SG.PRON
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‘I don’t drink’ (jv3 44.1)

b. túnómágó

\[ \begin{align*}
\text{túnó} & \quad -\text{má} \quad -\text{go} \\
\text{answer} & \quad -\text{NEG} \quad -3.\text{SG.FEM.PAST.DECL}
\end{align*} \]

‘She didn’t answer’ (vie 48.1)

In the negation of questions and future-tense propositions, \(-\text{ma}\) behaves as a Class III tonal suffix: it undergoes tonal erasure, surfacing H after LL roots and L after HH and HL roots. Examples (52a) and (52b) show the negated verb sái ‘go’ in the present and future tense, respectively. We can see in (52b) that the negator has undergone tonal erasure, as it surfaces low following a HH verb.

(52) a. sáimáyí

\[ \begin{align*}
\text{sáí} & \quad -\text{má} \quad -\text{yi} \\
\text{go} & \quad -\text{NEG} \quad -1.\text{SG.PRES.DECL}
\end{align*} \]

‘I’m not going’ (bag 112.1)

‘No me voy’

b. sáimáyí

\[ \begin{align*}
\text{sáí} & \quad -\text{ma} \quad -\text{yi} \\
\text{go} & \quad -\text{NEG} \quad -1.\text{SG.FUT.DECL}
\end{align*} \]

‘I’m not going to go’ (con 244.1)

‘No voy a ir’

c. bábémákí mí?

\[ \begin{align*}
\text{bábé} & \quad -\text{ma} \quad -\text{ki} \quad \text{mí} \\
\text{deliberately.misinform} & \quad -\text{NEG} \quad -2.\text{SG.PRES.INTERR} \quad 2.\text{SG.PRON}
\end{align*} \]

‘Are you not kidding?’ (vi2 35.1)

‘¿No estás engañando?’

d. bábémáyí

\[ \begin{align*}
\text{bábé} & \quad -\text{má} \quad -\text{yi} \\
\text{deliberately.misinform} & \quad -\text{NEG} \quad 1.\text{SG.PRES.DECL}
\end{align*} \]

‘I’m not kidding’ (vi2 36.1)

‘No estoy engañando’

\(-\text{ma}\) also behaves as a Class III suffix when negating subordinate or nominalized clauses. Example (53) below shows the negated HH verb kíá ‘inform, preach’ in a past tense finite clause and a subordinate clause marked with the different subject suffix \(-\text{kiéré}\) (see §?? for more on subordination). In (53a), \(-\text{ma}\) maintains its high tone, which spreads to the adjacent inflectional suffix \(-\text{gi}\). In (53b), \(-\text{ma}\) undergoes tonal erasure and surfaces with low tone following the HH root.

(53) a. kíámáyí

\[ \begin{align*}
\text{kíá} & \quad -\text{má} \quad -\text{yi} \\
\text{go} & \quad -\text{NEG} \quad -1.\text{SG.PRES.DECL}
\end{align*} \]

‘I’m not going’ (bag 112.1)

‘No me voy’

b. kíámáyí

\[ \begin{align*}
\text{kíá} & \quad -\text{ma} \quad -\text{yi} \\
\text{go} & \quad -\text{NEG} \quad -1.\text{SG.FUT.DECL}
\end{align*} \]

‘I’m not going to go’ (con 244.1)

‘No voy a ir’

c. bábémákí mí?

\[ \begin{align*}
\text{bábé} & \quad -\text{ma} \quad -\text{ki} \quad \text{mí} \\
\text{deliberately.misinform} & \quad -\text{NEG} \quad -2.\text{SG.PRES.INTERR} \quad 2.\text{SG.PRON}
\end{align*} \]

‘Are you not kidding?’ (vi2 35.1)

‘¿No estás engañando?’

d. bábémáyí

\[ \begin{align*}
\text{bábé} & \quad -\text{má} \quad -\text{yi} \\
\text{deliberately.misinform} & \quad -\text{NEG} \quad 1.\text{SG.PRES.DECL}
\end{align*} \]

‘I’m not kidding’ (vi2 36.1)

‘No estoy engañando’
(53) a. káamági
    kíá  -má  -gi
    inform  -NEG  -3.SG.MASC.PAST.DECL
    ‘He doesn’t preach (anymore)’ (ca3 107.1)
    ‘Ya no predica más’

b. kíamákerè námékè hgóñàbè tèà
    kíá  -ma  -kíré  námé  -ki  hgó  -ñia
    inform  -NEG  -MASC.DS.SIM  not.want  -MASC.SS.SIM  abandon  -FRUST
    -bí  tèà
    -1.SG.PAST.DECL  also
    ‘Because he no longer preached, I didn’t want to (go to church) and I abandoned it’ (ca3 116.1)
    ‘Como él ya no enseñaba, yo no quería (ir a la iglesia) y lo he dejado’

3.10.1 The scope of negation

The position of the negative suffix -ma with respect to other verbal affixes has implications for its scope. In general, the negator scopes over the suffixes to its left. Example (54) below shows scope interactions between -ma and the universal quantificational suffix -sao. In (54a), the speaker asks the listener whether she has closed all of the doors. The response in (54b), in which -ma follows -sao, indicates that not all of the doors have been closed. Example (54c), in which -sao follows -ma, indicates that none of the doors have been closed (i.e., negation scopes under the universal quantifier).

(54) a. béóbèsè díbosàogò hátòsàrômà?
    béóbèsè díbo  -sao  -go  hátòsàrò  -ma?
    all  close  -UNIV.QUANT  -2.SG.FEM.PAST.DECL  door  -INAN.PL
    ‘Did you close all the doors?’ (E.JMM.SJF.19jun2013)
    ‘¿Has cerrado todas las puertas?’

b. díbòsàómábi; cháà hókábí
    díbò  -sàò  -má  -bí  cháà hóká  -bí
    close  -UNIV.QUANT  -NEG  1.SG.PAST.DECL  still  remain  1.SG.PAST.DECL
    ‘I didn’t close all of them; I still have (some) left’

c. díbòmásàòbí
    díbò  -má  -sao  -bí
    close  -NEG  -UNIV.QUANT  -1.SG.PAST.DECL
    ‘I didn’t close all of them (i.e., any of them)’ (E.JMM.SJF.19jun2013)
    ‘No he cerrado ninguno’
3.11 The structure of events

This section, which deals with how the structure of events is expressed in Māhiñīkì, is divided into three parts. First, I will discuss a paradigm of stem allomorphy which encodes information about the number of states in an event, as well as the number and roles of event participants. Next, I will discuss several verbal suffixes that may be used to alter the basic event structure encoded by the root, for instance by adding event participants or by providing more detailed information about changes in state. Finally, I will describe the role of serial verb constructions in the semantics of event structure.

3.11.1 Event-structural stem allomorphy

Māhiñīkì verb stems form an elaborate paradigm that encodes information about the structure of events. This paradigm is sensitive to at least four parameters: 1. how many discrete states the event encodes; 2. how many participants are involved in the event; 3. whether the event involves a change of state; and 4. which of the participants instigate and undergo the change of state if there is one. Most verbs will exhibit at least two allomorphs which may correspond to the following event types:

1. a single state
2. multiple identical states
3. a change of state undergone by a single event participant
4. a change of state instigated and undergone by a single event participant
5. a change of state instigated by one participant and undergone by another
6. multiple changes of state instigated by one participant and undergone by another
7. a change of state instigated by one participant and undergone by both that participant and another
8. multiple changes of state instigated by one participant and undergone by both that participant and another

The first type of stem—the single-state stem—typically ends in /i/, although if initial vowel of the root is /e/, the second vowel of the single state stem will also be /e/ (e.g. bée ‘lie in a hammock’). These constitute the so-called -ni verbs, which, for the most part, are stative/positional verbs (e.g. nù ‘be seated’, sì ‘be stuck’, etc.), although they also include activity verbs (e.g. ú ‘eat’, bái ‘beat’, tú ‘follow’). Some verbs that involve progression toward an endpoint or second state (e.g. dù ‘sink’, hù ‘be sick; deteriorate in health’, tú ‘fall’) also belong to this morphological class.
The second type of stem—one that encodes multiple identical states—has the form of the reduplicated root. In the case of /d/-initial roots, the second mora will begin with /t/ (e.g. dátú ‘sink (plact)’ from dà ‘sink’), and in the case of roots with nasal vowels, the second mora will be oral (e.g. tátú ‘fall (plact)’ from tá ‘fall’). I call this stem type, along with all other stem types that encode multiple states, ‘pluractional’. In particular, this stem type is the pluractional counterpart to the single-state stem described above; it indicates that the same state is...repeatedly

Because the repetition of identical states necessitates discretization, verb stems of this type typically appear in constructions that express an alternation with another state or activity. One common construction of this type involves the serialization of the pluractional root sákà ‘jump’ and a ‘multiple state’ pluractional stem, yielding the meaning ‘repeatedly jump and X’, where X is a positional verb. Examples of this construction are shown below in (55), where sísí, tútú and détè are the multiple-identical-state counterparts to the single-state sìi (‘stick’), túú (‘sit atop’), and déé (‘hang’), respectively.

(55) a. sákàsísíkó
   sákà sísí -ko
   jump.plact stick.plact 3.sg.fem.pres.decl
   ‘It (a cricket) is jumping around’ (E.LTN.SJF.10aug2013)

b. sákàtútúkó
   sákà tútú -ko
   jump.plact sit.atop.plact -3.sg.fem.pres.decl
   ‘It (a bird) is jumping around’ (E.LTN.SJF.7aug2013)

c. sákàdétèhì
   sákà détè -hì
   jump.plact hang.plact 3.sg.presp.masc.decl
   ‘It (a monkey) is jumping around’ (E.LTN.SJF.7aug2013)

The third type of stem, which I call ‘middle’ stems, encodes a change of state undergone by a single event participant who did not instigate this change of state. These stems typically end in /u/. Examples include kwákù ‘cook (intr)’, kwáru ‘melt (intr)’, and úú ‘burn’ (intr).

These stems differ from the fourth type of stem, which I call ‘reflexive’ stems because the change of state is both instigated and undergone by the same participant. In general, reflexive stems exhibit a low-toned /a/ following the root, although in several cases these stems end in /me/. Examples of /a/ reflexives include tú ‘alight’, hù ‘insert oneself’, and mì ‘rise’; examples of /me/ reflexives include tómé ‘fall through the air’ and némé ‘get on all fours’.

The fifth type of stem—the accusative stem—which encodes an event in which one participant causes another to undergo a change of state, is marked with /o/. The sequence /io/ will become /iyo/; the sequence /uo/ will become /io/. The sixth type of event is the pluractional counterpart to the accusative event. There are multiple changes of state in which
one party, himself unaffected, acts on another. In general this stem is of the form /CVCo/ or /CVCu/, where the second consonant is /y/ or /s/. In addition to accusative stems, there are stems which encode a change of state that was undergone both by the instigator and another participant. These stems end in /a/, and crucially do not exhibit the HL tonal contour of the reflexive stems. Examples include sáá ‘take’, tíaá ‘run a canoe aground’, méá ‘rise with something; climb carrying something’. The pluractional counterparts to these stems are generally of the shape /CVCe/, where the second consonant is highly variable. These pluractional stems indicate that a change of state was realized many times and undergone by both the instigator and another party (e.g. húhè ‘insert oneself (pluractional)’). The /CVCe/ stem may also be used to indicate accusative pluractionality in cases where there is no separate /CVCo/ form. Table 3.11 below shows the Máñhí event structure paradigm.

<table>
<thead>
<tr>
<th>Gloss</th>
<th>Single</th>
<th>-a reflexive</th>
<th>Multiple</th>
<th>Accompaniment</th>
<th>Accusative (plact)</th>
<th>Middle</th>
<th>Accusative (plact)</th>
<th>-me reflexive</th>
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<td>kîò</td>
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<td>cook</td>
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<tr>
<td>melt</td>
<td>kwáí</td>
<td>kwáá</td>
<td>kwáa</td>
<td>kwáa</td>
<td></td>
<td>kwákó</td>
<td>kwárò</td>
<td>kwáó</td>
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<tr>
<td>shoulder</td>
<td>kwáí</td>
<td>kwáá</td>
<td>kwáa</td>
<td>kwáa</td>
<td></td>
<td>kwákó</td>
<td>kwárò</td>
<td>kwáó</td>
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<tr>
<td>heat</td>
<td>kwéné</td>
<td>kwéná</td>
<td></td>
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</tr>
</tbody>
</table>
### 3.12 Temporal clause-linking devices

Michael (2011a) identifies two types of temporal clause-linking constructions: ‘sequential’ constructions, which indicate that the events in each clause are non-overlapping, and ‘temporal overlap’ constructions, which indicate that the events in each clause overlap to some degree. Michael further identifies a distinction between ‘same-subject’ and ‘different-subject’ sequential constructions. The discussion of temporal clause linking presented here differs from Michael (2011a) in that Michael proposes a single sequential construction, in which the subordinate verb is marked with -re or its ni-verb allomorph -ni, while I show that there is an additional set of different subject sequential suffixes (shown in Table 3.15).
Below, I will discuss the same subject and different subject constructions in turn.

### 3.12.1 Same subject constructions

In temporal-overlap same-subject constructions with either regular- or -ni-class verbs, the suffixes -ki ‘masculine singular/inanimate’, -ko ‘feminine singular’, or -hî ‘animate plural’ are suffixed to the subordinate verb. These suffixes are shown below in Table 3.13.

<table>
<thead>
<tr>
<th></th>
<th>Masc</th>
<th>-ki</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fém</td>
<td>-ko</td>
<td></td>
</tr>
<tr>
<td>Pl</td>
<td>-hî</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3.13: Temporal overlap same subject markers**

Example (56) shows the masculine temporal-overlap same subject suffix on the subordinate -ni class and regular class verbs dáí ‘come’ and ábié ‘bathe’, respectively.

(56) a. dáíkê, mákâ dáíkê ágâhî
    come -MASC.SS.SIM woods come -MASC.SS.SIM shout -3.SG.MASC.PRES.DECL

    ‘Coming out of the woods, he shouted’ (ttj 101.1)
    ‘Viniendo del monte él llamaba’

b. ábîkê tikâhî, “ko, ko, ko”

    bathe -MASC.SS.SIM hit.PLACT -3.SG.MASC.PRES.DECL ONOM ONOM ONOM ONOM

    ‘Bathing, he was hitting (the water) making it go, “ko, ko, ko”’ (clp 227.1)
    ‘Baﬁando estaba golpeando con el sonido “ko, ko, ko”’

(57) a. yábésâbikô sâíkô
    hide.INTR crawl -FEM.SS.SIM go -3.SG.FEM.PRES.DECL

    ‘She went crawling, hiding’ (muj 32.1)
    ‘Escondiéndose y gateando se fue’

b. âsékô âómâkô
    be.stingy -FEM.SS.SIM feed -NEG -3.SG.FEM.PRES.DECL

    ‘Being stingy with food, she didn’t feed [them]’ (hab 40.1)
    ‘Mezquinaba comida y no les daba de comer’

(58) a. kîuhî sâíyî
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\[ kìù \quad -hì \quad sàí \quad -yi \]
clear.path.with.machete -PL.SS.SIM go -3.PL.PRES.DECL

‘They went clearing the path with machetes’ (cm2 78.1)
‘Se fueron macheteando’

b. ónó tóáhì úkúyì útíhùnà

\[ ónó \quad tóá \quad -hì \quad úkú \quad -yi \quad útíhùnà \]
beverage grind -PL.SS.SIM drink -3.PL.PRES.DECL 3.PL.PRON

‘Grinding the masato, they would drink’ (pyj 9.1)
‘Moliendo el masato, ellos tomaban’

While the above examples show matrix verbs with exclusively present tense, past and future inflection are possible as well, as the following elicited examples from Michael (2011a) make apparent. These examples also show that the subordinated verb may either precede or follow the matrix verb.

(59) \[ yì \quad ëò \quad tàyá \quad ùtékò \quad bàbabì \]

\[ yì \quad ëò \quad ùté \quad -ko \quad bàbab \quad -bi \]
1.SG.PRON swidden extract.PLACT -FEM.SS.SIM clear -1.SG.PAST.DECL

‘I cleared my swidden, extracting grass’ (E.RTR-JRR.LDM.02jul2011)
‘Yo cultivé mi chacra, sacando hierba’

(60) \[ yì \quad ëò \quad dòìkì \quad ëò \quad bàbab \quad -yi \quad mèhè \quad ùté \]

\[ yì \quad dòìkì \quad ëò \quad bàbab \quad -yi \quad mèhè \quad ùté \]
1.SG.PRON brother swidden clear -1.SG.FUT.DECL weeds extract.PLACT -kì
-MASC.SS.SIM

‘I will clear my brother’s swidden, extracting weeds’ (E.AMM.LDM.05jul2011)
‘Voy a cultivar la chacra de mi hermano, sacando maleza’

Same subject sequential constructions are formed via the suffixation of -re to regular class verb stems, or by the use of the -ni form of a ni-class verb. Examples of regular class verbs are shown in (61), and ni-class verbs in (62).

(61) a. \[ ...nàso àèrè hèòtòòhòbì \]

\[ nàso \quad -re \quad àè \quad -re \quad hèò \quad tòò \quad -hò \]
woolly.monkey -NON.SUBJ tie.up -SSSEQ throw make.fall -PERF
-bì
-1.SG.PAST.DECL

‘...I tied up the woolly monkey and threw it down’ (130.1)
‘...he amarrado el choro y le he botado abajo’
b. sààrè kwàkòmà!

\[
\begin{align*}
\text{sàà} & -\text{re} \quad \text{kwàkò} -\text{ma}! \\
\text{take} & -\text{SS.SEQ} \quad \text{cook} & -\text{IMPER}
\end{align*}
\]

‘Take it and cook it!’ (iy6 437.1)

¡Llévalo y cócinalo!’

(63) a. nàñì ákwé!

\[
\begin{align*}
nàñì & \quad \text{ákwé} \\
\text{come.NI} & \quad \text{eat.soft.things}
\end{align*}
\]

‘Come and eat!’ (by4 71.1)

b. máírù̀ sàñì nógi, máírù̀

\[
\begin{align*}
máírù̀ & \quad sàñì \quad \text{nógi} \quad -\text{yi} \quad \text{máírù̀} \\
\text{upriver} & \quad \text{go.NI} \quad \text{fish.with.hook} & -\text{1.PL.PRES.DECL} \quad \text{upriver}
\end{align*}
\]

‘We’re going upriver and fishing, upriver’ (mak 116.1)

‘Vamos arriba para pescar’

### 3.12.2 Different subject constructions

Different subject temporal-overlap constructions for both regular and ni-class verbs are formed through the suffixation of -kire (masculine singular/inanimate), -kore (feminine singular), or -hìre (plural) to the subordinate (regular or ni-class) stem. These suffixes are shown below in Table 3.14.

<table>
<thead>
<tr>
<th>MASC</th>
<th>-kire</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEM</td>
<td>-kore</td>
</tr>
<tr>
<td>PL</td>
<td>-hìre</td>
</tr>
</tbody>
</table>

Table 3.14: Temporal overlap different subject markers

Example (63b) shows the subordinate ni-verb sìì ‘be stuck’ and the regular-class verbs tàò ‘make fall’ and bèò ‘not exist’ marked with the masculine different subject temporal overlap suffix -kire. In (63a), the subject of the subordinate verbs is the animate masculine máì ‘sun’, while in (63b) it is the inanimate kúchì ‘money’.

(63) a. kàhù̀sìì kìñkìñ, máì kàñìì tàòkìñè étàhògó

\[
\begin{align*}
kà & \quad -\text{huru} \quad \text{sìì} \quad -\text{kire} \quad \text{máì} \quad kà \quad -\text{huru} \quad \text{tàò} \\
\text{that} & \quad -\text{CL:vicinity} \quad \text{stick.INTR} & -\text{MASC.DS.SIM} \quad \text{sun} & -\text{CL:vicinity} \quad \text{make.fall} \\
\text{kire} & \quad \text{étà} \quad -\text{hò} \quad -\text{go} \\
\text{-MASC.DS.SIM} \quad \text{emerge} & \quad -\text{PERF} & -\text{3.SG.FEM.PRES.DECL}
\end{align*}
\]

‘She emerged around then, when the sun was there’ (nm3 9.1)
b. kúčki tèa béókëre kúčhinà ́jchihè§àbì

   kúčki tèa béó -kìre kúčhi -na ́jchí -heà
money also not.exist -MASC.DS.SIM pig -ANIM.PL sell -PERF.PLACT
   -bì
   -1.PL.PAST.DECL

‘When there was no money, we sold the pigs’ (rtm 12.1)
‘Cuando faltaba la plata, vendimos los chanchos’

Example (64) shows the different subject temporal overlap suffix -kore on the regular class verbs ákwé ‘eat soft things’ and gáhë ‘go downriver’.

(64) a. dòhi ákwékòré tèa häsóyì ŋámì, ŋámì

   dòhi ákwé -kore tèa häsó -yi ŋámì ŋámì
plant.sp eat.soft -FEM.DS.SIM also shoot -1.PL.PRES.DECL night night

‘When she (the tapir) is eating uvo, we hunt her, in the night’ (bek 39.1)
‘Cuando ella está comiendo en uvo, le matamos en la noche’

   gáhëkòré ágáhì
gáhë -kore ágá -hì
go.downriver -FEM.DS.SIM shout -3.SG.MASC.PRES.DECL

‘He shouted as she went downriver’ (nm3 12.1)
‘Él estaba llamando a ella cuando estaba bajando’

Example (65b) shows the plural temporal overlap marker -hìre suffixed to the regular class verbs kìá ‘inform’ and séé ‘singe’.

(65) a. káhìré yétébì yi

   kìá -hìre yété -bi yi
tell -DS.PL learn -1.SG.PAST.DECL 1.SG.PRON

‘They taught and I learned’ (ca3 26.1)
‘De lo que han dicho yo he aprendido’

   bàì sééhìré, ábésàhì
bàì séé -hìre ábi -sai -hì
time singe -DS.PL bathe -ASS.MOT.AWAY.FROM.SPACT -3.SG.MASC.PAST.DECL

‘When they were singing the meat, [Máhnënò] went to bathe’ (iy6 222.1)
‘Cuando estaban chamuscando, [Máhnënò] se fue a bañar’

The different subject sequential construction is formed by suffixing -gire (masculine singular/inanimate), -gore (feminine singular), or -hìre (plural animate) to the subordinate
regular verb stem, or \textit{kire}, \textit{-kore}, or \textit{hiire} to an allomorph of the ni-class stem. This allomorph is the same in form as the past-tense \textit{ni}-class stem.

The different subject sequential suffixes are shown in Table 3.15 below. Note that there is syncretism between the simultaneous and sequential different subject ni-class suffixes (although this is disambiguated with stem allomorphy), as well as between the plural simultaneous and sequential different subject suffixes for both regular and ni-class verbs.

<table>
<thead>
<tr>
<th></th>
<th>Regular</th>
<th>NI-CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASC</td>
<td>-gire</td>
<td>-kire</td>
</tr>
<tr>
<td>FEM</td>
<td>-gore</td>
<td>-kore</td>
</tr>
<tr>
<td>PL</td>
<td>-hiire</td>
<td>-hiire</td>
</tr>
</tbody>
</table>

Table 3.15: Sequential different subject markers

Masculine different subject sequential constructions are shown below in (66). In (66a), the unexpressed agent is a worm—a masculine animate creature. In (66b), the unexpressed agent is a storm—an inanimate noun. Finally, in (66c), we see that the subordinate-clause allomorph of the ni-verb \textit{sáí} appears suffixed with \textit{-kire}.

(66) a. húniní\textit{gire} bářínihógó
\textit{húni} -hó -gire \textit{báří} úá -hó -go
die.NI -PERF -DSSEQ.MASC drag lay -PERF -3SG.FEM.PAST.DECL
‘After he died, she dragged him (from the hole) and lay him (on the ground)’
(\textit{i}y\textit{6} 327.1)
‘Cuando él había muerto, ella le jaló (del hueco) y le hizo echar en la tierra’

b. táyó\textit{gire} dáíyi
\textit{táyo} -gire dái -yi
pass -DSSEQ.MASC come -1SG.PRES.DECL
‘When it (the storm) passed, I came’ (\textit{hur} 26.1)
‘Cuando ha pasado bien, he venido’

c. nà sàákírè hòkàyi...
\textit{sàá} -kíre hòká -yi
go.SUB.NI -DSSEQ.NI speak -1SG.PRES.DECL
‘After he left again, I said to him...’ (\textit{ovi} 223.1) ‘Después de que él se ha ido otra vez, yo le dije...’

Feminine different subject sequential constructions are shown below in (67). Examples (67a) and (67b) show the regular class stems \textit{móní} ‘return’ and \textit{sáníhò}\textsuperscript{3} ‘leave’ suffixed with

\textsuperscript{3}Note that while \textit{sáí} is a ni-class verb, the addition of any Class I or Class III suffix will result in a regular-class stem.
-gore. Example (67c) shows that the ni-class verb sáí ‘go’ exhibits stem allomorphy and is suffixed with -kore.

(67) a. mónígôrè bíákàgà nání ŭkúhí chichirà
   mónî -gôrè bíâkî -ga nání ŭkú -hî chichì
complete return -FEM.DS.SEQ father -TOP come.NI drink -3.SG.MASC.PRES.DECL mud
   -ra CL: body.of.water
   ‘When she returned, her father came and drank (her masato mixed with) mud’
   (clp 191.1)
   ‘Cuando ella ha vuelto, su papá vino a tomar su masato mezclado con tierra’

b. yó sánihógôrè nà ágáyí na, “hàkò dòè sákò”
   yó sónî -hó -gôrè nà ágá -yi na hàkò
completed go.NI -PERF -FEM.DS.SEQ again shout -3.PL.PRES.DECL again mother
   dòè să -ko already go.PAST.NI -3.SG.FEM.PAST.DECL.NI
   ‘When she left, they shouted, “Mother has left!”’ (by1 21.1)
   ‘Cuando ella se ha ido, otra vez llamaban, “Mamá se ha ido!”’

c. àkì sàâkôrè hîkàhíhí...
   àkì sóa -kôre hîkà -hî
foreign complete go.SUB.NI -FEM.DS.SEQ.NI speak -3.SG.MASC.PRES.DECL
   ‘When I went, the mestizo (nurse) said...’ (ov1 142.1)
   ‘Cuando yo he ido el enfermero dijo...’

Plural different subject sequential constructions are shown in (68c) below. Again, we see two examples of regular class stems (áómahírè ‘not feed’ and ágâ ‘shout’) suffixed with -hire in (68a) and (68b), respectively. Example (68c) shows the stem allomorphy exhibited by the ni-class verb dáí ‘come’.

(68) a. áómahírè gòòkö
   áá -má -hire góó -ko
feed -NEG -PL.DS be.angry -3.SG.FEM.PRES.DECL
   ‘When they didn’t give her food, she got angry’ (hab 111.1)
   ‘Cuando no le han invitado, ella se ha rabiado’

b. ágáhirè nàò dákö
   ágá -hire nàò dáí -ko
shout -PL.DS same.FEM come -3.SG.FEM.PRES.DECL
   ‘When they shouted, the same one (sloth) came’ (by1 47.1)
   ‘Cuando ellos llamaron, ella misma ha venido’

c. dáñhirè bíâkî hîkàåsá -hî, “ásé, màkôgà?”
When they came, their father asked, “What about your mother?” (hab 154.1)

In addition to the different subject sequential constructions illustrated above, Michael (2011b) shows that the same subject sequential construction, in which a regular class verb is suffixed with -re or a ni-class verb appear in its -ni form, can also be used when there are separate agents. An example of this is shown below in (69).

(69) Mámáső hàsò útärè, hétè Máibàrò kwàkgò

Mámáső hàsò útá -re hétè Máibàrò kwàkgò
proper.name manioc extract -SS.SEQ later proper.name cook
-go
-3.SG.FEM.PAST.DECL

‘Mámáső pulled up manioc and later Máibàrò cooked it’ (E.AMM.LDM.4jul2011)

I have not found examples of this sort in our corpus and can therefore only speculate about the difference between this construction and the different subject sequential construction described above. The difference may lie in the fact that the matrix clause contains an omitted patient that is coreferential with the patient expressed in the subordinate clause. Further elicitation is needed.

### 3.12.3 Reason constructions

Michael (2012) notes that “most reason constructions are in fact formally identical to temporal clause-linking constructions, and whether a temporal relationship reading or a causal relationship reading obtains for a given sentence depends on pragmatics” (1). The examples in (70) below show that it is indeed the case that temporal clause-linking constructions may yield the interpretation that the event expressed by the subordinate clause is the reason for the event expressed in the matrix clause. We see a different subject temporal overlap construction, a different subject sequential construction, a same subject overlap construction, and a different subject sequential construction, respectively, all of which have been translated with Spanish reason constructions (with como, porque, or por eso).

(70) a. ài máigjàkũ̀ ñunderlineókirè, kwàábì
ài máì -gìa -ki -nì úú-kì õí -kìre
? people -SEEM.LIKE -CL:masc -ANIM.DIM lie -MASC.SS.SIM cry -MASC.DS.SIM
kwàá -bì
cradle -1.SG.PAST.DECL
‘Because he was lying there crying like a person, I (picked him up and) cradled him’ ‘Como él estaba llorando parecido a la gente, yo le (he agarrado y) le he marcado’

b. ókó ŋátági ré áó óiyí

ókó ŋátá -gíre áó óí -yi
water dawn -DS.MASC.SEQ food want -1.PL.PRES.DECL

‘Because it dawned rainy, we want food’ (ada 15.1)
‘Como ha amanecido con lluvia, queremos comida’

c. hùíkò síiyí

hùí -ko sáí -yi
be.sick -FEM.SS.SIM go -1.SG.PRES.DECL

‘I’m going because I’m sick’ (E.LDM.NMM.9jul2012) ‘Estoy enferma, por eso estoy yendo’

d. áó kwákòmáré, dámágó

áó kwákó -má -re dáí -má -go
food cook -NEG -SS.SEQ come -NEG -3.SG.FEM.PAST.DECL

‘She didn’t come because she didn’t cook’ (E.LDM.NMM.9jul2012)
‘Porque no ha cocinado, no ha venido’

While Michael (2012) argues that the -gíre/-gore/-híre paradigm is used only for reason constructions, the examples in (66), (67), and (68c) above show that the suffixes in this paradigm also have a non-reason temporal clause-linking interpretation.

### 3.13 Purposive constructions

Purposive constructions are those in which the subordinate verb expresses the intended consequence of the action of the main verb. There are two types of purposive construction in Mářhíki: the same subject purposive construction and the different subject purposive construction, which will be discussed in turn below.

#### 3.13.1 Same subject purposive constructions

Same subject purposive constructions, in which the subordinate clause event expresses the speaker’s intended goal or outcome for the main clause event (of which he/she/they are also the agent(s)), are formed in Mářhíki via the suffixation of one of the purposive suffixes in Table 3.16 to the subordinate verb.
### Table 3.16: Same subject purposive suffixes

<table>
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<th>Masc</th>
<th>FEM</th>
<th>PL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>-yiki</td>
<td>-yiko</td>
<td>-yohi</td>
</tr>
<tr>
<td></td>
<td>-chiki</td>
<td>-chiko</td>
<td>-yohi</td>
</tr>
</tbody>
</table>

Example (71) below shows a regular class verb (kía ‘inform’) and a -ni class verb (sáí ‘go’) suffixed with the masculine same subject purposive suffix.

(71) a. kía-yíkè dáhì

    kía -yíki dái -hì
    inform -MASC.PURP come -3.SG.MASC.PRES.DECL
    ‘He came to teach’ (ca5 29.1)
    ‘Uno venía para enseñar’

b. ýmì múkà saà-chikè hášù débàhì

    ýmì múkà sàá -chikì hášù débà -hì
    man woods go.SUBJ -MASC.PURP.NI shotgun arrange -3.SG.MASC.PRES.DECL
    ‘The man was cleaning his shotgun in order to go to the woods (to hunt)’ (am3 1.1)
    ‘El hombre estaba quiriendo ir a montear, limpiando su escopeta’

Example (72) shows the regular class verb báá ‘have’ and the -ni class verb àó ‘eat’ marked with the feminine purposive suffix -yiko and its -ni class allomorph -chiko, respectively.

(72) a. Tódíre báá-yíkò sáíkò?

    Tódì -re báá -yiko sáí -ko
    proper.name -NON.SUBJ live.with -FEM.PURP go -2.SG.FEM.PRES.INTERR
    ‘Are you going to live with Tódí?’ (hmr 65.1)
    ‘Estás yendo vivir con Tódí?’

b. hášò útáì àó åà-chikò

    hášò útáì -yi åó åà -chikò
    manioc extract -1.SG.PRES.DECL food eat.SUBJ -FEM.PURP.NI
    ‘I am harvesting manioc in order to eat food’ (Michael 2011b:1)

In (73), we see that both the regular class verb tóyáyètè ‘study’ and the -ni class verb éé ‘fish with barbasco’ take the plural purposive suffix -yoì, but that the subordinate allomorph of éé (which has HL instead of HH tone) is used.

(73) a. tóyáyètè-yóì dáhi, níhùmà

    tóyá yete -yoì dà -hìnù -huna
    write learn -PL.PURP come.PAST.NI -3.PL.PAST.DECL.NI children -CL:group
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'The children came to study' (ca5 31.1)
'Los niños han venido para estudiar'

b. yíkí mámí -re éëyòhí sáiyí
   yíkí mámí -re éë -yo hí sáí
1.PL.PRON fish.sp -NON.SUBJ fish.with.barbasco.NI.SUB -PL.PURP go
   -yí
-1.PL.PRES.DECL

'We’re going to fish pacó with barbasco' (hab 18.1) 'Nosotros estamos yendo a
barbasquear pacó'

The same subject purposive suffixes described above likely grammaticalized from the 1st
person future suffixes -yi/-chi (regular/-ni class singular) and -yo/-cho (regular/-ni class
plural) plus the verb ú ‘say’ suffixed with a same subject temporal overlap marker (-ki, -ko,
or -hí). In fact, many speakers of Máíhíki use this construction (which translates literally to
‘doing action X, Y says, “I will do Z”’) instead of the purposive suffixes in Table 3.16, as the
examples in (74) show. This is a major point of variation among speakers of Máíhíki and
does not seem to correspond to geographical dialects.

(74) a. káyì fë dàhí
   káí -yí ì -ki dá hí
invite -1.SG.FUT.DECL say -MASC.SS.SIM come.PAST.NI -1.SG.PAST.DECL.NI

'I came to invite (you)' (cho 5.1)
'He venido par invitarte’

b. yóòyì fë sàíkó
   yóò -yí ì -ko sáí -ko
work -1.SG.FUT.DECL say -FEM.SS.SIM go -3.SG.FEM.PRES.DECL

'She is going in order to work' (srf 112.1)
'Está yendo para trabajar’

c. yìò nëëëë fëhí sáiyí
   yìò nëëë -yo ì -hí sáí -yí
swidden make 1.PL.FUT.DECL say -PL.SS.SIM go -1.PL.PRES.DECL

'We’re going to make a chacra’
'Estamos yendo para hacer la chacra’ (iy6 448.1)

3.13.2 Different subject purposives

Different subject purposives are extremely rare in our corpus. Michael (2011b) shows that
these are formed through the suffixation of -haye to the subordinate verb, as in (75) below.

---

Jacquinia barbasco, a plant used to stun fish.
(75) a. Cristina hásò kwàkòkò máífùnà áňhayè
    Cristina  hásò  kwàkò  -ko  máí -huna  áí
    proper.name  manioc  cook  -3.SG.FEM.PRES.DECL  we.EXCL -CL:group  eat
    -haye
    -DS.PURP
    ‘Christina is cooking manioc so that we can eat’

    b. Christina biónànò dèbàkò yì káňhayè
    Christina  biónànò  dèbà  -ko  yì  káí
    proper.name  mosquito.net  fix  -3.SG.MASC.PRES.DECL  1.SG.PRON  sleep
    -haye
    -DS.PURP
    ‘Christina is setting up the mosquito net so that I can sleep’

The above examples, however, only show subordinate clauses with 1st person agents. Further elicitation is needed in order to determine whether -haye is also used for different subject purposives with other persons.

3.13.3 Negative purposive constructions

Negative purposive constructions are those in which an agent performs the action of the matrix verb so that the action of the subordinate verb will not occur. These constructions are formed via the suffixation of one of the suffixes in Table 3.17 below to the subordinate verb. Regular class and -ni class verbs alike may take these suffixes.

<table>
<thead>
<tr>
<th>MASC</th>
<th>-karaki</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEM</td>
<td>-karako</td>
</tr>
<tr>
<td>PL</td>
<td>-karaňi</td>
</tr>
</tbody>
</table>

Table 3.17: Negative purposives

An example of each of the negative purposive suffixes is shown below in (76).

(76) a. mámnáñ káňkarakkí hásóyì yìhì
    mámnáñ  áí  -karaki  hásó  -yi  yì
    child.MASC  eat  -NEG.PURP.MASC  shoot  -3.SG.FUT.MASC.DECL  say
    -hì
    -3.SG.MASC.PRES.DECL
    ‘The son, so that [the jaguar] wouldn’t eat him, wanted to shoot’ (iy1 137.1)
    ‘El hijo, para que no le coma, quería balear’

    b. Cristina aň yábékò ſákóčí aňihéňkáňkarakkò
3.14 Relative clauses

In this section, I analyze relativized clauses in Mähkä as nominalizations. These constructions consist of a verb stem plus a relative tense marker and a classifier suffix. They may appear alone as ‘headless’ relative clauses, in which case they may serve as the arguments of verbs, or they may follow and modify other nouns. Below, I will address the form and syntax of relativization as well as the formation of event nominalizations.

3.14.1 The form of the relative clause

The relativized verb consists of a stem, which may include any Class I, III, or IV suffixes, plus a tense marker, plus a classifier. The tense markers, which I will call ‘nominal tense’ markers because of the apparent nominal status of the resultant form, are shown below in Table 3.14.1. Note that there are two ‘types’, which differ based the form of the classifier that follows the tense marker. Type 1 tense markers appear when the classifier is of the fortis class, while Type 2 tense markers surface with all other classifiers.

<table>
<thead>
<tr>
<th>Type</th>
<th>Past</th>
<th>Pres</th>
<th>Fut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>-chi</td>
<td>∅</td>
<td>-ha</td>
</tr>
<tr>
<td>Type 2</td>
<td>-se</td>
<td>∅</td>
<td>-hai</td>
</tr>
</tbody>
</table>

Examples of the past and future Type 1 and Type 2 nominal tense markers are shown below in (77) and (78), respectively.

(77) a. kíù rí tááchità
    kíù -rí tíá -chi -ti
    metal -CL:manufactured sharpen -PAST.REL -CL:manufactured
    ‘the machete that was sharpened’ (E.AMM.SJF.30jul2014)

    b. ábháyà
When no classifier is available (e.g., if the relativized noun is mass, abstract, or a loan word), the nominal past tense marker -se may appear without a classifier, as in (79a), or the nominal future tense marker -haYE may be used, as in (79b).

(79) a. m\text{amak} \text{n\text{e\text{ar}} t\text{oa f\text{ose h}is\text{oh\text{eak}}}}
   m\text{amak}t\text{ea r\text{e t\text{oa i\text{o se hiso hea}}}
   child.MASC grab -SS.SEQ cooking.fire burn -PAST.REL scratch -PERF.PLACT
   -ko
   -3.SG.FEM.PRES.DECL
   ‘She grabbed her child and scratched at what the cooking fire had burned’ (mdb 387.1)
   ‘Agarrando su hijo, raspaba lo que la candela hab\text{ia quemado}’

b. y\text{ek}, n\text{ami o\text{ah\text{ey}} pi\text{lah}}
   y\text{ek}e \text{n\text{ami o\text{a haYE p\text{ila ha}}}
   other.PRON night illuminate -REL.FUT battery -INAN.COP
   ‘Another thing, what will illuminate the night, batteries’ (con 175.1)
   ‘Otra cosa, pilas, para alumbrar en la noche’

Future tense relative clauses differ from past and present tense relative clauses in that there are separate forms for relativized animate nouns. These forms are listed below in Table 3.14.1.

<table>
<thead>
<tr>
<th>Masc</th>
<th>Fem</th>
<th>Pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>-hagi</td>
<td>-hago</td>
<td>-haYE</td>
</tr>
</tbody>
</table>

Examples of the future tense relative clause suffixes are shown below in (80).

(80) a. m\text{a m\text{amak}r\text{e y\text{iy\text{ebas}}h\text{ag\text{i}}}}
Chapter 3. Morphosyntax

3.15 Conditional and counterfactual constructions

Conditional constructions, which express a situation in which some state of affairs is contingent on another, are expressed in Māhīkī in two ways:
Chapter 3. Morphosyntax

1. -tu may be suffixed to the verb root of the protasis (the clause that expresses the state of affairs upon which some event, expressed in the apodosis, is contingent); or

2. the -ni form of the verb bàì ‘be’ (mání or ánì) may follow the verb of the protasis, which is suffixed with a same subject temporal overlap marker.

The first of these strategies is used when the subjects of the protasis and the apodosis are not coreferential; the second is used when they are.

Counterfactual constructions, which are a subset of conditional constructions that express that some state of affairs (the apodosis) is contingent on the non-realization of the state of affairs expressed in the protasis. These constructions are identical to other conditional constructions except that the verb of the apodosis bears the ‘frustrative’ suffix -ra.

3.15.1 Same subject conditional constructions

As mentioned above, same subject conditional constructions are formed when the the -ni allomorph of the verb bàì ‘be’ (mání or ánì) follow the protasis verb, which itself is marked with a same subject temporal overlap suffix. This construction is shown in (82b) below.

(82) a. ñámékè mání héóma
   ñámé -ki máni héó -ma
   not.like -MASC.SS.SIM COND leave.behind -IMPER
   ‘If you don’t like me, leave me’ (lim 207.1)
   ‘Si no me quiere, déjame’

b. yì húníhókè mání ná óimáýì
   yì húníhó -ki máni ná ói -ma -yì
   1.SG.PRON die -MASC.SS.SIM be.NI again cry -NEG -1.SG.FUT.DECL
   ‘When I die, I won’t cry’ (bag 583.1)
   ‘Cuando yo estoy muriendo, no voy a llorar’

3.15.2 Different subject conditional constructions

Different subject conditional constructions are formed via the suffixation of -tu to the verb of the protasis. Constructions of this type are shown below in (83).

(83) a. nátà kwàkòyò ñíò yì nógitù
   nátà kwàkò -yo ñíò yì
tomorrow cook -3.SG.FEM.FUT.DECL 3.SG.FEM.PRON 1.SG.PRON
nógi -tu
fish.with.hook -COND
   ‘If I go fishing, she’ll cook tomorrow’ (srf 33.1)
   ‘Si yo anzuelo, ella va a cocinar mañana’
b. yì húnìhòtù, ɟdàrì bàbáì
   yì húnìhò -tu, ɟ -rari bà -bai
1.SG.PRON die -COND PROX.DEM -CL:location live -PROHIB
   ‘When I die, don’t live here’ (bag 848.1)
   ‘Cuando yo muero, no vivan aquí’

c. kúckì bàtù, chíáyí
   kúckì bà -tu, chí -yì
money be -COND buy -1.PL.PRES.DECL
   ‘When there’s money, we buy (fariña)’ (con 190.1)
   ‘Cuando hay plata, compramos’

In addition to the different subject construction exemplified above, Michael (2012) describes second different subject construction that differs in the degree of certainty of the speaker as to whether the events of the protasis will come to pass. In this construction, bètù appears after the verb of the protasis, which has been suffixed with a same subject temporal overlap marker, as below.

(84) níò námékò bètù, bíákò góòkò
   níò námé -ko bè -tu bíákò góó
3.SG.FEM.PRON not.want -FEM.SS.SIM be:non.visible -COND mother be:angry -ko
   -3.SG.FEM.PRES.DECL
   ‘If she doesn’t want to (sweep the house), the mother scolds her’ (nin 11.1)
   ‘Si ella no quiere, la madre le riñe’

Skilton (p.c.) reports that this construction is unattested outside of the Yanayacu River basin.

3.15.3 Counterfactual constructions

Like other conditional constructions, counterfactual constructions may be divided on the basis of whether the agents of the protasis and apodosis clauses are coreferential. Same subject counterfactual constructions are identical to the same subject conditional constructions described above, except that the frustrative suffix -ra is suffixed to the verb of the apodosis, as shown in (86a).

(85) yì áchíràkà ãkúkè mání, ótèdàbì
   yì áchíràkà ãkú -ki mání ótè -ra -bi
1.SG.PRON liquor drink -MASC.SS.SIM be.NI dance -FRUST -1.SG.PAST.DECL
Different subject counterfactual constructions are also identical to other different subject conditionals except for the suffixation of -ra to the verb of the apodosis. Two examples of this construction are shown below in (86).

(86)  a. \[\text{yì káhùnà kíámatù yétémádābə yì} \]
\[\text{yì ká -huna kíá -ma -tu yété -ma} \]
1.SG.PRON DIST.ANAPH.DEM -CL:group tell.story -NEG -COND learn -NEG -ra -bi yì
-FRUST -1.SG.PAST.DECL 1.SG.PRON

‘If they hadn’t taught me, I wouldn’t have learned’ (ilv 60.1)
‘Si ellos no me hubieran enseñado, yo no hubiera aprendido’

b. \[\text{‘ñákà húnihótù, táárabità,’ ñ óôhì} \]
\[\text{ñià -ki húnihò -tu, táà -ra -bi -la,} \]
ASP -MASC.SS.SIM die -COND bury -FRUST -2.SG.PAST.DECL -INFO
ñ ôô -hi
3.SG.MASC.PRON be.angry -3.SG.MASC.PRES.DECL

‘If you had died, I would’ve buried you,’ he said angrily” (aho 142.1)
‘Si hubieras muerto, yo te hubiera enterrado,” él me dijo rabiando’

Michael (2012) also reports that the ‘less certain’ different subject conditional construction may be used in counterfactual contexts. It appears that in the examples below, bêtı follows an event nominalization of the protasis verb.

(87) \[\text{Ivan báhùnà áchírákà dáàsè bêtì, ótéràbà} \]
\[\text{Ivan baá -huna áchírákà dàà -se bêtì ótê -ra} \]
proper.name have -CL:group liquor bring.NI.SUB -PAST.REL COND dance -FRUST -bi
-1.PL.PAST.DECL

‘If Ivan’s people had brought liquor, we would have danced’ (Michael 2012:5)

A translation that is perhaps truer to the fact that dâàsè is an event nominalization would be ‘If it were that Ivan’s people brought liquor, we would have danced’.

### 3.16 Comparatives and similatives

Comparative constructions were first explored in Farmer (2010). They are formed with the adverb mánù ‘more’, which indicates that some property holds to a greater extent than in
another time or place. The time or place to which the speaker is drawing a comparison need not be mentioned explicitly, as is shown below in (88) and (89). In (88) it is implied that the children will be hungrier than now, and in (89), it is implied that there are more biting flies elsewhere than here.

(88) mànù áógàláhì mànù áó -gia -hì
more food -FEEL -3.SG.MASC.PRES.DECL

‘They (the children) will be hungrier’ (jv3 105.1)
‘Más (los niños) van a tener hambre’

(89) yékénòa mànù núí báhì
yéké -noa mànù núí báì -hì
other.DEM -CL.PL:places more a.lot exist -3.SG.MASC.PRES.DECL

‘In other places there are more (biting flies)’ (m+t 90.1)
‘En otra parte hay más (tábanos)’

In our corpus, mànù never surfaces with two overt arguments. The elicited examples below show that it is possible to directly compare the extent to which two entities exhibit some property. This is done by juxtaposing two clauses with opposing properties. Neither, either, or both of these clauses may contain mànù.

(90) Mákòbè mànù ímì nǐkákiìgì; Mámàsò mànù úbì nǐkáko
Mákòbè mànù ímì nǐká -ki -agi Mámàsò mànù úbì
proper.name more stand high -CL:masc -3.MASC.COP proper.name more low
nǐká -ko
stand -3.SG.FEM.PRES.DECL

‘Mákòbè is taller than Mámàsò’ (lit: ‘Mákòbè stands higher; Mámàsò stands lower’)
(Farmer (2010:1) (2010))

(91) ñkì yáhòyi mànù háìkìagì; yékì chìà fáhèìagì
ñkì yáhòyi mànù háì -ki -agi yékì
PROX.PRON.MASC dog more big -CL:masc -3.MASC.COP other.PRON.MASC
chìà íá -he -i -agi
already small -CL:physical.aspect -CL:masc -3.MASC.COP

‘This is dog is smaller than the other one’ (lit: ‘This dog is bigger; the other one is still small’) (Farmer (2010:1))
Part II

Nominal reference
Chapter 4

The Structure of the Máihēkè nominal lexicon

The theoretical part of this dissertation, contained in chapters 4 through 6 below, deals with the semantics and morphosyntax of creating referential noun phrases. This chapter takes the nominal lexicon as a starting point for this investigation before we move into the details of noun classification and plurality in Chapters 5 and 6, respectively.

4.1 Introduction

The premise of this chapter is that the morphosyntactic behavior of nouns is sensitive to the nuances of their lexical semantics. Such a premise is not novel and has long been discussed in terms of some sort of hierarchy—one that is sensitive to gradations in animacy or familiarity or empathy or uniqueness or a combination of these and other notions like them—a hierarchy which may have ramifications for the behavior of nouns with respect to determiners, case marking, possession, plurality, and many other corners of a language’s morphosyntax.

In particular, I will address the notion that different nouns have different ‘starting points’ when it comes to establishing reference—a notion that Chierchia (1998b) explored when he posited the existence of [+arg, −pred] languages whose mass nouns are already referential but whose count nouns must either be pluralized or take determiners in order to serve as arguments. The position that will be taken here is that these starting points are more nuanced than the binary ‘argumental vs. predicative’ or ‘mass vs. count’.

Example (92) below shows one kind of morphosyntactic ‘irregularity’ exhibited by Máihēkè nouns that could conceivably be explained in terms of a hierarchy. The noun báákè ‘father’ patterns differently with respect to non-subject marking with -re than nēhō ‘wife’ and hētē ‘hand’ before the negated verb bámá ‘not have’.

1Throughout this dissertation, I will use the term ‘noun’ to mean ‘nominal root’ or ‘nominal root + classifier’
(92) a. áì bëèk̈ deòrè biákrè baámàgì
áì bëè -kì deò -re biákrè -re bàá -mà
take old ASP -CL:masc grow.up -SS.SEQ father -NON.SUBJ have -NEG -gì
-3.SG.MASC.PAST.DECL

‘Having grown up, he didn’t have a father’ (iy1 18.1)
‘Ya grande, no tenía padre’

b. nìhò baámàyì
nìhò bàá -mà -yì
take wife have -NEG -1.SG.PRES.DECL

‘I don’t have a wife’ (dos 52.1)
‘No tengo mujer’

c. hìftì baámkò ñìò tèà
hìftì bàá -mà -ko ñìò tèà
take hand have -NEG -3.SG.FEM.PRES.DECL 3.SG.FEM.PRON also

‘It (the water-cat) doesn’t even have hands’ (hb2 4.1)
‘Ella (el gato del agua) no tiene ni manos’

A principled analysis of non-subject marking should account for why biákrè takes -re as the non-subject argument of baámà while nìhò and hìftì do not. Such an analysis cannot rely on the mass/count distinction, as all three nouns are count. It cannot rely on an animacy distinction, as both the inanimate hìftì and the animate nìhò do not take non-subject marking. It also cannot rely on a kin vs. non-kin distinction, as both biákrè ‘father’ and nìhò ‘wife’ might be considered kin.

Likewise, a principled analysis of nominal plurality should account for the variety of plural forms shown in (93) below and discussed in §3.5 above. While the differences in the form of the plural marker seems to be related to animacy, this is clearly not the whole story, as the animate nouns ákì ‘foreigner’ and nómì ‘women’ behave differently.

(93) a. nómì tèà ñáméyì
nómì tèà ñámè -yì
take women also not.want -3.PL.PRES.DECL

‘Women don’t even want to (work)’ (jv1 8.1)
‘Las mujeres no quieren (trabajar)’

b. ákìnà yékèrè hìkàyì
ákì -na yékè -re hìkò -yì
take foreigner.masc -ANIM.PL other.PRON -NON.SUBJ speak -3.PL.PRES.DECL

‘The mestizos call it something else’ (cf1 191.1)
‘Los mestizos dicen otra cosa’
Chapter 4. The Structure of the Máihi–kı nominal lexicon

4.2 Background: nominal hierarchies

Smith-Stark (1974) may have been the first to explicitly invoke the notion of a hierarchy in discussing a morphosyntactic ‘split’—in his case, this split was the marking of nominal plurality. Smith-Stark noted that the ‘organizing principle’ behind the hierarchy seemed
related to animacy, but he instead settled tentatively on the “likelihood of participation in the speech event” (664). Michael Silverstein followed with his influential paper “Hierarchy of Features and Ergativity” (1976), which discusses hierarchies as governing case assignment in split-ergative systems. Since then, scholars have discussed various languages’ lexicons as organized with sensitivity to a ‘hierarchy of reference’ (Zwicky 1977), an ‘agency hierarchy’ (Dixon 1979), an ‘animacy hierarchy’ (Comrie 1981), an ‘empathy hierarchy’ (DeLancey 1981), a ‘precedence rule’ (Frantz 1991), or a ‘prominence hierarchy’ (Aissen 1999), among others. The following is a survey of proposed hierarchies, the languages they appear in, and the morphosyntactic behaviors they are said to govern.

4.2.1 Morphosyntactic alignment: split ergative, inverse, and obviative systems

Hierarchies were invoked early on to address the ‘split’ in so-called split-ergative systems of morphosyntactic alignment. Silverstein (1976) proposes a “hierarchy of what might be called ‘inherent lexical content of noun phrases’,” which “expresses the semantic naturalness for a lexically-specified noun phrase to function as agent of a true transitive verb, and inversely the naturalness of functioning as a patient of such” (164). He argues that nouns at the top of this hierarchy will, in languages with the relevant distinction, exhibit nominative-accusative case marking while nouns at the bottom will exhibit ergative-absolutive case marking. Near the top of Silverstein’s hierarchy are speech-act participant pronouns, followed by non-speech-act participant pronouns and demonstratives, human nouns, other animate nouns, and inanimate nouns. Dixon (1979) proposes a nearly identical ‘potentiality of agency’ scale, reproduced in Figure 4.1 below. From language to language, the “cut-off” for ergative-absolutive case marking will vary, but the hierarchy will always be upheld. That is, in any language, nouns and pronouns with one type of case marking will always be adjacent on the hierarchy presented below in Figure 4.1.

![Figure 4.1: Potentiality of Agency, Dixon (1979:85)](image)

Dixon’s proposal is that splits in nominal case marking have their origins in semantics: NPs that refer to likely agents are more often unmarked as transitive subjects and marked as transitive objects. DeLancey (1981:645) notes that this ‘Natural Agentivity Hypothesis’ supported by Silverstein and Dixon fails to explain why the ‘cut-off’ for languages with
split-ergative systems (i.e., the point below which agents must take ergative case marking) is very often between speech-act participants and non-speech-act participants, rather than between animate and inanimate or human and non-human nouns. DeLancey suggests an explanation that is rooted in a comparison between motion events and transitive events, both of which he describes as sensitive to the notions of ‘attention flow’ and ‘viewpoint’.\footnote{See Garrett (1990) for an alternate account of split ergative systems.} Attention flow, according to DeLancey, is the order in which the hearer attends to arguments, and can be manipulated by the speaker. This order, in the description of a typical motion or transitive event, is iconic: if a motion event begins at one point in space and ends at another, the most ‘natural’ order of arguments will reflect this transition. Likewise, if a transitive event is conceived of as beginning with the agent and ending with the patient, the ‘natural’ encoding of this event is with the arguments in this order. Viewpoint is the perspective from which the speaker describes the event. DeLancey’s idea is that ergative marking arises when there is a mismatch between attention flow and viewpoint. If the A argument is a speech act participant, then the viewpoint (‘here, where we are’) aligns with the starting point of the transitive event, and no marker of ergativity is needed. If, on the other hand, the A argument is a non-SAP, there is a mismatch between the origin of the event and the speaker’s viewpoint, and ergative marking is needed. The interactions of attention flow and viewpoint as described by DeLancey account neatly for why the ergativity cut-off falls between SAPs and non-SAPs in so many languages. To account for attention flow in events that involve no SAPs, DeLancey borrows the notion of ‘empathy’ from Kuno & Kaburaki (1977), and suggests that humans, being egocentric, are likelier to empathize (i.e., place viewpoint) with entities that are more like them. This, he argues, is why ‘A woman was struck by lightning’ sounds more natural than ‘Lightning struck a woman’ (644). The hierarchy proposed by DeLancey is as follows:

\[
\text{SAPs} > 3^{rd} \text{ pronouns} > \text{human} > \text{animate} > \text{natural forces} > \text{inanimate}
\]

Figure 4.2: DeLancey’s Empathy Hierarchy (1981:644)

DeLancey notes that his account is also fitting for languages that exhibit so-called inverse alignment, like most Algonquian languages. These languages distinguish between ‘direct’ constructions, in which A outranks P on some hierarchy, and ‘inverse’ constructions, in which P outranks A on the same hierarchy. Inverse-direct systems are often closely associated with proximate-obviative systems, in which non-SAP arguments are ranked relative to one another at the level of discourse on a hierarchy of animacy, familiarity, or salience. The notion of obviation is addressed by Aissen (1999) in her work on Tzotzil ‘agent focus’. According to Aissen, special verbs used in Tzotzil agent focus constructions are inverse, and are distributed with sensitivity to the relative obviation statuses of the subject and object. Inverse verbs appear only when both arguments in a transitive event refer to non-SAPs, and when the object outranks the subject in obviation status. Aissen proposes that three factors play a
role in determining obviation status in Tzotzil: humanness, definiteness, and individuation, where she uses “INDIVIDUATION to pick out singular, concrete, and specific as opposed to plural, mass, abstract, and nonspecific” (463). Aissen proposes a ranking for these three factors, shown below in (4.3).

**Definite human > Individuated (indefinite) human > Definite nonhuman > Individuated (indefinite) nonhuman > Nonindividuated human or nonhuman**

**Figure 4.3:** Aissen’s hierarchy of humanness, definiteness, and individuation (1999:463)

When two nouns are adjacent on this scale, their relative obviation status is unclear and the verb may be either direct or inverse. When two nouns are farther apart on the scale, the inverse form of the verb is used when the lower ranked one is the subject. Aissen provides the following explanation for the structure of her scale:

In general, humans are attracted to relations (or positions) of structural prominence over nonhumans, and definites over indefinites. In most languages subject is structurally more prominent than nonsubject, hence the crosslinguistic tendency, realized in various ways, for definite, human nominals to be chosen as subjects over indefinite, nonhuman ones.” (462)

In summary, there is some consensus that systems of morphosyntactic alignment are sensitive to the prototypical grammatical roles of NP arguments, and that these prototypical roles are governed by a hierarchy. There is disagreement as to the precise nature of this hierarchy: what is the organizing principle and how do we label the rungs of the ladder?

### 4.2.2 Differential object marking

Differential object marking, identified as such by Bossong (1983-1984) but discussed conceptually earlier by Payne (1980), is a crosslinguistically widespread phenomenon in which objects within a given language receive different marking based on some parameter akin to animacy or specificity. For instance, Payne notes that the Rośsani (Indo-Iranian) preposition az ‘from’ marks all direct objects, but that “the tendency is particularly strong with personal pronouns and demonstratives” (163).

Bossong’s work differentiates between two kinds of semantic properties that appear to promote object differentiation crosslinguistically: *inherent* features and *referential* features. Inherent features “correspond roughly to what is called animacy,” while referential features “vary as a function of the syntagmatic and pragmatic environment” (8). According to Bossong’s survey, DOM is governed in most languages by the referential features of a noun phrase rather than its inherent semantics. Spanish provides an often-cited example of a DOM system that is sensitive to both: the preposition a is required before direct objects that are
both human (or highly animate and familiar) and specific. This results in the contrast in (94):

(94) a. Estoy buscando un hombre.
    ‘I am looking for a man (and I don’t have a particular man in mind)’

b. Estoy buscando a un hombre.
    ‘I am looking for a (particular) man’

Bossong proposes an implicational chain of differential object marking, reproduced below in (4.4).

\[
\text{CONCR} \supset \text{DISCR} \supset \text{ANIM} \supset \text{HUM} \supset \text{PROPR} \supset \text{DEIX}^3
\]

Figure 4.4: Bossong’s implicational chain (1983-1984:9)

Bossong calls this the “dimension of inherence,” noting that it is based on Silverstein’s animacy hierarchy. His idea is that if object marking is obligatory for one category, it will be obligatory on all categories to its right.

Aissen (2003) attempts to reconcile the “fuzziness” of DOM patterns with the strict categoriality required of a formal linguistic analysis by implementing an Optimality Theoretic account. Like Bossong, Aissen sees the relevance of two parameters: one related to animacy (Bossong’s ‘inherent’ features) and another to definiteness (Bossong’s ‘referential’ features). The two scales are reproduced below in 4.5.

- **Animacy scale**: Human > Animate > Inanimate
- **Definiteness scale**: Personal pronoun > Proper name > Definite NP > Indefinite specific NP > Non-specific NP

Figure 4.5: Aissen’s animacy and definiteness scales (2003:3)

According to Aissen, languages may vary in three ways with respect to DOM: 1) they may vary with respect to whether they have DOM at all; 2) they may vary with respect to which dimensions (animacy, definiteness, or both) are important; and 3) they may vary with respect to where the ‘cut-off’ falls along one or both of the scales shown above. Ultimately, in languages with DOM, “the higher in prominence a direct object, the more likely it is to be overtly case marked” (1).

### 4.2.3 Split possession

Morophsyntactic splits in the encoding of possession are crosslinguistically common. A tendency in European languages, according to Stolz et al. (2008), is for this split to be
manifest in possessor marking, and to be governed by the animacy status of the possessor. For instance, the so-called Saxon genitive in English is preferable to the “of” genitive when the possessor ranks high in animacy, as is shown in (95).

(95)  a. John’s sister  
      b. John’s car  
      c. ?The sister of John  
      d. ?The car of John  

Paul Deane was perhaps the first to relate English data like the above to Silverstein’s hierarchy. His 1987 paper argued that “[t]he higher the possessor NP is on the Silverstein hierarchy, the more acceptable it will be in the prenominal possessive, and the less acceptable in the postnominal possessive [and vice versa]” Deane (1987:67-68).

English NPs ranked high on the animacy hierarchy are more likely to appear in genitive constructions where less animate nouns might form noun-noun compounds. Some examples of this phenomenon are shown below in (96), where “dog” and inanimate “pencil,” ranking lower on a typical animacy hierarchy, more naturally form noun-noun compounds, and ‘highly’ animate “woman” is preferable as a possessor. This type of division between possession and compounding (or classification) is discussed with regard to the Máhiñiki facts in Chapter 5.

(96)  a. pencil lead  
      b. ?pencils’ lead  
      c. dog clothing  
      d. dogs’ clothing  
      e. ?woman clothing  
      f. women’s clothing  

While Stolz et al.’s work is a survey of European languages, split possession phenomena have been described in numerous non-European language families. In Imbabura Quechua (Quechuan), the possessive suffix -paj is possible but dispreferred when describing a part-whole relationship between two inanimates. This is shown below in (97).

(97)  a. alkupaj una  
        \textit{alku -paj uma}  
        dog -POSS head  
        ‘the head of the dog’  
  b. ?yurapaj uma  
        \textit{yura -paj uma}  
        tree -POSS head  
        ‘the top of the tree’ (Cole 1985:17)
Lehmann (2002) takes the position that possession is an inherently asymmetric relationship between possessor and possessum, and that the “most relevant parameter governing the morphosyntax of possession is the empathy hierarchy” (5). The empathy hierarchy proposed by Lehmann for Yucatec Maya is shown below in (4.6).

SAP vs. non-SAP > human vs. non-human > animate vs. inanimate > individual object vs. substance > object vs. location > entity vs. proposition

Figure 4.6: Lehmann’s Empathy Hierarchy (2002:4)

Lehmann describes a relational suffix in Yucatec Maya, -il, which marks possessa whose possessors have “insufficient empathy” (43). Example (98) below shows two possessive constructions: one in which the possessor (‘that child’) is high on the empathy hierarchy, and another in which the possessor (‘that child’s head’) is lower on the empathy hierarchy. In the case where there is an “anempathetic” possessor, the relational -il is suffixed to the possessum.

(98) a. u yu`uk’ le p`aalo’
   u y -u`uk’ le p`aal -o’
   POSS.3 0 -louse DEF child -D2
   ‘that child’s lice’

b. u yu`uk’il u ho’l le p`aalo’
   u y -u`uk’ -il u ho’l le p`aal -o’
   POSS.3 0 -lice f POSS.3 head DEF child -D2
   ‘the lice of that child’s head’

Nichols (1988) highlights a second type of morphosyntactic split in the marking of possession: the alienability distinction, in which nouns appear to be categorized according to whether they are “inborn, inherent, not conferred by purchase” (568). In Eastern Pomo, for instance, certain kin terms appear in head-marked possessive constructions, while most other nouns are dependent-marked, as in (99):

(99) a. w`ìbayle
  wí- bayle
  1sg husband
  ‘my husband’

b. wáx sá-ri
  wáx sá-ri
  my.GEN basket
  ‘my basket’ (McLendon 1975:92, 108)
Nichols notes that in languages where possession is regularly head-marked, there is an “almost inevitable” distinction between alienable and inalienable possession (576). The dimension of variation in this type of split cannot be animacy (typically, both kin terms (animate-animate) and part-whole relationships (inanimate-animate or inanimate-inanimate) fall under the umbrella of ‘inalienable’ possession), but the degree to which the possessee may be seen as having reference outside of its relationship to the possessor.

Deane (1987) wonders why the Silverstein hierarchy should be so applicable to the apparent split in English possessive strategies, since it was originally devised to account for systems of split ergativity. There is an inherent asymmetry in the relationship between possessor and possessum, just as there is between agent and patient: one argument, in Lehmann’s terms, exhibits control over another. The prototypical possessor is highly animate, just as the prototypical agent is, and so we might expect to see languages that mark conspicuous divergences from the prototypical relationship.

4.2.4 Plural splits

Another domain in which nouns appear sensitive to some sort of hierarchy is in the distribution of nominal plural markers. Smith-Stark (1974) notes that “the feature of plurality will be shown to divide the class of nouns in a language into two types, one for which the opposition of plurality is significant, the other for which it is somehow neutralized” (657). He presents data showing a plural split in verbal agreement from Georgian (Kartvelian), Turkish (Altaic), Sonsorol (Malayo-Polynesian), and Classical Greek (Indo-European); for a plural split in noun-modifier agreement from Ponca (Siouan); and for a plural split in nominal marking from Orokaiva (Binandere), Kpelle (Niger-Congo), Logbara (Central Sudanic), Kwakiutl (Mosan), Tongan (Malayo-Polynesian), Bini (Niger-Congo), Tlingit (Na-Dene), Hupa (Na-Dene), Coos (Penutian), and Tamil (Dravidian). Smith-Stark notes that in these languages, +/−animate, +/−kin, and +/−human are the features that most frequently divide the lexicon with respect to plurality. Motivated by a large degree of similarity across diverse language families, he proposes the hierarchy below in (4.7).
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Figure 4.7: Smith-Stark’s hierarchy (1974:665)

Corbett (2000) proposes a modified form of Smith-Stark’s hierarchy, shown below in Figure 4.8, which discounts the importance of a split between rational and non-rational (i.e., infant) humans.

```
SPEAKER > ADDRESSEE > KIN > HUMAN > ANIMATE > INANIMATE
```

Figure 4.8: Corbett’s hierarchy (2000:56)

Corbett proposes the constraint that “the singular-plural distinction in a given language must affect a top segment of the Animacy Hierarchy” (56). He agrees with Smith-Stark in noting that the human versus non-human and animate versus inanimate splits are the most widely attested in plural marking of the world’s languages, and gives the examples of the Japanese plural suffix -tati and the Slave (Athabaskan) plural marker -ke (Rice 1989:247), which is reserved for human nouns. To account, perhaps, for the fact that the above ‘animacy’ hierarchy involves more than animacy proper (e.g., a speech-act participant is no more animate than another human), Corbett proposes three complementary hierarchies: a person hierarchy, a nominal hierarchy, and an animacy hierarchy, presented respectively below.

```
Person hierarchy 1st > 2nd > 3rd
Nominal hierarchy Pronouns > Nouns
Animacy hierarchy Human > Animate > Inanimate
```

Figure 4.9: Corbett’s Interacting Hierarchies (2000:62)
The idea of several interacting hierarchies was also proposed in Comrie (1981:197-9) and Croft (1990:127). We will return to the notion of interacting hierarchies in §4.4.

4.2.5 Summary

We have seen that nominal hierarchies are prevalent in the world’s languages, both in the sheer number of families in which they are relevant and in that they may crop up in many corners of a given language’s morphosyntax—verb agreement, case marking, possessive marking, and plural marking all appear to exhibit sensitivity to a semantic hierarchy of some sort. We have also seen that there is some variation in linguists’ characterizations of these hierarchies as evidenced by the large number of names and organizing principles attributed to them. One question that emerges, then, is whether the same hierarchy is relevant for different morphosyntactic parameters, either within a given language or crosslinguistically. In other words, is everyone talking about the same phenomenon? Deane (1987) seems to claim that this is the case, as he invokes Silverstein’s hierarchy (developed originally to account for split ergativity) in order to explain patterns of possessive constructions in English. Silverstein himself also argues that his hierarchy “is, in fact, relevant to many other kinds of phenomenon in the formal structure of languages” (1981:236). With this as our hypothesis, we will take a look at seven morphosyntactic behaviors in Máihīkì that appear to be sensitive to a hierarchy of some sort.

4.3 Evidence for nominal hierarchies in Máihīkì

This section will present evidence for the hierarchical organization of the Máihīkì lexicon in the form of seven morphosyntactic behaviors (the form of the copular suffix, the obligatoriness of non-subject marking, the ability to serve as a possessor or possessee, the form of the plural suffix, the ability to take the singulative suffix -bì, the form of the diminutive suffix, and the ability to serve as either a classifier or classified element) that motivate eight distinct types of nouns.

These eight types, no two of which pattern in exactly the same way with respect to the behaviors listed above, are shown below in Table 4.1. The table shows a representative noun from each group, plus a ‘characterization’, which is meant to serve as a useful, preanalytical way of thinking about these categories rather than as a criterial description.
Representative | Gloss | Characterization
--- | --- | ---
1. nómi | ‘women’ | inherently plural animates
2. ókó | ‘water’ | masses
3. tıká | ‘stick’ | generic inanimates
4. wèè | ‘house’ | count inanimates
5. gìì | ‘louse’ | lower animates
6. bììbìì | ‘dolphin’ | higher animates
7. ìmì | ‘man’ | human animates
8. Tímí | proper name | proper names

Table 4.1: Eight distinct noun types

4.3.1 Differences in the form of the copular suffix

Máïhìki nouns differ with respect to the form of the copular suffix that they take. Inherently plural animates (Group 1), masses (Group 2), generic inanimates (Group 3), and count inanimates (Group 4) all take the copular suffix -ha. Example (100) below shows the Group 1 inherently plural noun ñûì ‘children’, the Group 2 mass nouns hàsò ‘manioc’, nèè ‘moriche palm’, and míá ‘*Eschweilera juruensis*’, and the Group 4 count inanimate noun wèè ‘house’ suffixed with -ha.

(100) a. ñûì hà mámákììì

ñûì -ha mámákììì -na
children -inan.cop child.masc -anim.pl

‘They’re children’ (ttc 133.1)
‘Son muchachos’

b. gòhèbèkò áìkò hàsòhàììì, nèèhàììì, ígètììì, míáhàììì

gòhèbèkò áì -ko hàsò -ha nèè
Agouti.paca eat -3.sg.fem.pres.decl manioc -inan.cop moriche.palm
-hà ígè -ti míá -ha
-inan.cop this.kind -cl:side machimango -inan.cop

‘The paca eats manioc, moriche palm, things like that, machimango...’ (mon 42.1)
‘El majás come yuca, aguaje, cosas así, machimango...’

c. Tèrò wèèhà

Tèrò wèè -ha
proper.name house -inan.cop

‘It’s Tèrò’s house’ (ttc 56.1)
‘Su casa de Tèrò’
By contrast, ‘lower’ animates (Group 5), ‘higher’ animates (Group 6), human animates (Group 7), and proper names (Group 8) all take either the masculine copular suffix -agi/-ai/-gi\(^4\) or the feminine copular suffix -ago/-ao/-go. Example (101) shows this type of copula suffixed to the Group 6 higher animate noun b`a`o ‘yellow-handed titi monkey’ and to the Group 8 proper name S´arì.

(101)  
a. b`a`o´ ag`o

b`a`o Callicebus.torquatus -ANIM.FEM.COP

‘It was the yellow-handed titi monkey’ (ada 19.1)
‘Era el tocón negro’

b. S´arìaì

S´arì -ai
proper.name -ANIM.MASC.COP

‘It’s S´arì’ (hol 25.1)
‘Es S´arì’

Table 4.2 below provides a summary of the noun groups’ behavior with respect to the copula, with groups that take \(-ha\) highlighted gray.

<table>
<thead>
<tr>
<th>Representative</th>
<th>Gloss</th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. nómí</td>
<td>women</td>
<td>inherently plural animates</td>
</tr>
<tr>
<td>2. ókó</td>
<td>water</td>
<td>masses</td>
</tr>
<tr>
<td>3. t`íká</td>
<td>stick</td>
<td>generic inanimates</td>
</tr>
<tr>
<td>4. wèè</td>
<td>house</td>
<td>count inanimates</td>
</tr>
<tr>
<td>5. gìì</td>
<td>louse</td>
<td>lower animates</td>
</tr>
<tr>
<td>6. bìbì</td>
<td>dolphin</td>
<td>higher animates</td>
</tr>
<tr>
<td>7. ímì</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tìmí</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.2: Nouns that take the copular suffix \(-ha\)

4.3.2 Differential non-subject marking

Máñáhíki also exhibits an asymmetry in the marking of non-subject arguments. The non-subject marker -re, introduced in section 3.3 above, is obligatory on Group 6 nouns (higher animates), Group 7 nouns (human animates), and Group 8 nouns (proper names), and is variably realized on nouns of all other groups.

Example (102) shows the non-subject marker on the Group 6 (higher animate) noun bìbì ‘dolphin’, the Group 7 human animate noun ímì ‘man’, and the Group 8 proper noun Angelina.

\(^4\)These forms are in general associated with the WM, NM, and EM dialects respectively.
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(102) a. Békó bìbìrè ŋámékó

\[ \text{Békó} \quad \text{bìbì} \quad \text{-re} \quad \text{ŋámé} \quad \text{-ko} \]

proper.name dolphin -NON.SUBJ not.like -3.SG.FEM.PRES.DECL

‘Békó doesn’t like dolphins’ (E.SJF.JMM.22aug2014)
‘A Békó no le gustan los bufeos’

b. ìmirè báábi dóè

\[ \text{ímì} \quad \text{-re} \quad \text{báá} \quad \text{-bi} \quad \text{dòè} \]

man -NON.SUBJ have -1.SG.PAST.DECL before

‘I had a(nother) man before’ (hjb 15.1)
‘Antes yo he tenido otro varón’

c. Angelinarè hábì

\[ \text{Angelina} \quad \text{-re} \quad \text{híá} \quad \text{-bi} \]

personal.name -NON.SUBJ locate -1.SG.PAST.DECL

‘I met Angelina’ (eds 56.1)
‘Yo encontré a la Angelina’

Group 5 nouns (lower animates) take -re only when they refer to a specific, extensional entity. The contrast between the specific and non-specific forms is shown below in (103) for the Group 5 lower animate noun gìhì ‘louse’ and (104) for nìhò ‘wife’.

(103) a. gìhì báámàkò, hátò?

\[ \text{gìhì} \quad \text{báá} \quad \text{-ma} \quad \text{-ko}, \quad \text{hátò?} \]

louse have -NEG -3.SG.FEM.PRES.INTERR niece

‘Don’t you have lice, niece?’ (soc 26.1)
‘¿No tienes piojos, sobrina?’

b. gìrè híágú

\[ \text{gìhì} \quad \text{-re} \quad \text{híá} \quad \text{-gu} \]

louse -NON.SUBJ locate -1.SG.PAST.DECL

‘I found a louse’ (E.SJF.NMM.8aug2014) ‘He hallado un piojo’

(104) a. nìhò báámáví

\[ \text{nìhò} \quad \text{báá} \quad \text{-má} \quad \text{-yì} \]

wife have -NEG -1.SG.PRES.DECL

‘I don’t have a wife’ (ccp 9.1)
‘No tengo mujer’

---

5Note that certain kin terms like nìhò ‘wife’, bìkò ‘aunt’, and ìhì ‘husband’ pattern with lower animates like gìhì ‘louse’. This is not to say that kin are somehow ‘less animate’ than dolphins or men. The semantic analysis provided in §4.4 aims to do away with precisely these unsatisfying gradations in concepts like animacy that must be posited as part of a feature-based account of the variation in the morphosyntactic behavior of nouns.
b. nihoreg gósésáófhógi

nihore -re gósé saó -hó -gi
wife -NON.SUBJ order send -PERF -3.SG.MASC.PAST.DECL

‘He sent his wife [to their swidden]’ (by1 40.1)
‘Él ha mandado su mujer [a la chacra]’

The behavior of Group 5 nouns is in contrast with that of animates of Group 6, which take -re even in generic contexts. Example (105) shows three such nouns: ánà ‘snake’; násó ‘woolly monkey’; and míà ‘bird’.

(105) a. Mámàsò ánàre gwíkó

Mámàsò ánà -re gwíi -ko
proper.name snake -NON.SUBJ be.afraid -3.SG.FEM.PRES.DECL

‘Mámàsò is afraid of snakes’ (E.SJF.AMM 18jan2013)
‘Mámàsò tiene miedo de las víboras’

b. násore áiyí, násore

násó -re áí -yi násó
Lagothrix.lagothricha -NON.SUBJ eat -1.PL.PRES.DECL Lagothrix.lagothricha -re -NON.SBJ

‘We would eat Lagothrix lagothricha’ (ca5 63.1)
‘Comíamos choro’

c. màrre hàsómáyí

míà -re hàsó -má -yi
bird -NON.SUBJ shoot -NEG -1.PL.PRES.DECL

‘We don’t shoot (small) birds’ (mak 123.1)
‘No matamos pájaros (chicos)’

In general, inanimates do not take -re in non-subject position, even in non-generic contexts. Example (106) shows two cases with specific, inanimate non-subjects that lack -re-marking.

(106) a. màmáyiò baáyí ñtídádì, yíò

màmá- yíò baá -yi ñtí -rari, yíò
new swidden have -1.SG.PRES.DECL this -CL:location swidden

‘I have a new swidden over there, a swidden’ (ohe 20.1)
‘Yo tengo mi chacra nueva por allá’
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yóú ñíbí
b. yóù ñí -bi
   canoe borrow -1.PL.PAST.DECL
   ‘We borrowed a canoe’ (ov2 94.1)
   ‘Hemos prestado otra canoa’

Even in certain cases where the referent is unique in the context (i.e., is definite), -re is not needed. The context for (107) below is that there are two pencils, one big and one small, and the speaker is asking his interlocutor to pass him the big one.

(107) há́ıtika ́chímà
   hái -tika ́chí -ma
   big -CL:stick give -IMPER
   ‘Give me the big one (pencil)’ (E.LTN.SJF 9feb2013)
   ‘Alcánzame el grande’

Like inanimates, Group 1 nouns are generally not suffixed with -re in non-subject position, as is shown below in (108) for the inherently plural nouns ñú ‘children’, dói ‘siblings’, and hòyá ‘domestic animals’.

(108) a. ñú tèa bááyo
   ñú tèa báá -yo
   children also have -3.SG.FEM.FUT.DECL
   ‘She will have children also’ (ohe 20.1)
   ‘Ella también va a tener sus hijos’

b. dói báámáyí
   dóí báá -má -yi
   siblings have -NEG -1.SG.PRES.DECL
   ‘I don’t have siblings’ (mbl 67.1)
   ‘No tengo hermanos’

c. hòyá ñíayí
   hòyá ñú -yi
   domestic.animals see -1.SG.PRES.DECL
   ‘I’m looking at dogs’ (E.SJF.JMM 31jan2013)
   ‘Estoy mirando perros’

While marking with -re is not common on either inanimate nouns or inherently plural animates, it is not ungrammatical, as examples (109) and (110) show.

(109) ñí weèrè gósàrè sákì
Chapter 4. The Structure of the MÁHỊKI nominal lexicon

3.SG.MASC.PRON house -NON.SUBJ think -SS.SEQ go.PAST.NI -3.SG.MASC.PAST.DECL

‘He thought of his house and went (there)’ (tui 69.1)
‘Ha pensado en su casa y sa he ido allá’

(110) chînêakô ūkúrê sâfko hōyârê bîyî
chià néá -ko ūkú -re sâi -ko hōyà still dark -CL:fem drink -SS.SEQ go -3.SG.FEM.PRES.DECL domestic.animals
-re bîô -yi -NON.SUBJ hunt.with.dogs -1.PL.PRES.DECL

‘When (the tapir) goes and drinks before dawn, we hunt (her) with dogs’ (hgt 15.1)
‘Cuando (la sachavaca) de mañanita está yendo para tomar, le cazamos con perros’

The conditions under which the nouns of these groups surface with -re will be explored in greater detail as part of the semantic analysis presented in §4.4. For now, it will suffice to say that -re obligatorily marks non-subject arguments of noun groups 6, 7, and 8, while it is optional for nouns of all other groups. The pattern is shown below in Table 4.3, where gray cells indicate the obligatoriness of -re on non-subject arguments.

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<td>5. gît</td>
<td>louse</td>
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<td>6. bîbî</td>
<td>dolphin</td>
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<tr>
<td>7. îmî</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tîmî</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.3: Obligatory -re-marking on non-subject arguments

4.3.3 Split possession

MÁHỊKI nouns vary with respect to the roles they may serve in possessive constructions. As described above in §3.7.1 and exemplified below, possessive constructions in MÁHỊKI consist of two juxtaposed, prosodically independent nouns (see §2.4.1 for an analysis of tone in MÁHỊKI). Viable possessors include all animate nouns; that is, those of groups 1, 5, 6, 7, and 8. Possessive constructions may indicate kinship relations, body part relations, and relations of ownership or control.
Possessive constructions indicating kinship relations are shown in (111). In the case of (111a), the possessor is a Group 8 proper name, while in (111b) it is a Group 6 higher animate.

(111) a. **Manuela Vaca mámákdàò**

*Manuela  Vaca  mámákò -ao*

proper.name  proper.name  child.FEM -ANIM.FEM.COP

‘It’s Manuela Vaca’s daughter’ (bau 62.1)

‘Su hija de la Manuela’

**násó mámáki** étáhógi tèà

b. **násó**  **mámáki**  étá -hó -gi  tèà

Lagotrichrix.lagothricha  child.MASC  escape -PERF -3.SG.MASC.PAST.DECL  also

‘The woolly monkey’s child fled as well’ (aho 109.1)

‘La cría del choro había escapado’

Possessive relations of control or ownership are exemplified below in (112) for the the Group 8 proper noun *Mamerto* and the group 7 human animate *nómìò* ‘woman’.

(112) a. **téàùmù bàlìhì Mamerto yìò**

*téá -unu bàì -hì  Mamerto  yìò*

same  -CL:side  be.located  -3SG.MASC.PRES.DECL  proper.name  swidden

‘It’s on the same side [as Nancy’s swidden], Mamerto’s swidden’. (hsj 69.1)

‘La chacra de Mamerto está al lado [de la chacra de Nancy]’

b. **nómìò kìùrì** tìyìhúgí

*nómìò  kìù  -ri  tìyì  -hú  -gi*

woman  metal  -CL:manufactured  crack.INTR  -PERF  -3.SG.MASC.PAST.DECL

‘The woman’s machete cracked’ (E.NMM.KCN.09jul2012)

In example (113), we see an example of a ‘body part’ possessive construction with a Group 1 inherently plural animate possessor, *nómì* ‘women’.

(113) ...**nómì nóébà**

*nómì  nóébà*

women  vagina

‘...women’s vaginas’ (mbd 188.1)
The boundary between viable and non-viable possessors in Māhīk̓ı maps neatly onto the boundary between animate and inanimate nouns. Inanimate nouns do not serve as possessors in possessive constructions, but do appear in part-whole constructions consisting of a root and a classifier. Part-whole relationships are distinguished from possessive constructions prosodically: whereas true possessors are prosodically distinct words, the tone of the second element in an inanimate part-whole construction is prosodically subordinate to that of the first. For instance, the root sūkī ‘tree’—a mass noun of Group 2—has inherently high tone, as does the root tíká ‘stick’, a Group 3 generic inanimate noun. In (114), we see that the tone of tíká has been ‘erased’ by that of sūkī. In Chapter 5, we will see an analysis of tíká as a classifier in constructions like these.

(114) sūkítik'amákáméégó...

sūkí tíkà -maka méé -go...
tree -CL:stick -INAN.DIM hang.with.knot -3.SG.FEM.PAST.DECL

‘She hung [the pot] from the branch of a tree’ (hja 27.1)
‘Ella ha amarrado [la olla] a un palito’

In summary, the possessive split is between animate and inanimate nouns in Māhīk̓ı. Inanimate nouns may function as ‘possessors’ in part-whole constructions, but these are prosodically distinct from true possessive constructions. The ability of nouns of various groups to serve as possessors is summarized in Table 4.4 below, where viable possessors appear in gray.

<table>
<thead>
<tr>
<th>REPRESENTATIVE</th>
<th>GLOSS</th>
<th>CHARACTERIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. nómi</td>
<td>women</td>
<td>inherently plural animates</td>
</tr>
<tr>
<td>2. ókó</td>
<td>water</td>
<td>masses</td>
</tr>
<tr>
<td>3. tíká</td>
<td>stick</td>
<td>generic inanimates</td>
</tr>
<tr>
<td>4. wéééé</td>
<td>house</td>
<td>count inanimates</td>
</tr>
<tr>
<td>5. gā̃</td>
<td>louse</td>
<td>lower animates</td>
</tr>
<tr>
<td>6. bībī</td>
<td>dolphin</td>
<td>higher animates</td>
</tr>
<tr>
<td>7. ímí</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tímí</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.4: Viable possessors

4.3.4 Plural splits

The Māhīk̓ı lexicon exhibits two splits with respect to the encoding of plurality on the noun. There is a split between nouns that can and cannot be suffixed with plural morphology, and a split between those that take -na versus -ma.
Nouns of groups 1, 2, and 8—that is, inherently plural animates, masses, and proper names—cannot take any plural suffix, as is shown for the nouns *hòyà ‘domestic animals’, *hàsò ‘manioc’, and Mámàsò (a proper name) in (115) below.

(115) a. *hòyànà
   hòyà -na
   children -ANIM.PL
   attempted: ‘domestic animals’

b. *hàsòmà
   hàsò -ma
   manioc -INAN.PL
   attempted: ‘manioc’ (??)

c. *Mámàsònà
   Mámàsò -na
   proper.name -ANIM.PL
   attempted: ‘Mámàsòs’ (??)

Table 4.5 shows nouns that may not take plural suffixes shaded in gray.

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</thead>
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</tr>
<tr>
<td>2. ôkó</td>
<td>‘water’</td>
<td>masses</td>
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<td>‘stick’</td>
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</tr>
<tr>
<td>4. wèè</td>
<td>‘house’</td>
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</tr>
<tr>
<td>5. gìì</td>
<td>‘louse’</td>
<td>lower animates</td>
</tr>
<tr>
<td>6. bìbì</td>
<td>‘dolphin’</td>
<td>higher animates</td>
</tr>
<tr>
<td>7. ìmì</td>
<td>‘man’</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tìmì</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.5: Nouns that may not take plural marking

Nouns of groups 5, 6, and 7 may only take the plural suffix -na. Example (116) shows this for the Group 5 noun nìhò ‘wife’, the Group 6 noun yáí ‘jaguar’, and the Group 7 noun ìmì.

(116) a. ákwèrè ìtìhùnà Màmènò nìhònà yíòbì nèè
   ákwè -re ìtìhùnà Màmènò nìhò -na yíò -bì
   eat.sweet -SS.SEQ they proper.name wife -ANIM.PL gather -3.PL.PAST.DECL
   nèè
   moriche.palm
b. yáínà yìiyì
yáí -na yìì -yi
jaguar -ANIM.PL roar -3.pl.pres.decl
‘The jaguars are roaring’ (E.LTN.SJF.21jul2013)
‘Los tigres están rujando’
c. ímìnà tèà séréyì
ímì -na tèà séré -yi
man -ANIM.PL also peel -3.PL.PRES.DECL
‘The men also peel’ (ch1.13.1)
‘Los hombres también pelan’

Table 4.6 below shows that -na is available for Groups 5-7.

<table>
<thead>
<tr>
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</thead>
<tbody>
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<td>7. ímì</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tìmì</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.6: Plural marking with -na

The inanimate plural suffix -ma is available for nouns of Group 3 (generic inanimates) and Group 4 (count inanimates). It is shown suffixed to the Group 3 noun tótó ‘buttress root’ and to the Group 4 noun wèè ‘house’ in (117) below.

(117) a. míñánì kwááyöhì tótómà tìkàhì sáiyì
míñá ínè kwáá -yohì tótó -ma tìkà
green peach.palm pick.fruit -PL.PURP buttress.root -INAN.PL hit.PLACT
-hì sáí -yi
-PL.SS.SIM go -3.PL.PRES.DECL
‘They went to pick green peach palm (fruit) while hitting buttress roots’ (pvd 7.1)
‘Se iban a cojer pijuayo verde golpeando aletas’
b. ‘wèèmà tätahèagà,’ ífhì
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Table 4.7 summarizes the distribution of the inanimate plural suffix -ma, with nouns that may take -ma shown shaded in gray.

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<td>4. wêê</td>
<td>house</td>
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<td>5. giêi</td>
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</tr>
<tr>
<td>6. bibî</td>
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<td>higher animates</td>
</tr>
<tr>
<td>7. ímî</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tîmî</td>
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<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.7: Plural marking with -ma

In summary, the Máihíki lexicon exhibits multiple splits in plural morphology. Inanimate count nouns (groups 3 and 4) take -ma; lower, higher, and human animates (groups 5, 6, and 7) take -na; inherently plural animates, mass nouns, and proper names take no plural morphology.

4.3.5 The singulative -bi

The singulative suffix -bi is the defining characteristic of Group 3 nouns (generic inanimates). This suffix, whose behavior is described in greater detail in §5.3.1, is used to indicate a singular, prototypical instance of the root in question. Unlike Group 4 nouns (count inanimates like wêê ‘house’), Group 3 nouns cannot refer to specific, singular individuals without first being suffixed with -bi. Examples of Group 3 nouns títka ‘stick’ and chô ‘head’ suffixed with the singulative marker are shown in (118).

(118) a. títkâ bi tûhî

stîck -sing fall -3.SG.MASC.PRES.DECL

‘The stick is falling’ (cmb 44.1)
‘El paito está cayendo’
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b. gîh hîyî mî chîbî
   gîh hú -yî mî chî -bî
louse locate -1.SG.FUT.DECL 2.SG.PRON head -SING
'I'm going to look for lice on your head' (clp 119.1)
'Voy a buscar piojos en tu cabeza'

Table 4.8 shows that only Group 3 nouns may take the singulative suffix.

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<td>5. gîh</td>
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<tr>
<td>6. bîbî</td>
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</tr>
<tr>
<td>7. îmîê</td>
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</tr>
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<td>8. Tîmîê</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.8: The availability of the singulative -bî

4.3.6 Diminutive splits

Mâhî-ki nouns differ in the form of the diminutive suffix that they take, as well as in whether they are permitted to take a diminutive suffix at all. In our corpus, the diminutive suffix -nî appears on nouns of groups 5, 6, and 7, while -maka~-aka and its plural counterpart -maña are reserved for groups 2, 3, and 4 (that is, inanimate nouns). Example (119) shows the animate diminutive suffix -nî on nouns of Groups 5, 6 and 7, respectively.

(119) a. dâîkî nûkkîrê nhôômî nîkâkô màrûràkâ nîkâkô
   dâî -kî nû -kîrê nhô -nî nîkâ
come -MASC.SS.SIM see -MASC.DS.SIM wife -ANIM.DIM stand
-ko mà -ruru -aka nîká
-3.SG.FEM.PRES.DECL path -CL:direction -INAN.DIM stand
-ko
-3.SG.FEM.PRES.DECL
'He came and saw his wife standing in the path' (soc 51.1)
b. bôsâmî sâmî -hô
   bôsâ -nî sâmî -hô
deer -ANIM.DIM go.NI -PERF
'He left as a little deer' (iy6 468.1)
c. ñamñi bākī

\[ \text{mn} -\text{ni} \quad \text{bā} \quad -\text{ki} \]

man -ANIM.DIM exist.PAST.NI -3.SG.MASC.DECL.NI

‘He was a boy’ (hjb 11.1)

The distribution of -\text{ni} is shown below in Table 4.9.

<table>
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</tr>
<tr>
<td>3. třká</td>
<td>stick</td>
<td>generic inanimates</td>
</tr>
<tr>
<td>4. wèè</td>
<td>house</td>
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</tr>
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<td>5. gãti</td>
<td>louse</td>
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</tr>
<tr>
<td>6. bíbí</td>
<td>dolphin</td>
<td>higher animates</td>
</tr>
<tr>
<td>7. ñmí</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tímí</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.9: Diminutive marking with -\text{ni}

Example (120) shows the inanimate diminutive suffix -\text{maka}--\text{aka} on the Group 2 noun ñó ‘food’, the Group 3 noun chóó ‘head’, and the Group 4 noun yíó ‘swidden’, respectively.

(120) a. ñásákì ñó, ñóåkâ, ñkúyí

\[ \text{ásá} \quad -\text{ki} \quad \text{ñó} \quad \text{ñó} \quad -\text{aka} \quad \text{ñkú} \quad -\text{yi} \]

perceive -MASC.SS food food -INAN.DIM drink -1.SG.PRES.DECL

‘I drink it thinking it’s food’ (jv3 71.1)

‘Yo tomo eso pensando que es comida’

b. ñó chómâkâ êtàrálhì

\[ \text{ñó} \quad \text{chó} \quad -\text{maka} \quad \text{étá} \quad -\text{rai} \]

3.SG.FEM.PRON head -INAN.DIM emerge -ASS.MOT.TOWARD.SPEAKER -hì

-3.SG.MASC.PRES.DECL

‘Her little head was emerging’ (nm4 63.1)

‘Su cabecita estaba saliendo’

c. yíkì yíómâkâ bãísè ŵsèhè yíómâkâ bàkì

\[ \text{yíkì} \quad \text{yíó} \quad -\text{maka} \quad \text{bà} \quad -\text{se} \quad ŵsè \quad -\text{he} \]

1.PL.PRON swidden -INAN.DIM exist -PAST.REL this -CL:physical.aspect

\[ \text{yíó} \quad -\text{mákà} \quad \text{bà} \quad -\text{ki} \]

swidden -INAN.DIM be.PAST.NI -3.SG.MASC.PAST.DECL

‘What used to be our swidden was this size’ (say 353.1)

‘Era una chacra de este tamaño’
The noun groups that may take -maka∼a-ka are shown shaded below in Table 4.10.

<table>
<thead>
<tr>
<th>Representative</th>
<th>Gloss</th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. nómí</td>
<td>women</td>
<td>inherently plural animates</td>
</tr>
<tr>
<td>2. ókó</td>
<td>water</td>
<td>masses</td>
</tr>
<tr>
<td>3. táká</td>
<td>stick</td>
<td>generic inanimates</td>
</tr>
<tr>
<td>4. wée</td>
<td>house</td>
<td>count inanimates</td>
</tr>
<tr>
<td>5. gíí</td>
<td>louse</td>
<td>lower animates</td>
</tr>
<tr>
<td>6. bóbí</td>
<td>dolphin</td>
<td>higher animates</td>
</tr>
<tr>
<td>7. ímì</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tímí</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.10: Marking with inanimate diminutive -maka

In summary, -nǐ is available for nouns of groups 5, 6, and 7, while -maka∼a-ka is available inanimates (groups 2, 3, and 4). There are no examples in our corpus of proper names or inherently plural animates (groups 8 and 1) suffixed with either diminutive.

4.3.7 Classifier splits

The last split in the morphosyntactic behavior of Máhíki nouns that we will examine is the ability of a given noun to function as a classifier or to take a classifier suffix. As we will see in Chapter 5, providing a precise definition for ‘classifier’ is a difficult task, as there is a continuum between full, exclusively suffixal, highly grammaticalized classifying morphemes and nominal roots that may be used in classifier constructions. For our present purposes, only nouns that may appear suffixed to a numeral will be said to be able to serve as classifiers. These nouns are the ‘repeaters’ and ‘intermediate classifiers’ discussed below in §5.3.1. The ability to serve as a classifier is a property of generic inanimates and inanimate count nouns only—that is, nouns of Group 3 and 4. Whereas animate count nouns have associated gender classifiers that suffix to numerals, nouns of Group 3 and 4 serve as their own classifiers. Example (121) shows that the classifier -i must appear suffixed to the numeral të when it modifies the Group 7 noun ímì ‘man’, while Group 3 and 4 nouns táká ‘stick’ and wée ‘house’ have classifiers of the same form.

(121) a. yì wée tëì ímì bàː hí

yì wée tëì -i ímì bàː -hí
1.SG.PRON house one -CL:masc man live -3.SG.MASC.PRES.DECL
‘One man lives in my house’ (E.NMM.SJF.24jan2013)
‘Un hombre vive en mi casa’

b. tê táká húãgotê

tê tìkã húãgotê -go
one -CL:stick insert.pointed.thing -3.SG.FEM.PAST.DECL
‘She planted one stick (of manioc)’ (E.HMR.SJF.25jun2013)
‘Ha sembrado un palo (de yuca)’

c. *wè wè te *ũhú *gí*

<table>
<thead>
<tr>
<th>house</th>
<th>one</th>
<th>-CL:building</th>
<th>burn.INTR</th>
<th>-PERF</th>
<th>-3.SG.MASC.PAST.DECL</th>
</tr>
</thead>
</table>

‘One house burned down’ (E.SJF.AMM 17jul2013)
‘Una casa se ha quemado’

Table 4.11 shows the groups that may function as classifiers (i.e., be suffixed to numerals) shaded in gray.

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</tr>
</tbody>
</table>

Table 4.11: Nouns that may serve as classifiers

Defining the class of elements that may take classifiers is also difficult, as it seems that a subset of nominal roots (those of Groups 1, 2, 3 and to a lesser extent 4 and 5) are very readily classified, but that other roots (e.g. of Groups 6, 7, and 8) may also be coerced into these constructions. Example (122) below shows nouns of Groups 1, 2, 3, 4, and 5, respectively, suffixed by classifiers.

(122) a. kàmà séréyi, nómìhùnà séréyi

<table>
<thead>
<tr>
<th>kàmà séré -yi</th>
<th>nómì -hùnà séré -yi</th>
</tr>
</thead>
<tbody>
<tr>
<td>thus peel -3.PL.PRES.DECL women -CL:group peel -3.PL.PRES.DECL</td>
<td></td>
</tr>
</tbody>
</table>

‘Thus they peel, the women peel’ (iy6 101.1)
‘Así pelan, las mujeres le pelan’

ókòrakà núí mínìhó

b. ókó -raka núí mínì -hó

| water -CL:water a.lot rise.in.level.NI -PERF |

‘The water rises a lot’ (con 64.1)
‘El agua crece mucho’
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wêtu híáyi

c. wéè -tu húá -yí
   house -CL:thick.cylinder locate -1.PL.PRES.DECL
   ‘We look for house posts’ (ir1 2.1)
   ‘Buscamos los horcones’
   “séòrè tiämà,” híkàyì nhòpete

d. séò -re tíá -ma híkà -yí nhò -pe
   paucar -NON.SUBJ yank -IMPER speak -3.PL.PRES.DECL wie -CL:pair
   ‘Go yank the paucar(‘s nest),’ said the pair of wives’ (clp 5.1)
   ‘Sus dos mujeres le mandaron (a Máínênò), ‘Vete arrancar su nido de paucar.’’

While consultants have accepted the forms in (123), which consist of a proper name (Group 8) and a highly animate noun (Group 6) suffixed with classifiers, nouns of these groups (as well as nouns of Group 7) do not appear with classifiers in our corpus.

(123)  a. Léóhùnà
   Léó -huna
   Lev -CL:group
   ‘A group associated with Lev; Lev’s posse’ (E.NMM.SJF.21june2013)
   ‘Leo y sus compañeros’

b. óyòrò
   óyò -ro
   bat -CL:concave
   ‘bat pot’ (E.EMR.SJF.28jan2013, E.LMM.SJF.30jan2013)
   ‘olla de murciélago’

   Given that it seems any noun root may be coerced into a classifier construction, it may be more useful to talk about the facility with which a root takes a classifier suffix. The groups that appear naturally and frequently with classifiers in our corpus are shaded in gray in Table 4.12 below.
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<td>water</td>
<td>masses</td>
</tr>
<tr>
<td>3. tıká</td>
<td>stick</td>
<td>generic inanimates</td>
</tr>
<tr>
<td>4. wèè</td>
<td>house</td>
<td>count inanimates</td>
</tr>
<tr>
<td>5. gìì</td>
<td>louse</td>
<td>lower inanimates</td>
</tr>
<tr>
<td>6. bíbibi</td>
<td>dolphin</td>
<td>higher animates</td>
</tr>
<tr>
<td>7. ímì</td>
<td>man</td>
<td>human animates</td>
</tr>
<tr>
<td>8. Tímí</td>
<td>proper name</td>
<td>proper names</td>
</tr>
</tbody>
</table>

Table 4.12: Nouns that may take classifiers

4.3.8 Summary

We have seen that Máihìki nouns pattern differently with respect to at least seven different morphosyntactic traits: the form of the copular suffix that they take, the obligatoriness of marking with -re when they serve as the non-subject arguments of verbs, their ability to be possessors in possessive constructions, the form of the plural and diminutive suffixes they take, their ability to take the singulative suffix -bi, and the facility with which they may serve as or take classifier suffixes. Figure 4.10 summarizes these data.
What is noteworthy about the above figure is that all sections defined in the circle are contiguous; there is no morphosyntactic behavior (at least, none of those described above) that is characteristic of non-adjacent groups. In the following section, I will address the question of why the lexicon might be structured like this. I will propose that two interacting and related parameters that determine a noun’s place on the ‘Reference Wheel’ shown above: the total number of properties attributable to individuals in the set denoted by that noun and the number of properties shared by all individuals in the set denoted by that noun.
4.4 Proposal: the reference ratio

We began this chapter with an exploration of the notion of semantic hierarchies within the nominal lexicon and a survey of the morphosyntactic behaviors that have been posited to be sensitive to such hierarchies. We saw that the phenomena of split ergativity, differential object marking, split possession, and split plurality have all been attributed to nominal hierarchies, and that these have been claimed variously to be hierarchies of animacy, definiteness, familiarity, empathy, and a number of other related concepts. These hierarchies seem at once strikingly similar across languages and frustratingly different—they all seem to privilege speech act participants over other humans, humans over other animates, and animates over inanimates, but they also seem to be sensitive to other semantic features (plurality, definiteness, topicality) in unpredictable ways. The organizing principles of the hierarchy are also notoriously difficult to characterize, as Smith-Stark expresses in his 1974 paper on split plurality:

“I am at a loss as to what the motivation is for the relationship I have just described between plurality and the hierarchy ... I am not even sure what the organizing principle of the hierarchy alone is. Although it looks very much like it is defined on the basis of animacy, I believe that it can be better described as encoding the likelihood of participation in the speech event.” (664, emphasis in the original)

Smith-Stark’s worry about the organizing principle behind the hierarchy he proposes for split plurality reflects a view of hierarchical lexicons often misattributed to Silverstein (1976): that there is one linear hierarchy that varies along a single semantic dimension. As Du Bois (1987) points out, “…the fact that a particular NP has feature values in several dimensions [in Silvestein’s feature array] is what allows it to be governed by the distinct organizing principles that pertain to those dimensions” (849). This is similar to the conclusion made in Comrie (1981), which states that

“...the animacy hierarchy cannot be reduced to any single parameter, including animacy itself in its literal sense, but rather reflects a natural human interaction among several parameters, which include animacy in the strict sense, but also definiteness (perhaps the easiest of the other parameters to extricate from animacy), and various means of making an entity more individuated—such as giving it a name of its own, and thereby making it also more likely as a topic of conversation. The individual parameters...are often closely related to one another, but there are also individual irreducible differences, and the over-all pattern is of a complex intertwining rather than of a single, linear hierarchy” (199).

Why should the nominal lexicon of any language be structured in the way shown in Figure 4.10? In the introduction to this dissertation I proposed two languages: Language A, in which each entity has a separate name, and Language B, in which all entities share a
name. I will propose here and defend in the following chapters the idea that the structure in Figure 4.10 above is a compromise between the two; it results from the struggle between the precision of Language A and the efficiency of Language B. In fact, the Reference Wheel has elements of both languages at its extremes: proper names like Tímí are precise terms in that they index a large, unique set of properties (those that the individual called Tímí bears), all of which are ‘shared’ by a single entity; mass nouns like ókó ‘water’ are precise in a different way: they index a large or even infinite number of entities, all of which share a single property or a small number of properties. We can think of common count nouns like wè‘e ‘house’ or bîbî ‘dolphin’ as somewhere between the two extremes: they are less precise in that they require their referents to share a particular set of properties (e.g. to have a particular shape, utility, or behavior), but imprecise in that they may refer to more than one individual, glossing over the non-shared properties that those individuals inevitably bear by virtue of being individuals. The structure in 4.10 arises as an efficient way, given the nature of human cognition and experience, to encode the categories that matter to us.

4.4.1 Thinking about reference

The standard semantic analysis of common nouns is that they denote characteristic functions of sets of individuals. They are \((e, t)\) functions from individuals (type \(e\)) to truth values (type \(t\)). The denotation of the common noun ‘cat’, then, might look something like Figure 4.4.1, where the brackets indicate a characteristic function and Brubaker, Dilly, etc. constitute the set of all cats.

\[(124) \quad \text{[cat]} = \left\{ \{\text{Brubaker, Dilly, Harvey, Nigel, Selina, Slopey...}\} \right\} \]

Some evidence that nouns do not denote individuals of type \(e\) is that in languages like English or Spanish, they must appear with determiners in order to serve as the arguments of verbs. For languages like Máihíki or Mandarin Chinese in which there are no definite or indefinite articles and common nouns may surface bare as the arguments of verbs, this type of argument for the \((e, t)\) status of nouns is less compelling. In fact, it has been proposed by Chierchia (1998b) that in languages that lack determiners, nouns come out of the lexicon argumental—that is, they denote individuals of type \(e\). Chierchia’s proposal is that bare nouns in languages of this sort denote kinds—a type of individual proposed by Carlson (1977) that we will discuss shortly.

First, I would like to propose a way of thinking about reference in terms of the set membership of the individuals denoted by a noun. Let’s take for granted for a moment that the denotation of ‘cat’ is as in Figure 4.4.1 above; that is, it denotes the characteristic function of the set of cats. We can imagine that each of the individuals in this set of cats also belongs to a number of other sets—the set of fluffy things, of things that meow, of things...

---

6In Montague’s type theory, there are two basic types: \(e\), the type of entities, and \(t\), the type of truth values. If \(a\) and \(b\) are types, then \((a, b)\) is a type (the type of functions from things of type \(a\) to things of type \(b\)).
with tails, etc. Like ‘cat’, these are properties that an individual of type $e$ may have, and their denotations might look something like in (125) and (126) below.

(125) $[\text{meow}]_{(e,t)} = [\{\text{Brubaker}_e, \text{Dilly}_e, \text{Harvey}_e, \text{Nigel}_e, \text{Selina}_e\}]$

(126) $[\text{fluffy}]_{(e,t)} = [\{\text{Brubaker}_e, \text{Harvey}_e\}]$

Now, based on our original set of cats, we can further define two higher order sets:

Set A: the union of the sets to which the individuals denoted by ‘cat’ belong

Set B: the intersection of the sets to which the individuals denoted by ‘cat’ belong

These two sets, A and B, are of type $\langle\langle e,t \rangle, t \rangle$—the type of generalized quantifiers—and are equivalent to $[\text{some cat}]$ and $[\text{every cat}]$, respectively. Set A contains the set of all properties that any cat may have, while Set B contains the set of all properties that all cats share. I propose that reference is established when the ratio of the number of elements in Set A to the number of elements in Set B is 1 (in other words, when $A=B$). In more general terms, this means that an expression is referential when all of the individuals that it denotes share an identical set of properties.

When would this ever happen? The most obvious candidate for an inherently referential noun is the proper name, which denotes a single individual, like Tímí, who will of course ‘share’ all of the properties that he has. If we compare the intersection of the sets to which all entities denoted by Tímí belong to the union of the sets to which all entities denoted by Tímí belong, they will always be equivalent.

A perhaps less obvious case of a reference ratio that is equal to (or nearly equal to) 1 is the case of mass nouns. Unlike proper names, mass nouns denote sets of a large or even infinite number of entities. This is due to the fact that mass nouns have ‘cumulative reference’ (Quine 1960:91). The entities denoted by mass nouns are characterized by their indifferentiability: this sand looks very much like that sand, so that either is indistinguishable from the other and from the sum of the two, and from its own parts. We may therefore think of the entities denoted by mass nouns as having very few properties, all (or most) of which are shared by all of the entities that they denote. This gives mass nouns a reference ratio close to 1, but in a way that is rather different from proper names: whereas proper names express a relationship between one individual and many properties, mass nouns express a relationship between many individuals and one (or few) properties.

I should note here that the number of properties attributable to a given individual (i.e., the number of sets to which that individual belongs) has nothing to do with how many properties that individual actually has outside of the human experience (if such a figure could even be calculated). Rather, properties are attributed to individuals based on humans’ perception of their variation, and are therefore subject to fluctuation based on the amount of attention that is paid to this variation. We would expect the entities that we interact with the most to have the most properties, as these are the entities that we need to distinguish from everything else.
4.4.2 Variability in the reference ratio of common count nouns

The above account of the reference ratio is not meant to suggest that mass nouns or proper names will pattern morphosyntactically in the same way across the world’s languages—for instance that they will always be able to surface bare as the argument of verbs. This claim could easily be falsified by the varieties of Spanish or Italian that require both mass nouns and proper names to take determiners, and it would allow for none of the crosslinguistic variation that Chierchia (1998b) describes in his discussion of the Nominal Mapping Parameter. Rather, I am suggesting that languages will differ with respect to how and how much their morphosyntax reflects a sensitivity to its nouns’ reference ratios.

We have seen that, by the definition of reference established above, expressions that denote masses and singular individuals make the best candidates for referring expressions. This could help to explain some of the morphosyntactic similarities that proper names and mass nouns exhibit crosslinguistically, including their ability in languages like English or German to surface bare as the arguments of verbs when common nouns must take determiners. Other expressions, however, may denote sets of individuals that are less uniform. For instance, while cats share a large number of properties, individual cats are idiosyncratic to an extent that individual instances of water or sand are not. Furthermore, some expressions will denote sets of individuals that are more idiosyncratic than others. We can imagine, for instance, that the reference ratio for ‘louse’ is closer to 1 than for ‘man’, as the set of properties attributable to any given louse is likely largely attributable to any other louse, while this certainly not the case for men.

Thinking about reference in terms of the uniformity of the individuals in the set denoted by some noun has the advantage that it allows us to talk about common nouns as forming a continuum of the type shown in Figure 4.11 without reducing these nuances in lexical semantics to gradations in something like animacy or definiteness.

![Figure 4.11: A continuum of reference](image)

One question that emerges from the discussion above is: if count nouns have a lower reference ratio than either mass nouns or proper names, why may they appear bare (i.e.,
without a determiner) in so many of the world’s languages, including Māhi’hī? I will address this question in my discussion of typeshifting below.

4.4.3 Typeshifting

The notion of typeshifters—operators that take elements of one semantic type as their input and return elements of another semantic type—was largely developed by Partee (1987) as a response to Montague (1973), who argues for a unified treatment of NPs as type $\langle\langle e, t \rangle, t \rangle$ (characteristic functions of sets of properties). Montague argues that the denotations of a proper name, an indefinite NP, and a generalized quantifier may be treated uniformly, as shown in Table 4.13.

<table>
<thead>
<tr>
<th>Type</th>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\lambda P[P(c)]$</td>
<td>Claudia</td>
</tr>
<tr>
<td>$\lambda P\exists x[\text{woman}(x) &amp; P(x)]$</td>
<td>a woman</td>
</tr>
<tr>
<td>$\lambda P\forall x[\text{woman}(x) \rightarrow P(x)]$</td>
<td>every woman</td>
</tr>
</tbody>
</table>

Table 4.13: NPs as type $\langle\langle e, t \rangle, t \rangle$

This type—$\langle\langle e, t \rangle, t \rangle$—is the type of generalized quantifiers, e.g. ‘every woman’, which express a relation between two predicates (the predicates expressed by the NP and VP). Montague’s proposal is therefore particularly useful in the analysis of the coordination of proper names with generalized quantifiers, as in ‘John and every woman’, in which the elements must be of the same type in order to have something predicated of them both. It is also compatible with the observation that the three NPs listed above in Table 4.13 may appear in the same syntactic environments. The generality of Montague’s approach, however, is at odds with the intuition that, for example, certain NPs seem to have referential interpretations. In other words, in reducing every NP to a single semantic type, we may be glossing over some important nuances.

Partee & Rooth (1983) attempt to maintain the appealing uniformity of Montague’s analysis while capturing the intuitive notion that NPs may have multiple uses or interpretations. Their solution is to use the simplest (lowest) types possible, and to reserve the more complex (higher) types for constructions in which they are necessary for a coherent typing of the sentence. Partee (1987) elaborates on this idea, suggesting that there are three possible uses of NPs: a referential use, a predicative use, and a quantificational use. The denotations of these three uses of the proper name ‘Brubaker’ are shown below in 4.4.3.

<table>
<thead>
<tr>
<th>Type</th>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\langle e \rangle$</td>
<td>Brubaker referential</td>
</tr>
<tr>
<td>$\langle e, t \rangle$</td>
<td>$\lambda x.x = \text{Brubaker}$ predicative</td>
</tr>
<tr>
<td>$\langle\langle e, t \rangle, t \rangle$</td>
<td>$\lambda P\lambda x.P(x) &amp; x = \text{Brubaker}$ quantificational</td>
</tr>
</tbody>
</table>

Table 4.14: Three types for a proper noun
The proper noun ‘Brubaker’ may denote an individual, or the characteristic function of the set of individuals that are Brubaker, or the characteristic function of the set of properties that Brubaker has. To deal with this multiplicity of types, Partee (1987) introduces a set of type-shifting operators, shown below in Figure 4.12.

![Figure 4.12: Partee’s type-shifting operators (1987)](image)

The typeshifters above allow for the conversion from one type to another where necessary, and are defined in detail in Partee (1987) and Partee (1992). In what follows, I will focus on the operators that convert type $\langle e, t \rangle$ elements into type $e$ elements—that is, $\iota$ and $\cap$—as these are the operators that would allow nouns to be used referentially. I will ultimately propose that the availability of one or the other of these typeshifting elements is variable for common count nouns in Mālāk̄i, dependent on the noun’s reference ratio.

The $\iota$ operator, $\iota$, is generally taken to have the meaning of the English definite article ‘the’. It takes a property and returns the largest individual with that property, which will either be the largest plurality or the unique singleton.

The $\cap$ operator, $\cap$, was introduced by Chierchia (1984) to account for the nominalization of predicates like the English common noun ‘dog’ into its bare argumental form ‘dogs’, and the adjective ‘blue’ into its nominal form ‘blue’. This idea is further developed in Chierchia (1998b), wherein the author describes $\cap$ as deriving kinds (of type $e$) from properties (of type $\langle e, t \rangle$). $\cap$ does this by taking the largest member of some property’s extension at any given world. In this way, $\cap$ can be seen as the intensional version of $\iota$.

The notion of kinds was introduced by Carlson (1977) in his influential dissertation on the meaning of English bare plurals (discussed in greater detail in §6.4 of Chapter 6). Carlson analyzes kinds as individuals, like proper names, who happen to have spatiotemporally discontinuous reference. His observation about reference to kinds is adopted by Chierchia
(1998b), who defines kinds as “regularities that occur in nature,” and notes that not every property will have a corresponding kind, as “What counts as a kind is not set by grammar, but by the shared knowledge of a community of speakers” (348).

In a certain way, \( \iota \) and \( \cap \) can be seen as deriving the two types of referential noun that were explored in §4.4: proper names and mass nouns. If we believe that referential nouns have a reference ratio of 1 (that is, that all of the entities that they denote belong to the same set of sets), then the ‘goal’ of typeshifting from \( \langle e, t \rangle \) to \( e \) is to arrive at a reference ratio of 1. This can be done in two ways: in the case of \( \iota \), the \( e \)-type argument is derived by focusing on a single entity denoted by the noun in question—one which itself belongs to a unique set of sets—and removing all other entities from consideration. In the case of \( \cap \), the \( e \)-type argument is derived by focusing on the property or properties that are common to some set of individuals—the set of properties are requisite (or prototypical) of the individuals bearing the property in question. Because common count nouns have lower reference ratios than mass nouns or proper names, they must be type-shifted by one or the other of these operators in order to surface as the type \( e \) argument of a verb. For some languages, like English or Spanish, this typeshifting is overtly realized as a determiner. For other languages, like Máihiiki, it is not.

Figure 4.4.3 below is my attempt to illustrate the two ways in which a predicate of type \( \langle e, t \rangle \) may be typeshifted to an argument of type \( e \). The set of three objects in the middle of the diagram represent the denotation of a count noun like ‘cat’, which includes individuals who have some but not all properties in common. \( \iota \) picks out a particular one of these individuals, and reference is successfully achieved: both the speaker and her interlocutor will have in mind a unique set of properties that could only correspond to one individual. \( \cap \) creates an abstraction and successfully achieves reference as well: the individual to which the speaker refers, although it does not correspond to any actual individual that either party has ever observed, is uniquely identifiable.

Figure 4.13: The two typeshifters
I should note that my account of $\cap$—that it returns an individual with the properties that are requisite of or common to all individuals in some set—is not the same as Chierchia’s definition for this operator, which returns the largest individual at any world. For Chierchia, the kind in any given world is identified with “the totality of its instances” (1998b: 350).

I propose that when a Máiḥiki noun surfaces bare as the argument of a verb, it has been typeshifted via either $\iota$ or $\cap$. I further propose that the availability of these two typeshifters for a given noun varies according to its reference ratio: $\cap$ is available for mass-like count nouns (those whose individuals belong to a largely overlapping set of sets), while $\iota$ is available for proper name-like nouns (those that denote many highly differentiable individuals). Nouns that fall squarely between mass-like and proper name-like may be type-shifted to refer to object-like individuals or kind-like individuals with equal ease.

In Figure 4.14 below, we see the eight classes of nouns mapped according to two parameters: total number of properties and number of properties shared. The diagonal line, as it moves northwest, indicates an increase in the felicity of the application of $\iota$ as opposed to $\cap$.

![Figure 4.14: Number of properties versus number of properties shared](image)

The reference ratio is the number of properties shared by or common to all individuals in some set divided by the sum total of properties exhibited by those individuals. For instance, individuals in the set ‘man’ have a very high number of properties and a very low number of properties shared; the reference ratio of ‘man’ therefore, is rather low. Individual instances of ‘water’, on the other hand, have comparatively very few properties, and nearly all of them are shared, so the reference ratio of ‘water’ is high (i.e., closer to 1). Another way of thinking of the reference ratio is as the relationship between incidental and necessary properties of some kind of thing. Figure (4.15) below shows a schematization of this concept for ‘dog’: the reference ratio is calculated by tallying the ‘necessary’ properties of dogs (i.e., the ones

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7Since Máiḥiki does not exhibit a morphological or syntactic difference between definite and indefinite noun phrases, $\iota$ is perhaps not quite the right typeshifter. In Chapter 6 I will explore the idea of a choice function, which returns an individual from a set in the manner shown in Figure 4.4.3.
that all dogs share) and dividing this number by the number of ‘incidental’ properties of
dogs (i.e., the ones that each dog brings to the table).

\[
\begin{align*}
\text{necessary} & \quad \{|\{x : x \text{ barks}\}, \{x : x \text{ is a mammal}\}, \ldots\| \\
\text{incidental} & \quad \{|\{x : x \text{ is little}\}, \{x : x \text{ is brown}\}, \ldots\|
\end{align*}
\]

Figure 4.15: Calculating the reference ratio for ‘dog’

The position of Group 3 and 4 nouns (téká ‘stick’ and wèè ‘house’, respectively) in the
illustration in 4.14 will be discussed in further detail in Chapter 5, which deals with noun
classification. The basic idea is that inanimate count nouns, by virtue of being inanimate,
have relatively few properties. By virtue of being discrete, the individuals denoted by count
nouns also have fewer properties in common (i.e., they are more distinguishable from one
another). The position of Group 1 nouns (like nómi) will be discussed in Chapter 6, which
deals with plurality. The basic idea is that these nouns are highly animate (i.e., have many
properties), but that plurality ‘smooths over’ the differences between atomic individuals. In
other words, the union of the sets that at least two individuals belong to is likely much
smaller than the union of the sets that each singular individual belongs to.

From the Figure 4.14 above, we can begin to see where the structure in the Reference
Wheel (Figure 4.10) might come from: nouns that have similar reference ratios pattern
together morphosyntactically.

At this point, a reasonable question might be “How could we possibly calculate the
reference ratio of any noun?” Or “How could we possibly quantify the number of properties
that one kind of thing versus another kind of thing has?” The reference ratio, as I have
described it, is my attempt to formalize the notions of ‘familiarity’ and ‘distinguishability’.
Its actual calculation is dependent on having some model of the world in which certain things
belong to certain sets, in the same way that evaluating the truth of an utterance is dependent
on a model of the world in which certain things belong to certain sets. I have suggested that
in our world, some things, like lice, have fewer properties (i.e., can be said to belong to fewer
sets) than other things, like dogs. I am aware that this claim is based on an intuition that I
have about the world that we live in, and that this intuition could only be proven true via
experimental methods of the sort performed by cognitive scientists.

4.5 Chapter 4 summary: deriving nominal hierarchies
from the reference ratio

I began this chapter with the observation that the nuanced lexical semantics of Máíhíkì
nouns have implications for the morphosyntactic behavior of those nouns. These ‘splits’ in
the morphosyntax appear to be sensitive to what others have called a ‘hierarchy’. A survey
of hierarchies that have been proposed for various languages and various morphosyntactic
behaviors revealed that there is some confusion about and no consensus on what these are
hierarchies of, although it seems clear that there must be several parameters that interact to determine how a given noun will pattern. A survey of the morphosyntactic behaviors that appear sensitive to a hierarchy in Máihâki revealed eight distinct groups of nouns which form the basis of the analysis presented in §4.4. This analysis holds that the nominal lexicon of a language varies with respect to a ‘reference ratio’, which may be calculated by comparing the number of elements in the intersection of the sets to which individuals denoted by a noun belong to the number of elements in the union of those sets. What would such a ratio have to do with differential object marking, noun classification, split possession, or any of the other behaviors that have been proposed to be sensitive to a hierarchy?

The answer, I believe, is that the degree of similarity between the entities in the extension of some property has implications for the coherence of that property, and therefore for the ways in which it may interact with other properties. For instance, relational nouns, like kin terms or part terms, might be expected to have extremely low reference ratios, as the set of entities that they denote is highly variable. They may thus be expected to combine with other nouns in order to become referential. Nouns with extremely high reference ratios, like proper names, masses, or inherent plurals might not be expected to have plural marking, as plural individuals would be indistinguishable from singular individuals. Nouns with few properties and a large proportion of properties in common might make good classificatory elements, as they may easily refer to kinds of things. The major advantage of this analysis is that it can account tidily for the differences in the morphosyntactic behavior of nouns that on the surface seem to denote very similar classes of things. In the following chapters, we will see how this account of nominal reference has bearing on the Máihâki systems of noun classification and nominal plurality.
Chapter 5

Noun classification

5.1 Introduction

In the previous chapter, we saw that the Máhìkì nominal lexicon may be divided into eight groups based on unique patterns of morphosyntactic behaviors. I suggested that an element’s position on the Reference Wheel (Figure 4.10) is determined, essentially, by how alike the entities are that that element could possibly denote. In this chapter, we will investigate the semantics and morphosyntax of classifiers—a set of at least 70 morphemes, the most common of which are listed and exemplified in Appendix E, that may be suffixed to verbal, adjectival, demonstrative, and certain nominal roots, deriving new lexemes. We will see that there is significant overlap between the domains of ‘true’ classifiers (i.e., morphemes that may only serve as classificatory elements) and of nominal roots, suggesting that these morphemes fall along a continuum of grammaticalization. This continuum will serve as the undercurrent of the three major sections of this chapter: one in which I situate the Máhìkì system of classifiers within a broader typology of noun categorization devices; one in which I offer a description of the lexical semantics, morphosyntax, and discourse functions of Máhìkì classifiers; and one in which I present a formal semantic analysis of classification.

I begin in §5.2 by embedding my discussion of Máhìkì classifiers in the existing typology of noun categorization devices, which was developed primarily with Indo-European and Bantu noun class systems and East Asian numeral classifier systems in mind, and which in recent years has recognized comparable phenomena in Amazonia as ‘unusual’ (Aikhenvald 2000), ‘problematic’ (Grinevald 2003), or intermediately grammaticalized (Grinevald & Seifart 2004). As we will see, the Máhìkì system of noun classification exhibits the definitional properties of both a gender or noun class system (i.e., agreement within the noun phrase), and a numeral classifier system (i.e., obligatory classification in the context of numerals).

§5.3 offers a detailed description of the Máhìkì noun class system, building on the preliminary description provided in §3.4. I begin by defining ‘classifier’ in morphosyntactic terms and exploring the range of morphemes to which this label may apply. I then focus on the lexical semantics of classifiers, elaborating on the salient distinctions captured by these mor-
phemes in various domains. Next, I discuss the types of elements to which classifiers may be suffixed, including nouns, adjectives, verbs, demonstratives, and numerals. Finally, I explore the syntactic and discourse functions that classifiers exhibit: the derivation of nouns, adjectives, numerals, and demonstratives; the discretization of masses; the marking of agreement between subject and predicate and between nominal modifiers; and the tracking of referents across discourse.

In the formal semantic analysis of Máhíkí classifiers presented in §5.4, I argue that the classifier construction contains two elements: a classifier head of type \( (e, t) \) and a modifier of type \( (\langle e, t \rangle, t) \), which combine via a process akin to Predicate Modification (Heim & Kratzer 1998) to form a new lexical item. The ability of a morpheme to occupy either the head or the modifier slot is dependent on its reference ratio.

Ultimately, the image of Máhíkí and other Amazonian classifiers that emerges from this chapter is that they are primarily operators in the process of lexicogenesis and particularly in the derivation of (count) nouns. The combinatorial semantics that happen at the level of the phrase in a language like English seem to happen at the level of the lexeme in Máhíkí.

### 5.2 Background: What is noun classification?

The term ‘classifier’ is notoriously vague—it has been used to describe morphemes with a wide variety of semantic and morphosyntactic properties, unified tenuously by their ability to categorize. In what follows, I will survey four authors’ attempts to draw boundaries between noun categorization devices of various types based on both semantic and morphosyntactic criteria. I will then narrow the focus to the classification systems of the Amazon basin, which are argued to challenge and inform the typologies that initially excluded them.

#### 5.2.1 Typologies of noun classification

Allan (1977), in what was perhaps the first to attempt at a typology of noun classification, outlines four major categories of “classifier languages”: numeral, in which classifiers are required in quantificational expressions but also appear frequently in anaphoric and deictic contexts; concordial, in which classifiers are affixed to nouns, modifiers, predicates, and pro-forms as markers of agreement or noun class; predicate, in which verb stems differ in form depending on the physical characteristics of the objects participating in the event; and intra-locative, in which “noun classifiers are embedded in some kind of locative expressions which obligatorily accompany nouns in most environments” (Allan 1977:287). In addition to his crosslinguistic morphosyntactic typology of classification, Allan offers a semantic typology of classifiers: they categorize items based on material, shape, consistency, size, location, arrangement, or quanta. This typology will form the basis of my discussion of Máhíkí lexical semantics in §5.3.2.

Dixon (1986) diverges from Allan in positing a single major division in the typology of noun categorization devices. He argues for the separate treatment of noun classes, which
include Indo-European gender systems as well as Bantu noun class systems, and which he considers a grammatical phenomenon, and noun classification, which includes the numeral classifiers of East and Southeast Asian languages, and which he considers a lexico-syntactic phenomenon (105).

Dixon discusses how noun class and noun classification systems pattern with respect to the size of the inventory of classificatory elements, the morphological realization of the classifying morpheme, and the scope of classification. In terms of the size of the classificatory system, languages with noun class are characterized by the exhaustive categorization of all nouns, while in languages with noun classification, it is possible for a noun to take more than one classifier, or not to take any classifier. In terms of morphological realization, markers of noun class are generally affixal, while noun classifiers are “always free forms” (106). Finally, the scope of noun class is in general much broader: class is never marked solely on the nominal element; it participates in concord processes on other elements in the phrase. Noun classifiers are uniquely realized, never participating in broader concordial processes. Table 5.1 provides a summary of Dixon’s typology.

<table>
<thead>
<tr>
<th>Property</th>
<th>Noun class systems</th>
<th>Noun classifier systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classifying morpheme is free</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>Exhaustively partition lexicon</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>Concordal processes</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 5.1: Dixon’s typology of classification (1986)

Aikhenvald (2000) presents a finer-grained typology of noun categorization devices, outlining five broad types of systems along with numerous minor and sub-types. Her major divisions are between noun class or gender systems, noun classifier systems, numeral classifier systems, classifiers of possession, and verbal classifier systems. She evaluates these systems along several parameters, including their morphosyntactic locus of encoding, whether they participate in agreement processes, their grammaticalization trajectories and degree of grammaticalization, and their semantic organization. I will focus here on the first three of Aikhenvald’s categories (gender, noun classifiers, and numeral classifiers), as these are the three types of systems with which the Mákî system of classification may be argued to bear the most similarity.

Aikhenvald defines gender systems as “grammaticalized agreement systems” in which the gender of the noun is obligatorily realized separately from the noun itself and is sometimes not overtly marked on the noun at all (as is the case for most Mákî animate nouns—see §5.3.2). The locus of this realization is most typically nominal modifiers, but markers of gender may occasionally occur on some element outside of the noun phrase, such as a predicate or adverbial modifier (19). Noun classifiers, on the other hand, typically co-occur with the noun in the noun phrase and do not participate in agreement processes. The choice of noun classifier is often based in semantics, and classifiers may be ‘swapped out’ for one another resulting in different meanings. In other words, a given noun will be assigned neither
exhaustively nor exclusively to a particular category, as would be the case in a canonical gender system. Finally, Aikhenvald’s definitional property of numeral classifiers is that they occur contiguous with numerals or expressions of quantity. A summary of the criteria for these three categories is presented below in Table 5.2.

<table>
<thead>
<tr>
<th>Agreement</th>
<th>Gender</th>
<th>Noun Classifiers</th>
<th>Numeral Classifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique and Exhaustive Category Assignment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Contiguous to Numeral</td>
<td>×</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>Can Have Semantic Assignment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Morphological or Phonological Assignment</td>
<td>✓</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>Can Be Open Lexical Class</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 5.2: Properties of gender, noun classifier, and numeral classifier systems (Aikhenvald 2000)

In contrast to Dixon (1986:106), who states that “there is seldom any difficulty in distinguishing between [noun classes and noun classifiers],” Aikhenvald notes that the types of systems outlined above should not be taken “as discrete entities, but rather as focal points on continua of various properties” (13). Grinevald (2000) echoes this sentiment with her proposal of a single continuum of noun categorization devices that varies along the dimension of grammaticality. At the ‘grammatical’ end of the continuum are gender or noun class systems, while at the ‘lexical’ end are measure terms and class terms.

Grinevald agrees with Dixon and Aikhenvald in defining gender systems as those in which the class of the noun is realized outside the noun itself, appearing on other elements of the clause, such as adjectives, demonstratives, articles, numerals, possessives, pronouns, or, less commonly, adverbs, adpositions, and complementizers. Another feature of gender, according to Grinevald, is that it is exhaustive and obligatory: all nouns will belong to a gender class, and this class will be discernible, if not from the form of the noun itself, in some morphosyntactic environment. The motivation for gender assignment is not always semantic, and the number of noun classes is generally relatively small. This separates gender systems from noun class systems, which do not rely on distinctions in sex, are generally larger, and have more semantically transparent lexical origins. Grinevald argues, in agreement with Dixon (1986) and Corbett (1991), that gender systems and noun class systems fall under the same umbrella; the terminological difference is non-principled and arises from a long history of distinguishing systems based largely on sex from those that take into account other aspects of the phonology or semantics of nouns.

At the lexical end of the continuum, Grinevald mentions measure terms and class terms. Measure terms are expressions of quantity, like the English ‘glass of water’, or of
arrangement, like ‘pile of books.’ She notes that in languages with classifiers, measure terms and classifiers often belong to the same syntactic category. Grinevald defines ‘class terms’ as “classifying morphemes which participate in the lexico-genesis of a language” (59). She gives the English examples of ‘-berry’ and ‘-tree’. Constructions with class terms are often difficult to distinguish from compound nouns, as class terms are often highly semantically transparent and have very clear lexical origins. They differ from classifiers in that they generally do not appear in quantifying or other morphosyntactic constructions. Grinevald’s continuum of classification is reproduced below in Figure 5.1.

\[
\begin{array}{c}
\text{Lexical} & \text{Grammatical} \\
\hline
\text{measure terms} & \text{noun classes–gender} \\
\text{class terms} & \\
\text{CLASSIFIERS}
\end{array}
\]

Figure 5.1: Systems of nominal classification (Grinevald 2000:61)

Grinevald’s primary focus is on the categorization devices that fall along the ‘intermediately grammatical’ portion of her continuum. These are what she labels ‘classifiers’. Classifiers are ‘intermediate’ because they have clear lexical origins but are part of “specific morphosyntactic constructions” (61). Grinevald establishes four major groups in her typology of classifiers: 1) numeral classifiers; 2) noun classifiers; 3) genitive classifiers; and 4) verb classifiers. Numeral classifiers are labeled as such because of their co-occurrence with numerals or other quantificational devices, although, as Allan (1977) noted, these morphemes often also occur in deictic constructions. Noun classifiers differ from numeral classifiers in that they do not appear in quantificational contexts; they are free morphemes that appear “next to the noun itself or within the boundaries of the noun phrase with other determiners of the noun” (64). Genitive classifiers, by definition, appear in possessive constructions bound to the possessor but classifying the possessee. Not all nouns of a given language will be classified in this way—there will be a certain set of culturally salient nouns that trigger genitive classification. Finally, verbal classifiers appear within the verb, classifying one of the verb’s arguments. Grinevald draws a distinction between ‘incorporated (verbal) classification’, in which the classifier has the same form as a generic noun, and verbal classification in which the classifier is phonologically eroded.

The above survey of typologies of noun categorization devices reveals disagreement among scholars as to the breadth of the phenomenon, the discreteness of its subparts, and the appropriate set of labels for those subparts. Nevertheless, there seems to be a general consensus that classificatory elements vary significantly along the dimension of grammaticalization, with highly grammatical systems of gender agreement at one end of the spectrum and elements with more transparently lexical origins, such as numeral classifiers, closer to the other. As we will see in the following section, the languages of the northwest Amazon basin lend credence

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1 A glossary in Appendix B provides summary of the important concepts discussed above.
to the idea that systems of noun categorization are better described along a continuum of grammaticality.

5.2.2 Classifier systems of the northwest Amazon Basin

For several decades, scholars have noted the difficulty posed by Amazonian languages for a coherent typology of noun categorization devices. Early discussions of this type focused on the divergence of Amazonian systems of classification from the categories described by Allan (1977) (outlined in §5.2.1 above). Payne (1986:113), for instance, argues that Allan’s typology is not suitable for Yagua (Peba-Yaguan), and that “[p]reliminary research on other languages of the western Amazon region indicates that this mixing of numeral and concordial systems, as well as lack of a clear distinction between the derivational versus inflectional status of classifiers, are areal characteristics.” In a later survey of the classification systems of Amazonian languages, Derbyshire & Payne (1990:243) state that “[t]he chief characteristic of most of the Amazonian classification systems . . . is that they cannot be labelled discretely as any one type [in Allan’s typology], but are a mixture of two or all three types.” Later, the focus shifted to the ‘strangeness’ and ‘complexity’ of such systems—Aikhenvald & Green (1998:429), for instance, describe Amazonian languages as having “complicated and unusual systems of noun classification devices.” Aikhenvald (2000:94) gives these languages a label—‘multiple classifier systems’—and establishes them as a feature “typical of classifier languages of South America, especially those of Northwest Amazonia.” Grinevald & Seifart (2004:260) argue that it is precisely the fact that Amazonian systems of classification are ‘mixed’—that the same classifying morphemes can appear in a variety of morphosyntactic environments—that causes them to be viewed as typologically ‘problematic’.

It is clear that the classificatory systems of the languages of the northwest Amazon Basin have many features in common, and that these features have the potential to better inform a broad typology of noun categorization devices. What is perhaps more enticing is the idea that these systems may provide a ‘missing link’ between highly grammaticalized systems of gender and more lexical systems of noun classification—systems which are likely related in interesting ways, but which on the surface have little more in common than the fact that they are involved in categorization. I mean ‘missing link’ both in a diachronic sense (that Amazonian classifier systems might be viewed as being at a stage of grammaticalization intermediate between gender and classifiers) and in a synchronic sense (that they blend the features of the two extremes in a way that allows us to reevaluate the structure of the continuum).

Below, I survey the classification systems of various languages of the western Amazon basin, drawing attention to the features that they have in common with each other and with the Máñhíki classifier system outlined in §3.4. This survey will serve as a basis of comparison for the more detailed description of Máñhíki classification that follows in §5.3.
Eastern Tukanoan

The classification systems of Eastern Tukanoan languages are characterized by several properties: 1) a salient distinction between the classification of animate and inanimate entities; 2) classifiers with a broad range of morphosyntactic loci and functions; and 3) classifiers that vary significantly in degree of lexicality. The first of these properties—a salient distinction between the classification of animate and inanimate entities—may manifest itself in an opposition between what several authors have called ‘general’ versus ‘specific’ class. This terminology, introduced by Seifart (2005) for Miraña (see §5.2.2 below), has been used somewhat inconsistently in grammatical descriptions of Eastern Tukanoan languages. For most authors, ‘general’ versus ‘specific’ class aligns primarily with a distinction in animacy (‘general’ classifiers divide animates into masculine, feminine, and plural, and ‘specific’ classifiers divide inanimate objects into shape-based classes). Departures from this usage are noted in the discussion below.

Seifart’s distinction was adopted by Gomez-Imbert (2007) in her description (revised from Gomez-Imbert (1982)) of classification in Tatuyo, an Eastern Tukanoan language spoken in southern Colombia. Gomez-Imbert describes four ‘general’ classifiers (which she calls ‘class markers’) for Tatuyo, which participate in sentence-level agreement and separate nouns into classes based on animacy, biological sex, and number. There are also around 100 ‘specific’ classifiers, which differentiate nouns based largely on the physical properties of their referents. Gomez-Imbert notes that “the two sets of classifiers are not separate devices; they constitute a single global system, where the short paradigm is included in the larger one” (406). This type of system is also attested in Tuyuca, an Eastern Tukanoan language spoken in Colombia and Brazil. Tuyuca, described by Barnes (1990) has three animate classifiers: masculine singular, feminine singular, and plural, while inanimate classifiers may be divided into ten semantic categories: “shape, collection, arrangement, anatomical, botanical, geographical, container, manufactured item, consistence, and time” (275). Kubeo, an Eastern Tukanoan language spoken in Colombia and Brazil, also exhibits a division between animate classifiers, which specify biological sex and number, and inanimate classifiers, which classify objects in terms of form or function. Morse & Maxwell (1999) use the terms ‘general’ and ‘specific’ in a different manner from Seifart (2005) and Gomez-Imbert (2007): ‘general’ classifiers are the most semantically bleached, referring to a single salient property of an object (e.g. its dimensionality), while ‘specific’ classifiers retain a high degree of lexical semantics. Desano, also spoken in Colombia and Brazil, has a set of animate classifiers that divide referents into three classes (masculine singular, feminine singular, and plural), and a set of over 100 inanimate classifiers that specify the physical properties of objects (Miller 1999). Miller makes note a ‘general’ classifier, -ýé, which underspecifies shape. In later work on Desano, Silva (2012) draws a distinction between general classifiers (or ‘gender markers’), which are reserved for animate nouns, and specific classifiers (or ‘classifiers’), which are reserved for inanimate nouns. General and specific classifiers are further differentiated by the morphosyntactic environments in which they may appear (e.g., general classifiers may be suffixed directly to verb roots or numerals, while specific classifiers must follow one of two
nominalizing suffixes in deverbal nominalizations, and may not be suffixed to numerals at all).

The second salient property of Eastern Tukanoan classifier systems is the broad range of morphosyntactic loci and functions exhibited by classifiers. In Tatuyo, both general and specific classifiers participate in deriving new lexical items and in processes of agreement, the targets of which are “deictics, anaphorics, numerals, interrogatives, possessive and locative constructions” (Gomez-Imbert 2007:410). Similarly, Barnes (1990) describes classifiers in Tuyuca (both animate and inanimate) as appearing on numerals, demonstratives, genitives, nouns, and nominalized verbs. These morphemes have both derivational and inflectional properties, and may play a role in reference tracking across discourse. Barnes references Allan’s (1977) typology of classification, noting that Tuyuca bears some similarity to both his concordial classifier systems and numeral classifier systems.

Finally, many authors have noted that Eastern Tukanoan classifiers exhibit a high degree of variability in their status as lexical versus grammatical morphemes. For instance, Chacon (2012) analyzes classifiers in Kubeo as “morphemes that fall somewhere between a lexical and a functional category” (254). He divides nominal lexicon of Kubeo into ‘class 1’ and ‘class 2’ nouns, which differ with respect to whether they are repeaters (i.e., whether they can serve as classifiers), suggesting a large degree of overlap between the nominal and classifier inventories (as we will see is also the case in Māhi). Similarly, Stenzel (2004) outlines three types of classifiers in Wanano, an Eastern Tukanoan language spoken in Brazil and Colombia. These are classifiers which may also function as nominal roots, classifiers that are related to nominal roots but that have reduced forms, and classifiers that have highly opaque lexical origins.

**Western Tukanoan**

As in Eastern Tukanoan languages, the classification systems of Western Tukanoan languages are characterized by a distinction in ‘general’ versus ‘specific’ class. Bruil (2014) uses this terminology to describe the classifiers of Ecuadorian Siona: ‘general’ class distinguishes between animate feminine singular, animate masculine singular, and other (plural or inanimate), while ‘specific’ class makes finer-grained distinctions in shape or function. This is also the case for Colombian Siona as described by Wheeler (1987), for Koreguaje, spoken in Colombia (Cook & Criswell 1993), and for Ecuadorian Sekoya (Johnson & Levinsohn 1990). Although these authors do not make explicit reference to ‘general’ and ‘specific’ class, they all describe systems which distinguish between masculine singular, feminine singular, and inanimate/plural entities, and which make shape-based divisions among inanimates.

Another similarity with classifiers in Eastern Tukanoan languages is that Western Tukanoan classifiers may appear in a broad range of morphosyntactic environments. Wheeler (1987) shows that classifiers can be suffixed directly to verbal and adjectival roots in Colombian Siona, deriving nominal elements. Likewise, Bruil (2014) describes classifiers in Ecuadorian Siona as able to be suffixed to nominal, numeral, demonstrative, adjectival, and verbal roots.
Classifiers in Western Tukanoan languages also exhibit a broad range of morphosyntactic functions. These include participation in agreement with the predicate (in the cases of Siona and Sekoya, triggered only by general class) and within the noun phrase. In general, agreement appears to be ‘optional’ within the Siona and Sekoya noun phrase; Cook & Criswell (1993) describe classifiers as appearing on numerals and adjectives only in cases of “emphasis” (38), and Bruil (p.c.) confirms this optionality. Western Tukanoan classifiers may also have a derivational (nominalizing) function—both Cook & Criswell (1993) and Bruil (p.c.) indicate that the feminine general classifier -ko is used in deverbal nominalizations, although shape-based specific classifiers are also permissible. Finally, in all of these languages, classifiers may also serve a reference-tracking function.

We will see in §5.3.4 that Máhíkí has many traits in common with other Western Tukanoan languages, but that it appears to diverge in the obligatoriness of NP-internal agreement.

Peba-Yaguan

Payne (1986) describes the classification system of Yagua, the sole extant member of the Peba-Yaguan language family, spoken in northeastern Peru. Payne frames her discussion around the notion that Yagua ‘classifiers’, in blurring the boundaries established in Allan’s (1977) typology, urge us to “re-examine whether there is a principled distinction between numeral and concordial classifier systems” (113).

As in the Tukanoan languages, inanimate and animate nouns in Yagua pattern differently with respect to class marking. Animate nouns are categorized based on number (singular, dual, or plural), while inanimate nouns are categorized largely based on shape or material. Yagua has a ‘general’ classifier, -ra, which may appear in the place of a more specific, shape-based classifier, and which generally classifies inanimate nouns (although it may also be used for animates of lower animacy or topicality).

Payne (2007) argues that the main criterion for classifierhood in Yagua is the ability to be suffixed to numerals and demonstratives. She notes that this may be analyzable as an NP-internal agreement process, although numerals and demonstratives suffixed with classifiers may also appear as the sole elements in a noun phrase (as is the case in some Tukanoan languages). Payne also notes that the extent to which the set of Yagua classifiers may be considered open is debatable, as there is a large set of ‘unique’ classifiers that only classify a single noun. In addition to the morphosyntactic function of agreement, Payne notes that Yagua classifiers have derivational properties: “within the noun phrase they are integral to the formation of numbers, demonstratives, and sometimes descriptive modifiers” (121).

Boran

Seifart (2005) provides the most in-depth description of an Amazonian system of noun classification to date. He gives an overview of noun classes in Miraña, a Boran language spoken in Colombia and Peru, and is the first to propose a distinction between ‘general classifiers’,
which distinguish between animacy, sex, and number, and ‘specific classifiers’, most of which make distinctions in the physical properties of their referents. Thiesen & Weber (2013), in their description of classifiers in Bora, a Boran language spoken primarily in Peru, note that animate classifiers distinguish between singular, dual and plural number and masculine and feminine sex, while inanimate classifiers, of which there are several hundred, primarily make distinctions in shapes and ‘positions’. As in other classifier systems of the region, there is a ‘general’ classifier in Bora, -nce, which classifies inanimate objects without reference to shape or any other properties.

Both Bora and Miraña classifiers may be suffixed to a variety of roots, including noun roots, pronominal roots, finite verbs, relative clauses, demonstratives, adjectives, numerals, interrogatives, and quantifiers. The morphosyntactic functions of classifiers in these languages include agreement with the predicate and within the noun phrase, nominal derivation and individuation, and reference tracking across discourse. Seifart does not consider repeaters (i.e., nouns with homophonous class-marking suffixes) to be classifiers in Miraña, but suggests that classificatory elements fall on a spectrum of lexicality, as is the case in the Tukanoan languages as well.

Witotoan

Petersen de Piñeros (2007) differentiates between ‘gender’ and ‘classifiers’ in Uitoto, a Witotoan language spoken in Colombia. She describes two singular gender markers (masculine and feminine), and differentiates them from a set of around 100 classifiers by their inability to be incorporated into verb stems and to nominalize finite verbal forms. Classifiers make distinctions in the physical properties of objects, and may be suffixed to nominal roots, demonstratives, quantifiers, interrogatives, attributives, and verbal roots. A general classifier, -e~je, is used for mass nouns, collective nouns, and in contexts where a speaker wishes to underspecify the physical properties of an object. The primary function of classifiers described by Petersen de Piñeros (2007) is as anaphoric elements. Unlike in other languages of the Northwest Amazon, the system of nominal classification in Uitoto is not highly grammaticalized, and there is little evidence for agreement processes within the NP. Furthermore, classifiers do not seem to serve an individuating function in Uitoto.

Wojtylak (2014) describes the system of noun classification in Murui, a Witotoan language spoken in Colombia and Peru. The author characterizes Murui as a ‘multiple classifier language’, following Aikhenvald (2003), due to the appearance of classifiers in a variety of morphosyntactic environments. Classifiers in Murui form a semi-open class, as all inanimate nouns may function as repeaters. Animate classifiers distinguish between masculine and feminine sex, while inanimate classifiers (of which there are at least 80) distinguish primarily between the physical properties of objects. There is also a general classifier -e, which does not specify a shape or consistency, and a set of ‘unique’ classifiers, which characterize abstract nouns. Classifiers may appear on nouns, adjectives, pronouns, demonstratives, low numerals, interrogatives, anaphoric forms, and verbal roots, and they have reference-tracking and derivational functions.
Arawakan

Aikhenvald (2000) and Aikhenvald (2003) describe the system of noun classification in Tariana, an Arawakan language spoken in Brazil, as a ‘multiple classifier system’: it has classificatory elements that appear in a variety of morphosyntactic environments and that have a variety of morphosyntactic and discourse functions. Aikhenvald distinguishes between ‘gender’, which she treats as the specifications that govern agreement with the predicate, and ‘noun class’, which she treats as the specifications that govern agreement with nominal modifiers. In this scheme, Tariana has two genders, feminine and non-feminine, and a possibly open set of noun classes, typically defined in terms of shape. The openness of the set of noun classifiers is due to the ability of any noun with an inanimate referent to serve as a repeater. Aikhenvald calls suffixes that mark noun class on adjectives and other modifiers ‘classifiers’ and notes that these suffixes may also have reference-tracking and derivational functions. This set of morphemes may be suffixed to numerals, demonstratives, and possessive pronouns.

5.2.3 Summary

This section has demonstrated that the languages of the northwest Amazon basin both challenge traditional typologies of nominal classification and form a coherent areal group. The cluster of features that allow these languages to defy characterization in terms of the criteria outlined by Allan (1977) or Dixon (1986) is shared by a diverse range of language families (Arawakan, Boran, Peba-Yaguan, Tukanan, Witotoan).

The prominent features of the classification systems of the languages of the Northwest Amazon basin are:

1. A salient distinction between animate and inanimate nouns

2. A division between ‘general’ and ‘specific’ class that may manifest itself either in the division between animate and inanimate nouns, or in the division between agreement with the predicate and NP-internal agreement

3. A large set of ‘specific’ classifiers that make distinctions largely in the physical properties of inanimate objects

4. Classifiers that fall somewhere along a scale from lexical to grammatical, with ‘repeaters’ at one end and monomoraic/monosyllabic classifiers with opaque lexical origins at the other

5. Classifiers that exhibit agreement, derivational, individualizing, and reference-tracking functions

We will see in the following section that Mâihêkí exhibits all of these features, suggesting that its system of noun classification typical among the languages of the northwest Amazon Basin.
5.3 Description of Máihêki classifiers

Now that we have surveyed the traditional typologies of systems of noun classification and established that languages of the northwest Amazon Basin exhibit a set of features that challenge these typologies, I will shift our focus to a description and analysis of classifiers in Máihêki. This description will build on the preliminary discussion of classification in §3.4.

First, a terminological note is in order: as we have seen, most of the vocabulary surrounding systems of noun classification was developed without Amazonian languages in mind. Because these languages challenge the coherence of established categories, applying existing labels to similar phenomena in Máihêki is problematic. Throughout this section and the rest of the chapter, I will continue to use the term ‘(system of) noun classification’ to refer broadly to the mechanism through which a language categorizes its nominal elements either semantically or grammatically; this encompasses systems of gender/noun class as well as all types of ‘classifier’ systems. I will call the relevant morphemes in Máihêki ‘classifiers’.

5.3.1 What counts as a classifier?

The survey of the noun classification systems of the languages of the northwest Amazon basin presented in §5.2.2 revealed that a certain degree of ‘fuzziness’ in the boundary between classifiers and nominal roots is likely an areal feature. As we will see in this section, this ‘fuzziness’, present in Máihêki as well, complicates the task of defining a clear-cut set of criteria for classifierhood. In his description of Miraña classifiers, Seifart (2005) deals with this issue by systematically excluding ‘repeaters’—classifier-like elements that have homophonous nominal counterparts—from his definition of ‘classifier’. While this stipulation is appealing in that it imposes a clear boundary between classifiers and nouns and between classification and compounding, I believe that it is more enlightening to discuss classification in Máihêki as a lexico-generative process to which some morphemes are better suited than others; that is, morphemes fall along a spectrum of suitability for classifierhood according to a set of criteria based on the ‘prototypical’ classifier. In my attempt to define these criteria below, I treat the most grammaticalized classifiers as closer to “prototypical” because these morphemes have no function other than as suffixal, classificatory elements, whereas morphemes at the lexical end of the spectrum lead double lives as suffixes and roots, classifiers and nouns. The proposed criteria for a “prototypical” (i.e., highly grammaticalized) classifier are shown below in (127).

(127) A Máihêki classifier is a morpheme that categorizes the word it derives based on some salient property of its semantics; that may be suffixed to verbal, adjectival, demonstrative, numeral and non-discrete nominal roots as well as relative clauses; that derives count nouns; that participates in agreement both with the predicate and within the NP; and that marks discourse anaphors.

The first of these criteria—that a classifier specifies the semantic class of a derived word—is broad enough to encompass both the grammatical and lexical ends of the spectrum (i.e.,
Chapter 5. Noun classification

both classification and compounding). I further propose that the necessary and sufficient conditions for classifierhood are 1) the ability to be suffixed to all of the types of roots listed above and 2) the ability to derive a count noun. These criteria will separate constructions with class markers from nominal compounds, but they will still allow three sub-types of class marker, differentiated by whether a homophonous root exists in the lexicon, and further by the nominality of this homophonous root. I call these sub-types repeaters, intermediate classifiers, and full classifiers. (‘Full’ and ‘intermediate’ may be thought of as shorthand for ‘fully grammaticalized’ and ‘intermediately grammaticalized’.)

In the following sections, we will explore the continuum from grammatical to lexical, beginning with the ‘full’, most prototypical classifiers.

**Full classifiers**

Full classifiers are exclusively suffixal. They have no homophonous forms that may be suffixed with verbal or nominal inflection. Full classifiers are often monomoraic and have idiosyncratic semantics outside the domain of shape. These are listed below in Table 5.3.

<table>
<thead>
<tr>
<th>Full classifier</th>
<th>Things classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ba</td>
<td>groves, enclosures, female genitals</td>
</tr>
<tr>
<td>-bi</td>
<td>fallen trees, fruits, containers</td>
</tr>
<tr>
<td>-hu</td>
<td>lights</td>
</tr>
<tr>
<td>-huru</td>
<td>vicinities</td>
</tr>
<tr>
<td>-ko</td>
<td>feminine animals</td>
</tr>
<tr>
<td>-ki</td>
<td>masculine animals</td>
</tr>
<tr>
<td>-nu</td>
<td>times</td>
</tr>
<tr>
<td>-ni</td>
<td>trees, stalks</td>
</tr>
<tr>
<td>-ra</td>
<td>non-riverine bodies of water</td>
</tr>
<tr>
<td>-ri ~ -ti</td>
<td>machetes, nets</td>
</tr>
<tr>
<td>-ro ~ -to</td>
<td>pots, inner ears, places, times</td>
</tr>
<tr>
<td>-ruru</td>
<td>directions</td>
</tr>
<tr>
<td>-seu</td>
<td>roots, machines</td>
</tr>
<tr>
<td>-so</td>
<td>quantities</td>
</tr>
<tr>
<td>-ti</td>
<td>sides</td>
</tr>
<tr>
<td>-ya</td>
<td>rivers, streams</td>
</tr>
<tr>
<td>-yo</td>
<td>fingers, sticks</td>
</tr>
</tbody>
</table>

Table 5.3: Full classifiers

I analyze full classifiers as occupying the bottom left corner of the Figure 4.14: they both have very little ‘lexical content’ (i.e., very few properties) and are very idiosyncratic (i.e., have very few properties in common).
Intermediate classifiers

Unlike full class markers, intermediate classifiers are characterized by the existence of a homophonous root in the lexicon. Unlike the homophonous root counterparts to repeaters (discussed below), the root counterparts to intermediate classifiers are in some sense ‘referentially deficient’, either because they cannot refer to object-level individuals, or because they are not nominal at all. These two sub-types of intermediate classifiers, which I call intermediate classifiers with nominal counterparts and intermediate classifiers with non-nominal counterparts, respectively, are discussed below.

Intermediate classifiers with nominal counterparts

A small set of classifiers have nominal counterparts in the lexicon that, while they may appear bare in certain contexts, never have specific reference. Example (128) shows the classifier -turi, used for enclosed spaces, suffixed to the noun we’e ‘house’, while the homophonous nominal counterpart stands free as the generic object of the verb ne’e ‘make’.

(128) wetúri, túri tèa néèhí imihûrûdèa nééyí

We’e -turi túri tèa néè -hí imè -hûru -rea néè
House -CL:enclosure room also make -PL.SS.SIM high -CL:vicinity -LIM make
-yí
-3.PL.PRES.DECL

‘House rooms, they made rooms, making them up high’ (ja1 19.1)
‘Hacían cuartos y pisos altos’

The nominal counterparts to these classifiers may be suffixed with either the singulative marker -bi or the inanimate plural marker -ma to achieve non-generic reference. This is exemplified below in (129), where the noun túribi refers to a singular, specific room.

(129) biákàre huáhàkè ní nèèsè túribi ŋūkûrè

Biákà -re huáhà -ki ní néè
Father -NON.SBJ COME.across -3.SG.MASC.PAST.DECL.NI 3.POSS.PRON make
-se túri -bi ŋùū -kire
-PAST.REL enclosure -SING sit -DS.MASC.SECQ

‘He found his father sitting in the room he had made’ (iy4 72.1)
‘El ha encontrado a su papá sentado en el cuarto’

Note that the singulative and plural suffixes -bi and -ma seem to pick out ‘prototypical instances’ of the property in question. For some of these properties, there may be more than one salient possible referent. We saw above, for instance, that túribi can be interpreted as meaning ‘room’, but in the following example it is used to refer to a hunting trap.
Chapter 5. Noun classification

(130) í gió tákò và hàkà tûríbì?

í gió tákò và hàkà tûríbì

FEM.INTERR.PRON fall.PAST -3.SG.FEM.PAST.DECL.NI 1.POSS.PRON father

tûrí -bi

enclosure -SING

‘What animal fell in my father’s trap?’ (tut 22.1)

‘¿Qué animal ha caído en la trampa de papá?’

Máá̀ bìí intermediate classifiers with generic nominal counterparts are listed below in Table (5.3.1) along with their generic and specific (singulative) interpretations. Note that the generic nouns are often part terms, or denote properties having to do with shapes.

<table>
<thead>
<tr>
<th>CLASSIFIER</th>
<th>GENERIC MEANING</th>
<th>SINGULATIVE FORM</th>
<th>SPECIFIC MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>-baru</td>
<td>jumbles of rigid, long objects</td>
<td>bárùbì</td>
<td>‘a driftwood accumulation’</td>
</tr>
<tr>
<td>-chó-chio</td>
<td>heads</td>
<td>chóbì</td>
<td>‘a head’</td>
</tr>
<tr>
<td>-chíka</td>
<td>knot-like protrusions</td>
<td>Chíkàbì</td>
<td>‘a blister; a knot’</td>
</tr>
<tr>
<td>-gani</td>
<td>skins, husks, bark</td>
<td>gánìbì</td>
<td>‘a skin’</td>
</tr>
<tr>
<td>-ka</td>
<td>branches</td>
<td>kàbì</td>
<td>‘a branch’</td>
</tr>
<tr>
<td>-kotì</td>
<td>raised, flat area</td>
<td>kòtìbì</td>
<td>‘a chest’</td>
</tr>
<tr>
<td>-pere</td>
<td>parallel lines</td>
<td>pèrèbì</td>
<td>‘capillejo’</td>
</tr>
<tr>
<td>-pe</td>
<td>pairs</td>
<td>pèbì</td>
<td>‘a pair’</td>
</tr>
<tr>
<td>-pi</td>
<td>stacks</td>
<td>pìbì</td>
<td>‘stack of leaves’</td>
</tr>
<tr>
<td>-raga</td>
<td>bifurcated things</td>
<td>dàgàbì</td>
<td>‘letter X’</td>
</tr>
<tr>
<td>-sani</td>
<td>points</td>
<td>sàñìbì</td>
<td>‘a point’</td>
</tr>
<tr>
<td>-sayì</td>
<td>bristles</td>
<td>sàybì</td>
<td>‘a broom’</td>
</tr>
<tr>
<td>-su</td>
<td>piles</td>
<td>sùbì</td>
<td>‘pile of leaves’</td>
</tr>
<tr>
<td>-tara</td>
<td>long, rigid cylinders</td>
<td>táràbì</td>
<td>‘a bone’</td>
</tr>
<tr>
<td>-tìka</td>
<td>sticks</td>
<td>tìkàbì</td>
<td>‘a stick’</td>
</tr>
<tr>
<td>-toto</td>
<td>flat, rigid objects</td>
<td>tòtòbì</td>
<td>‘a buttress root; a scale’</td>
</tr>
<tr>
<td>-to</td>
<td>clothing, bags</td>
<td>tôbì</td>
<td>‘a shirt’</td>
</tr>
<tr>
<td>-tu</td>
<td>thick cylinders</td>
<td>túbì</td>
<td>‘a house post’</td>
</tr>
<tr>
<td>-tùri</td>
<td>enclosures</td>
<td>tûríbì</td>
<td>‘a room; a cage; a trap’</td>
</tr>
</tbody>
</table>

Table 5.4: Intermediate classifiers with nominal counterparts

I consider the roots listed in Table 5.3.1 to be nominal because of their ability to take plural and singulative marking. It should be noted, however, that some of these elements are clearly related (either historically or synchronically) to verb roots. For instance, chíà, the root meaning ‘head’, also exists in the lexicon as a verb root meaning ‘to cap; to place a lid on’.
Intermediate classifiers with non-nominal counterparts

Certain intermediate classifiers have non-nominal counterparts; that is, a homophonous root exists in the lexicon but may never appear bare and may not be suffixed with nominal inflection such as singulative and plural marking. In these cases, roots may appear with verbal inflection, or as part of what I have called the ‘attributive’ construction. For instance, the classifier -toya ‘patterns, designs’ has a verbal counterpart tóryá, shown below in (131) suffixed with the verbal inflectional suffix -yi.

(131) hànà néátò tóryáyi

hànà néátò tóryá -yi
today evening write -1.SG.FUT.DECL

‘This evening I am going to write’ (E.SJF.NMM.31jul2013) ‘Esta tarde voy a escribir’

This root may also appear in the attributive construction, which is of the form ROOT + báá ‘have’ + classifier, as shown below. In this construction, the verb root ‘have’ has the prosodic behavior of a suffix (i.e., undergoes vowel shortening and tonal erasure).

(132) tórýábákà

tórýá báá -ki
write have -CL:masc

‘The (masculine) one with patterns’ (used for several species of fish with patterned bodies)

This construction is highly productive and is primarily employed in the physical description of objects and animals. In (133), we see two non-nominal, non-verbal elements míñá ‘dots’ and téñá ‘splotches’ forming a single prosodic word with the root báá ‘have’, which itself bears a classifier. Both ‘have’ and the classifier have undergone tonal erasure.

(133) a. míñábátò

míñá ba -to
one dimensional round PL have -CL:clothing

‘polka-dot shirt’ (E.SJF.LTN.15aug2014)

b. téñábákà

téñá ba -ki
splotches have -CL:masc

‘piebald creature’ (E.SJF.LTN.15aug2014, said of a dog)
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Both míñá and téñá have homophonous classifiers,² as is shown for míñá below in (134), suffixed to the mass nouns áó ‘food’ and yàò ‘dirt’.

(134) dákírê áóko áómíñá yàòmíñá

dáí  -kíre  áó  -ko  áó
come  -3.MASC.DS.SIM  feed  -3.SG.FEM.PRES.DECL  food
-míñá  yàò  -míñá
-CL.PL:one-dimensional.round  earth  -CL.PL:one-dimensional.round

‘When [her husband] came, she fed him fried bits of dirt as food’ (dos 5.1)

In summary, there are certain Máñhî classifiers that have homophonous roots which may not be analyzed as fully nominal. They never appear bare as the arguments of verbs and cannot receive singulative or plural marking. In certain cases, these roots may take verbal inflection and may thus be analyzed as verbal. In other cases, they seem to be restricted to a construction used specifically for the attribution of the property denoted by the root in question. I call intermediate classifiers ‘intermediate’ because they can be analyzed as representing an intermediate stage of grammaticalization: they have enough lexical content to function as roots, but not enough to refer to individuals.

Repeater

The term ‘repeater’ has been used in the literature, for instance by Enfield (2004), Grinevald (2001), and Aikhenvald (2000), to describe a morpheme that serves as its own classifier. Another way of putting this is that the repeater is a classifier that has a homophonous (or nearly homophonous) nominal counterpart in the lexicon. I have identified a small class of inanimate nouns in Máñhî that fit this description, listed below in Table 5.5. The root and suffixal counterparts are phonologically identical aside from the facts that roots are

²It is not the case, however, that all verb roots, or all roots that may appear in the ‘attributive’ construction, have classifier counterparts. In some cases, the attributive construction is the only morphosyntactic environment in which a root may surface, as appears to be the case with kóró ‘tiny dots’ and títí ‘ticking’, exemplified in (1).

(1) a. kóróbàtò
  kóró ba  -to
dot  have  -CL:clothing
  ‘dotted shirt’ (E.LTN.15aug2014)

b. títíbákò
títí  ba  -ko
ticking  have  -CL:FEM
  ‘mottled creature’ (E.LTN.15aug2014, said of a chicken)

Conversely, both repeaters and intermediate classifiers with nominal counterparts can also appear in the attributive construction.
lengthened in cases that would otherwise violate the bimoraic minimality constraint, and suffixes undergo tonal erasure (see §2.4.1 for a detailed description of this phenomenon).

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Repeater</th>
<th>Things classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>góhé</td>
<td>‘hole’</td>
<td>-gohe</td>
<td>holes</td>
</tr>
<tr>
<td>hàò</td>
<td>‘leaf’</td>
<td>-hao</td>
<td>leaves</td>
</tr>
<tr>
<td>hàña</td>
<td>‘foliage’</td>
<td>-haña</td>
<td>leaves</td>
</tr>
<tr>
<td>hítè</td>
<td>‘hand’</td>
<td>-hítè</td>
<td>hands, groups of five</td>
</tr>
<tr>
<td>màà</td>
<td>‘path’</td>
<td>-ma</td>
<td>paths, roads</td>
</tr>
<tr>
<td>dórù</td>
<td>‘basket’</td>
<td>-roru</td>
<td>baskets</td>
</tr>
<tr>
<td>tóá</td>
<td>‘cooking fire’</td>
<td>-toa</td>
<td>cooking fires</td>
</tr>
<tr>
<td>wèè</td>
<td>‘house’</td>
<td>-we</td>
<td>buildings</td>
</tr>
<tr>
<td>yòò</td>
<td>‘swidden’</td>
<td>-yio</td>
<td>swiddens</td>
</tr>
</tbody>
</table>

Table 5.5: Repeaters

In example (135a), we see the root dórù ‘basket’ as a free noun, suffixed with the inanimate plural marker -ma. In (135b), we see the repeater -roru suffixed to the mass noun bià ‘chili pepper’.

(135) a. dórúmà bèèhè åhèyi
   dórù -ma bèè ëhè åhè -yi
   basket -INAN.PL carry -PL.SS.SIM go.down -3.PL.PRES.DECL
   ‘They were going down carrying baskets’ (iy4 78.1)

b. biàrorù bèrè sáikó
   bià -roru bèò -re sáí -ko
   chili.pepper -CL:basket put.on.back -SS.SEQ go -3.SG.FEM.PRES.DECL
   ‘She put her chili pepper basket on her back and went’ (iy4 71.1)

In example (136a), we see the noun wèè ‘house’ as the bare argument of the verb néè ‘make, build’. Its repeater counterpart -we appears suffixed to the adjectival root yàrì ‘small’ in (136b).

(136) a. wèè néèyi
   wèè néè -yi
   house make -1.SG.FUT.DECL
   ‘I’m going to make houses’ (bil 21.1)

b. néèyi wèè tèà, yàriwè
   néè -yi wèè tèà, yàrì -we
   make -1.PL.PRES.DECL house also small -CL:building
‘We also make houses, small houses’ (ir1 14.1)

As mentioned above, Seifart (2005) excludes repeaters from his definition of Miraña classifiers, stipulating that part of the definition of classifiers is that they may not function as free nouns. I diverge from this definition by proposing that there are two entries for repeaters in the Máihíki lexicon: a root and a (nearly) homophonous suffix. My primary motivation for this is that as suffixes, repeaters have somewhat bleached semantics. For instance, -we may be used as a classifier for all types of buildings, including schools, community centers, and health posts—a generalization of the basic level meaning of ‘house’. We see this phenomenon exemplified in (137), where -we is repeated throughout the utterance to derive nouns denoting a building that serves as a school.

(137) dòéwè escuela, ñwè hànà, mámá néesèwè ñtíhùnà, mámáwè

dòé -we escuela, ñ -we hànà, mámá née -se
prior -CL:building school PROX.DEM -CL:building now new make -PAST.REL
-we ñtí -huna, mámá -we

‘The old building, a school, is now this building, the one they newly built, a new building’ (fss 54.1)

By virtue of representing a superordinate category, any classificatory element must have somewhat bleached semantics. My decision to treat repeaters as classifiers makes differentiating root + classifier sequences from root + root sequences (i.e., compounds) less than straightforward, as the head of a compound will also represent a superordinate category. Repeaters highlight a gray area between classification and compounding that will be explored in greater detail in §5.4, which provides a a formal semantic account of classification.

Interim summary

In this section, I discussed the necessarily ‘fuzzy’ nature of an adequate definition for classifiers in Máihíki. I propose that prototypical (i.e., highly grammaticalized) classifiers are morphemes that may be suffixed to verbal, adjectival, numeral, demonstrative, and certain nominal roots, deriving new lexemes (typically count nouns). I discussed three major categories of classifiers: full classifiers, intermediate classifiers, and repeaters. These three types of classifiers may be differentiated by the presence or absence of a homophonous root in the lexicon, as well as the nominal or non-nominal status of that root. Full classifiers are exclusively suffixal and are in general characterized by monomorality and classification outside of the domain of shape. Intermediate classifiers are characterized by the inability of their homophonous roots to refer to object-level individuals; when these roots are nominal, they are always generic, and must be made specific through the suffixation of a singulative or plural marker. When they are not nominal, they may appear with verbal inflection or in
attributive constructions. Finally, repeaters are classifiers with fully nominal counterparts that may have specific reference. These facts are summarized in Table 5.6 below.

<table>
<thead>
<tr>
<th></th>
<th>Repeaters</th>
<th>Int. (Nominal)</th>
<th>Int. (Non-Nominal)</th>
<th>Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>√</td>
</tr>
<tr>
<td>suffix</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>root can be bare</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>√</td>
</tr>
<tr>
<td>root can be specific</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>root can take -bi</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
</tr>
<tr>
<td>root can take -ma</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 5.6: Types of classifiers

5.3.2 The lexical semantics of Máihíki classifiers

In this section, I will survey the range of dimensions along which Máihíki classifiers divide up the world. As is common in descriptions of noun classification systems of languages of the northwest Amazon, I will propose that each Máihíki noun may be thought of as having two class specifications: one that controls agreement within the NP and one that controls agreement with the predicate. For 3rd person animates, these specifications will nearly always be identical: animate nouns will either be masculine singular, feminine singular, or plural. All inanimates, however, pattern with masculine singular animates with respect to agreement with the predicate, while they belong to a more specific, shape-based class for purposes of agreement within the noun phrase. Variations on this basic pattern are found throughout the Tukanoan language family, as noted by Gomez-Imbert (2007), as well as in languages of the northwest Amazon Basin more broadly (cf. Seifart (2005), Stenzel (2004)).

Prior characterizations of this type of split in classifier systems have focused on the range of semantic distinctions encoded by each type of class specification. Seifart (2005), for instance, defines a set of ‘general’ classifiers in Miraña, which encode distinctions in animacy, sex, and number, and a set of ‘specific’ classifiers, which encode distinctions primarily in shape. These two types of classifiers are under some circumstances interchangeable. For instance, (138) shows a pair of Miraña sentences that differ only in their use of general versus specific classifiers. In both cases, the referent is a turtle, but only in (138a) is the shape of the referent highlighted.

(138) a. kátm/βhì e:hi ku:m:muhi
    kátm/β -hi e: -hi k´wi:m:mu -hi
    fall -scm.2d.round dist -scm.2d.round turtle -scm.2d.round
    ‘It (disc-shaped) fell, that (disc-shaped) turtle’

b. kátm/βe:bc a:di ku:m:muhi
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While the Má̆ë̂hë̂ system of classification exhibits a similar split between the encoding of distinctions in animacy, sex and number and the encoding of nuanced distinctions in shape, the major distinction between ‘general’ and ‘specific’ classes is perhaps better characterized in morphosyntactic terms. The type of flexibility in specificity seen in (138) above, for instance, is not present in Má̆ë̂hë̂: animate nouns may not be suffixed with shape-based classifiers or agree with modifiers that bear them, and, conversely, inanimate nouns may in general not be unspecified for shape. Instead, the split between general and specific class makes itself apparent in agreement processes, discussed in greater detail in §5.3.4. I will nevertheless follow Seifart (2005) and Gomez-Imbert (2007) in organizing my discussion of the lexical semantics of classification in terms of general and specific classifiers. The description of specific classifiers will necessarily be more elaborate, as these morphemes encode many distinctions in the domains of shape, consistency, configuration, or use.

**General class**

As mentioned above, I consider ‘general class’ in Má̆ë̂hë̂ to be the class specification assigned to a given noun for purposes of agreement with the predicate. Animate nouns may be specified as feminine singular, masculine singular, or plural. Inanimate nouns, both singular and plural, pattern with masculine singular nouns. These distinctions are apparent in the verbal inflectional suffixes triggered by each class, shown below in Table 5.7.

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Past</th>
<th>-ni Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL</td>
<td>-yi</td>
<td>-bi, -gu</td>
<td>-hi</td>
</tr>
<tr>
<td>FEM</td>
<td>-ko</td>
<td>-go, -ao</td>
<td>-ko</td>
</tr>
<tr>
<td>MASC</td>
<td>-hì</td>
<td>-gi, -ai</td>
<td>ki</td>
</tr>
<tr>
<td>INAN</td>
<td>-hì</td>
<td>-gi, -ai</td>
<td>-ki</td>
</tr>
</tbody>
</table>

Table 5.7: General class distinctions in verbal inflection

General class is not typically marked on the root, although nouns ending in o are likelier to belong to the feminine general class, while nouns ending in i or í are likelier to belong to the masculine general class. This correspondence, exemplified below in Table 5.8, is especially prominent in nouns denoting human beings (e.g. kin terms).

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2The two forms listed in the ‘past’ column are dialectal variants. For a discussion of linguistic variation in Má̆ë̂hë̂, see §1.2.3
Chapter 5. Noun classification

<table>
<thead>
<tr>
<th>Feminine</th>
<th>Masculine</th>
</tr>
</thead>
<tbody>
<tr>
<td>nómió</td>
<td>ímió</td>
</tr>
<tr>
<td>náhó</td>
<td>nhíó</td>
</tr>
<tr>
<td>mósíó</td>
<td>mósíó</td>
</tr>
<tr>
<td>náhléó</td>
<td>náhó</td>
</tr>
<tr>
<td>döikó</td>
<td>döikó</td>
</tr>
<tr>
<td>hàkó</td>
<td>hàkó</td>
</tr>
</tbody>
</table>

Table 5.8: Phonological indicators of masculine and feminine general class

This is not entirely predictive, as animate nouns may also end in a (e.g. áñá ‘snake’), e (e.g. bíbé ‘raptor’), or u (e.g. múśú ‘cricket’). Furthermore, there are a handful of masculine nouns that end in o and feminine nouns that end in i or i. These are shown below in Table 5.9.

<table>
<thead>
<tr>
<th>Feminine</th>
<th>Masculine</th>
</tr>
</thead>
<tbody>
<tr>
<td>bíbé</td>
<td>bíbé</td>
</tr>
<tr>
<td>mímíó</td>
<td>mímíó</td>
</tr>
<tr>
<td>títíó</td>
<td>títíó</td>
</tr>
</tbody>
</table>

Table 5.9: Counterexamples to phonological indicators of masculine and feminine general class

While there is a high degree of correspondence between biological sex and the general class assignment of human animates, masculine or feminine gender is generally unpredictable for non-human animates. There is a similar partial arbitrariness in the assignment of nominal roots to animacy classes: while actual, real-world animacy is highly predictive of whether a noun will behave as grammatically animate or inanimate, there are exceptions. These, which are listed below in Table 5.10, include certain weather phenomena, certain tools, and the edible parts of certain plants, among other things.

<table>
<thead>
<tr>
<th>Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>dío</td>
<td>‘axe’</td>
</tr>
<tr>
<td>gíñó</td>
<td>‘stone’</td>
</tr>
<tr>
<td>gósó</td>
<td>‘unguralui trunk’</td>
</tr>
<tr>
<td>íchó</td>
<td>‘pineapple fruit’</td>
</tr>
<tr>
<td>káhó</td>
<td>‘taro tuber’</td>
</tr>
<tr>
<td>ñañàbékú ~ ñañàmékú</td>
<td>‘rainbow’</td>
</tr>
<tr>
<td>yíanèó ~ yíanó</td>
<td>‘mirror’</td>
</tr>
<tr>
<td>yiyoó</td>
<td>‘termite nest’</td>
</tr>
</tbody>
</table>

Table 5.10: Grammatically animate inanimates
With the exception of ्नानबेकु ~ ्नानमेकु, which belongs to the the masculine animate general class, all nouns in the table above are feminine.

**Specific class**

Specific classes are the classes to which nouns are assigned for the purpose of agreement within the NP (i.e., with adjectival, numeral, and demonstrative modifiers). The major semantic distinctions explored in this section include distinctions in animacy, number, biological sex, dimensionality, consistency, axial geometry, negative space, orientation, repetition, and spatial regularity.

**Specific class for animates**

For a given animate noun, specific class is nearly always identical with the noun’s general class: it will be either masculine singular, feminine singular, or plural. These classes are made apparent through the suffixation of one of the animate specific classifiers, listed below in Table 5.11, to some element outside of the noun itself.

<table>
<thead>
<tr>
<th>MASC</th>
<th>FEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set 1</td>
<td>-ki<del>i</del>i -ko~o</td>
</tr>
<tr>
<td>Set 2</td>
<td>-aki    -ako</td>
</tr>
</tbody>
</table>

Table 5.11: Animate classifiers

The two sets of animate classifiers shown above appear in different morphosyntactic environments, discussed in more detail in §5.3.3.

In addition to the markers of animate specific class listed in 5.11 above, there are several ‘plural’ specific classifiers that may be suffixed to animate roots, specifying information about the “minor number” (Corbett 1996) or configuration of the pluralities in question. These are -huna, which indicates a large number of individuals or a group configuration; -pe, which indicates dual number or the spatial proximity of two individuals; and -kwiri~kori, which indicates that the individuals are in a line. Animate nouns suffixed with any of these morphemes will belong to that morpheme’s specific class, but will belong to the plural animate general class. They will therefore exhibit plural agreement with the predicate, but specific class agreement within the NP.

The classifiers -kwiri~kori and -pe may be suffixed either to animate or inanimate nouns, as shown in (139) for -pe. -huna, on the other hand, is reserved for animates.

(139)   a. Ṽipēgā chā sáiyī ́tinhuma

\[
\begin{array}{llllll}
\text{nī} & -pē & -ga & \text{chā} & \text{sá} -yī & \text{́tihuna} \\
\text{children} & -\text{CL:pair} & -\text{TOP} & \text{already go} & -\text{3.PL PRES DECL} & 3.\text{PL PRON} \\
\end{array}
\]

‘Her pair of children already went’ (clp 169.1)
Specific class for inanimates

The important distinctions in the classification of inanimate nouns fall largely in the domain of shape—what Seifart (2005:183) defines as “the extension of concrete objects in space.” This is no surprise from a cognitive or crosslinguistic perspective, as shape is considered fundamental in human visual perception (e.g. Palmer (1999), Marr (1982)), and is frequently attested as a salient dimension of noun categorization among the languages of the world (e.g. the surveys of Greenberg (1977), Allan (1977), Croft (1994), and Aikhenvald (2000)).

Within the domain of shape, Máiñ classifier encode distinctions in the dimensionality, axial geometry, incorporation of negative space, orientation, and spatial regularity of objects. Outside the domain of shape, classifiers group objects together based on other physical properties, such as consistency, or based on their function or utility. Still other classifiers—those, like repeaters, with a high degree of lexical content—form rather specific classes, such as the class of buildings, baskets, or hands, irreducible to a single salient perceptual property.

Dimensionality

Allan’s (1977) typology of noun classification notes that the category of shape has “traditionally been divided into the major dimensional categories of long, flat, and round” (300). He calls these categories ‘saliently one-dimensional’, ‘saliently two-dimensional’, and ‘saliently three-dimensional’, respectively. This tradition has become the standard for descriptions of the lexical semantics of systems of classification (cf. Seifart (2005), Sakuragi & Fuller (2013), Payne (1986), Aikhenvald (2000)). Some examples of classifiers that categorize objects as saliently one-dimensional, two-dimensional, or three-dimensional are shown below in Table 5.12.
Chapter 5. Noun classification

<table>
<thead>
<tr>
<th>Basically long</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-bi</td>
<td>fallen trees, canoes</td>
</tr>
<tr>
<td>-ńaka</td>
<td>spines, needles, quills</td>
</tr>
<tr>
<td>-ńi</td>
<td>standing trees, stalks</td>
</tr>
<tr>
<td>-tara</td>
<td>bones, bottles</td>
</tr>
<tr>
<td>-tika</td>
<td>sticks</td>
</tr>
<tr>
<td>-tu</td>
<td>house posts, walking sticks</td>
</tr>
<tr>
<td>-me</td>
<td>ropes, strings, vines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basically flat</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-biti</td>
<td>chips, coins</td>
</tr>
<tr>
<td>-hao</td>
<td>leaves, papers, photographs</td>
</tr>
<tr>
<td>-gani</td>
<td>skins</td>
</tr>
<tr>
<td>-ka</td>
<td>wings, rags</td>
</tr>
<tr>
<td>-toto</td>
<td>sheets of metal, scales, tabletops</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basically round</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-cho</td>
<td>heads</td>
</tr>
<tr>
<td>-ga</td>
<td>seeds</td>
</tr>
<tr>
<td>-gara</td>
<td>clumps</td>
</tr>
<tr>
<td>-kanu</td>
<td>chunks (of meat)</td>
</tr>
<tr>
<td>-su</td>
<td>piles</td>
</tr>
</tbody>
</table>

Table 5.12: The salient dimensionality of classifiers

There is a single classifier, -sani, that indicates salient zero-dimensionality. That is, it is used to classify point-like objects (e.g. yóusáni ‘tip of canoe’, from yóù ‘canoe’). There are also a number of classifiers for amorphous objects that cannot be analyzed in terms of dimensionality; these are discussed in greater detail in §5.3.2.

Consistency

Because dimensionality is perhaps the most basic component of shape, this property is often encoded alongside other physical properties of objects, such as consistency or axial geometry, to form finer-grained class distinctions. Allan (1977) notes that saliently one-dimensional and saliently two-dimensional objects are often further specified as rigid or flexible. One-dimensional rigid objects are often associated with or derived from terms for trees or tree parts, while their flexible counterparts are associated with ropes or vines. In the domain of two-dimensional objects, classifiers may differentiate between plank-like (rigid) or fabric-like (flexible) objects. Allan notes that in general, distinctions in consistency are less salient for three-dimensional objects. This indeed seems to be the case for Māihili classifiers; for example, whereas -toto and -ka robustly and generally indicate rigid and flexible bidimensionality, respectively, the encoding of the consistency three-dimensional objects seems incidental. I
have nevertheless included examples of what might be considered ‘rigid’ and ‘flexible’ three-dimensional objects in Table 5.13 below.

<table>
<thead>
<tr>
<th>ONE-DIMENSIONAL</th>
<th>RIGID</th>
<th>FLEXIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-tara</td>
<td>-me</td>
</tr>
<tr>
<td></td>
<td>bones, logs, bottles</td>
<td>ropes, vines, strands</td>
</tr>
<tr>
<td>TWO-DIMENSIONAL</td>
<td>-toto</td>
<td>-ka</td>
</tr>
<tr>
<td></td>
<td>boards, scales, rigid sheets</td>
<td>sheets, wings</td>
</tr>
<tr>
<td>THREE-DIMENSIONAL</td>
<td>-bi</td>
<td>-gara</td>
</tr>
<tr>
<td></td>
<td>round fruits</td>
<td>clumps, blobs</td>
</tr>
</tbody>
</table>

Table 5.13: Rigid versus pliable classifiers

It should be noted that the degree to which the classifiers listed in the table above may be characterized solely by the features of dimensionality and consistency is variable. For instance, objects belonging to the -me class may be thick or thin (ropes, threads), solid or tubular (strands of hair, veins), as long as they are saliently one-dimensional and flexible. Likewise, objects belonging to the -toto class may be large or small (tables, fish scales), vertically or horizontally oriented (buttress roots, floorboards), as long as they are saliently two-dimensional and rigid. As mentioned above, this is not the case for the saliently three-dimensional classifiers shown in Table 5.13: -bi is restricted to certain round fruits (e.g. ánùbi ‘papaya fruit’) and may not apply generally to three-dimensional rigid objects, and -gara indicates the additional property that the referent was formed via the accumulation of a substance (e.g. bíkógárà or ókógarà ‘cloud’ from bíkó ‘smoke’ or ókó ‘water’; yàogárà ‘clump of dirt’ from yàò ‘dirt, earth’). This is also not the case for -tara, the classifier given as an example of the rigid, saliently one-dimensional category, as this category may be further differentiated along the dimensions of axial geometry (thickness) and horizontal versus vertical orientation.

Consistency is also be relevant for amorphous substances that may not be felicitously categorized in terms of dimensionality. Examples include a set of classifiers for viscous substances: -kana, for the slime of a river, -gahì, for the slime of fish, and -suru, for viscous bodily excretions. For all liquids, the fluid classifier -raka is used (e.g. ókóràka ‘portion of water’, from ókó ‘water’). For powders, dusts, and pulps, the classifier -sai is used (e.g. hàsòsåi ‘manioc pulp’ from hàsò ‘manioc’).

Axial geometry

The axial geometry of an object—i.e., whether it is thick or thin—is relevant primarily for one-dimensional rigid objects. The classifiers in question encode (relative) radial symmetry, but differ in the magnitude of the radius. For instance -tu is used for thick, one-dimensional, rigid objects such as house posts, while -yo is used for slender, one-dimensional rigid objects such as fingers and small sticks. Examples of these include pìkàtì ‘rotten lumber’ (from pìkà ‘rot (v)’) and súkýò ‘twig’ (from súkì ‘tree (general)’).
Orientation

The differentiation of horizontally and vertically oriented objects is not particularly salient in the Máhikí system of noun classification. There is, however, a single pair of classifiers that differ solely in this dimension. These are -nìi, the classifier for standing stalks and trees (e.g. sükìní ‘standing tree’) and -bì, the classifier for fallen or felled trees (e.g. sükìbì ‘lying tree’).

Máhikí classifiers may also indicate the orientation of discrete, repeating parts with respect to one another. Jumbles of fibers (i.e., flexible one-dimensional objects) are classified by -sepa, as in nānāsèpà ‘messy hair’ (from nānà ‘hair’), while jumbles of rigid one-dimensional objects are classified by -baru, as in sükìbàrù ‘pile of driftwood’ (from sükí ‘tree’). These are in contrast to -sayì, which indicates that an object is composed of many saliently one-dimensional subparts oriented in the same direction (e.g. nānāsàyì ‘spiky hair’, from nānà ‘hair’) and -saka, which is used for multiple pointed objects oriented in the same direction (e.g. gáhòsàkà ‘pointed ears (e.g. of a dog)’, from gáhò ‘auricular’). The classifiers -pì and -su both indicate that multiple objects are oriented vertically, but differ with respect to the level of organization of those objects. -pì is used for stacks (arranged neatly), while -su is used for piles (arranged haphazardly). The minimal pair hàòpì ‘stack of leaves’ versus hàòsù ‘pile of leaves’ illustrates this contrast. A summary of ‘organizational’ classifiers is shown below in Table 5.14.

<table>
<thead>
<tr>
<th>ORGANIZED</th>
<th>Disorganized</th>
</tr>
</thead>
<tbody>
<tr>
<td>-pì</td>
<td>stacks</td>
</tr>
<tr>
<td>-saka</td>
<td>groups of pointed objects</td>
</tr>
<tr>
<td>-sayì</td>
<td>bristles, spikes</td>
</tr>
<tr>
<td>-baru</td>
<td>accumulations of driftwood, disorganized sticks</td>
</tr>
<tr>
<td>-sepa</td>
<td>disorganized fibers</td>
</tr>
<tr>
<td>-su</td>
<td>heaps</td>
</tr>
</tbody>
</table>

Table 5.14: classifiers indicating relative orientation of objects

If an object is characterized by having two salient subparts, these subparts may be classified with respect to whether they are parallel to one another. The classifier -pere indicates parallel lines, as in hìtípére ‘forearm’ (from hìtì ‘hand’, presumably with reference to the parallel configuration of the radius and ulna). The classifier -ragà indicates non-parallel lines, as in crosses or bifurcations (e.g. tòràgà ‘pants’, from tòó ‘clothing’).

Negative and positive space

Allan (1977) describes three subcategories of non-dimensional shape: one for hollow objects, one for objects with a “prominent, curved exterior,” and one for objects with annular form.
I will illustrate these subcategories here under the umbrella of “positive and negative space,” by which I mean the lack of material where it is expected or the presence of material where it is not (shown in Table 5.15).

<table>
<thead>
<tr>
<th>Positive space</th>
<th>Negative space</th>
</tr>
</thead>
<tbody>
<tr>
<td>-chika</td>
<td>-gaba</td>
</tr>
<tr>
<td>-su</td>
<td>-gagu</td>
</tr>
<tr>
<td>-titi</td>
<td>-go</td>
</tr>
<tr>
<td>-yiu</td>
<td>-gohe</td>
</tr>
<tr>
<td>-pepe</td>
<td>-ogu</td>
</tr>
<tr>
<td></td>
<td>-ho</td>
</tr>
<tr>
<td></td>
<td>-ro</td>
</tr>
<tr>
<td></td>
<td>-sanu</td>
</tr>
<tr>
<td></td>
<td>-saro</td>
</tr>
<tr>
<td></td>
<td>-turi</td>
</tr>
<tr>
<td>knots</td>
<td>rings, arcs</td>
</tr>
<tr>
<td>heaps</td>
<td>flexible rings, arcs</td>
</tr>
<tr>
<td>foreheads, hills</td>
<td>loops, chain links</td>
</tr>
<tr>
<td>warts, blisters, bubbles</td>
<td>holes</td>
</tr>
<tr>
<td>adjacent objects of uneven height</td>
<td>containers, pits</td>
</tr>
<tr>
<td></td>
<td>sheaths, covers</td>
</tr>
<tr>
<td></td>
<td>pots, inner ears</td>
</tr>
<tr>
<td></td>
<td>interior spaces</td>
</tr>
<tr>
<td></td>
<td>doors, gates, windows</td>
</tr>
<tr>
<td></td>
<td>traps, cages, rooms</td>
</tr>
</tbody>
</table>

Table 5.15: classifiers indicating positive and negative space

Repetition

Máňhĩkĩ has a modest set of classifiers used to indicate that the referent has discrete, repeating parts. The domain of spatial repetition overlaps significantly with the notion of plurality; accordingly, many of the classifiers that indicate repetitive shape in Máňhĩkĩ may be analyzed as pluralizations. For instance, -haňa, used for foliage, is derivable from the singular classifier -hao (for leaves). The singular/plural alternation for classifiers is regular. If the singular form of the classifier is monomoraic and the initial consonant is a viable target for nasalization, the initial consonant will be nasalized in the plural form and the suffix -a will be added. If the singular form of the classifier is bimoraic, the initial consonant will be nasalized (if possible) in the plural form and -ňa will be suffixed. If the singular form is monomoraic but the initial consonant is not a viable nasalization target, -ňa will be suffixed in the plural form. This process is not productive.
### Table 5.17: Singular and plural classifiers

<table>
<thead>
<tr>
<th>Singular form</th>
<th>Plural form</th>
<th>Things classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>-bi</td>
<td>-mia</td>
<td>round fruits</td>
</tr>
<tr>
<td>-bi</td>
<td>-mia</td>
<td>buckets, canoes, plantains</td>
</tr>
<tr>
<td>-ga</td>
<td>-gaña</td>
<td>small round objects</td>
</tr>
<tr>
<td>-go</td>
<td>-goña</td>
<td>loops, pulleys, chain links</td>
</tr>
<tr>
<td>-gohe</td>
<td>-goña</td>
<td>holes</td>
</tr>
<tr>
<td>-hao</td>
<td>-haña</td>
<td>leaves, sheets of paper</td>
</tr>
<tr>
<td>-ka</td>
<td>-kaña</td>
<td>branches</td>
</tr>
<tr>
<td>-ka</td>
<td>-kaña</td>
<td>cloth-like objects</td>
</tr>
<tr>
<td>-kwa~ko</td>
<td>-kwaña~koña</td>
<td>sheets, blankets</td>
</tr>
<tr>
<td>-ñaša</td>
<td>-ñaña</td>
<td>spines, needles, quills</td>
</tr>
<tr>
<td>-ńi</td>
<td>-ńia</td>
<td>trees, stalks</td>
</tr>
<tr>
<td>-raka</td>
<td>-ńaña</td>
<td>portions of water</td>
</tr>
<tr>
<td>-reo</td>
<td>-neña</td>
<td>disc-shaped objects</td>
</tr>
<tr>
<td>-ro</td>
<td>-noa</td>
<td>pots, inner ears</td>
</tr>
<tr>
<td>-ri</td>
<td>-nia</td>
<td>hammocks, machetes, paddles</td>
</tr>
<tr>
<td>-tete</td>
<td>-teña</td>
<td>temporary shelters, gourd vessels</td>
</tr>
<tr>
<td>-toto</td>
<td>-toña</td>
<td>scales, buttress roots, tables, planks</td>
</tr>
<tr>
<td>-yo</td>
<td>-ñoa</td>
<td>slender sticks, digits</td>
</tr>
</tbody>
</table>

A small number of plural classifiers (-gaña, -haña, and -toña) are repeaters; that is, they have fully nominal counterparts in the lexicon. These counterparts often have specialized meanings. For instance, gaña refers exclusively to gravel and not to small round objects in general, and toña refers only to the scales of fish, rather than rigid two-dimensional objects in general.

There are several classifiers that indicate repetitive form but that do not participate in a singular/plural alternation. These are -hu, for hanging clusters (e.g. óhù ‘cluster of plantains’, or bà+hù ‘string of fish’); -kwiri~kuri, for objects in a line (e.g. nú+kùrì ‘children in a line’); -huna, for groups or herds (e.g. nò+mùnà ‘group of women’ or birshùnà ‘herd of peccaries’); -pe for pairs of things (e.g. kò+pë ‘cloven hoof’ or nù+pë ‘pair of children’); -pi for stacks (e.g. hà+ò+pì ‘stack of leaves’); and -su for piles (e.g. hëkà+su ‘pile of firewood’). This is summarized in Table 5.18 below.
Chapter 5. Noun classification

Repetitive form

<table>
<thead>
<tr>
<th>Classifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-hu</td>
<td>multiple hanging objects</td>
</tr>
<tr>
<td>-kwiri--kuri</td>
<td>objects in a line</td>
</tr>
<tr>
<td>-huna</td>
<td>groups and herds</td>
</tr>
<tr>
<td>-pe</td>
<td>pairs</td>
</tr>
<tr>
<td>-pि</td>
<td>stacks</td>
</tr>
<tr>
<td>-su</td>
<td>piles</td>
</tr>
</tbody>
</table>

Table 5.18: Classifiers indicating repetitive form

When noun suffixed by ‘repetitive’ classifiers that do not participate in the singular/plural alternation are counted, they are counted in clusters or groups (e.g., two pairs equal four individuals); this is not the case for truly plural classifiers like those in 6.3.

Spatiotemporal classifiers

Certain Máihí classifiers indicate spatiotemporal concepts rather than the shape of individual objects. Two highly frequent spatial classifiers are -ro and -rari, which derive locative nouns such as those shown in (140).

(140) hékà túñebiyóhúgó ū ū nékádådi
  hékà  túñé   biyó  -hú   -go
  firewood  set.down.PLACT  raise.level.PLACT  -PERF  -3.SG.FEM.PAST.DECL
  ū ż ū ż néká  -rari
  3.SG.FEM.PRON  3.FEM.POSS.PRON  stand  -CL:location

‘Where she was standing, she piled up firewood’ (dos 59.1)
‘Donde que ella para, ella le ha amontonado leña’

ásákò bíákì bàirò sáíkò

a. ásá  -ko  bíákì  bàí  -ro  sáí  -ko
  perceive  -FEM.SS.SIM  father  live  -CL:place  go  -3.SG.FEM.PRES.DECL

‘Hearing this, she went to her father’s place’ (bdm 17.1)

Neveu (2012) analyzes the difference between -rari and -ro as a difference in the visual evidence of the speaker, stating that “the locative nominalizer -ro is a counterpart to -rari with the visual restriction that the goal must be out of sight at the time of utterance” (5). I suggest that -ro indicates a place characterized by or associated with the property denoted by the root to which it is suffixed, while -rari indicates the place where some object or event was, is, or will be located.

Other spatial classifiers include -ruru, which classifies directions, and -ti, which classifies opposing sides (e.g. ‘this side of the river’ versus ‘that side of the river’ or ‘left’ versus ‘right’). Examples of these classifiers are shown in 141.
Chapter 5. Noun classification

(141) a. ŋyo gáníh náhútárè mámákò dáírûrû têohâkè
      ŋyo gání -ho ná ûtá -re mámákò dáí
3.SG.FEM.PRON skin -CL:sheath pull take.off -SSSEQ child.FEM come
-ûrû tò -ha
-CL:direction set.down.SGACT -ASS.MOT.AWAY.FROM.SPEAKER.PAST.NI
-kì
-3.SG.MASC.PAST.DECL.NI

‘He pulled off her skin and went in the direction her daughter was coming to put it down’ (vie 13.1)
b. nà yékètì màà sákò
      nà yékè -ti màà sáí -ko
again other.DEM -CL:side path go -3.SG.FEM.PRES.DECL

‘She went on another path on the other side’ (bek 10.1)

The temporal classifier, -nu, classifies temporal extensions (e.g. míànu ‘daytime’, from míà ‘shine’), epochs (e.g. ñûtùbàinù ‘childhood’, from ñûtù ‘child’ and bai ‘be, exist’), or seasons (e.g. ìnènù ‘peach palm season’, from ìnè ‘peach palm’).

There are two classifiers that may yield either spatial or temporal interpretations. These are -huru, which classifies vicinities or inexact locations (exemplified for both time and space in (142)), and -yigo, which classifies spans (exemplified in (143)).

(142) a. dòè sóòhûrû sàní bàyi
      dòè sóò -huru sàní bà -yi
before far -CL:vicinity go.NI live -3.PL.PRES.DECL

‘Before, they would go far away and live’ (eo1 73.1)
‘Antes yendo lejos vivían ellos’
b. yáhè nèèhù ñàmhûrû ùkùyì, ùkùsèhùnà
      yáhè nèè -hù ñàmì -hurù ùkù -yì, ùkù
ayahuasca make -PL.SS.SIM night -CL:vicinity drink -3.PL.PRES.DECL drink
-se -hùna
PAST.REL -CL:GROUP

‘They would make ayahuasca and drink it at night, those who drank’ (pyj 11.1)
‘Ellos, los que tomaban, preparando la ayahuasca, le tomaban en la medianoche’

(143) a. hitìpéréyìgò
      hitì -pere -yìgò
hand -CL:parallel -CL:span

4In the regional Spanish spoken by speakers of Máìháì, medianoche may mean ‘the middle of the night’ rather than ‘midnight’.
Chapter 5. Noun classification

‘The length of my forearm’ (E.SJF.LMM.20aug2014)
‘Algo que mide igual como mi brazo’

b. tóyáyetéyígò

write learn -yígò

‘The span of time during which one studies’ (E.SJF.LMM.20aug2014)
‘La hora de estudiar’

A summary of the spatiotemporal classifiers discussed in this section is presented below in Table 5.19.

<table>
<thead>
<tr>
<th>CLASSIFIER</th>
<th>CLASSIFIED THINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-huru</td>
<td>vicinities, inexact locations</td>
</tr>
<tr>
<td>-nu</td>
<td>times, epochs, seasons</td>
</tr>
<tr>
<td>-rari</td>
<td>locations</td>
</tr>
<tr>
<td>-ro</td>
<td>places</td>
</tr>
<tr>
<td>-ruru</td>
<td>directions</td>
</tr>
<tr>
<td>-ti</td>
<td>sides</td>
</tr>
<tr>
<td>-yigo</td>
<td>spans of time or space</td>
</tr>
</tbody>
</table>

Table 5.19: Spatiotemporal classifiers

Natural phenomena

There is a small set of classifiers that distinguish between various geological formations. These classifiers include -kwaru~-koro, which classifies swampy groves, typically of palms (e.g. nèèkwarù ‘moriche palm swamp’, from nèè ‘moriche palm’); -ra, which classifies non-riverine bodies of water, such as puddles and lakes; and -ya, which classifies rivers and streams. These classifiers are shown in Table 5.20 below.

<table>
<thead>
<tr>
<th>CLASSIFIER</th>
<th>CLASSIFIED THINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-kwaru ~ -koro</td>
<td>swampy groves</td>
</tr>
<tr>
<td>-ra</td>
<td>non-riverine bodies of water</td>
</tr>
<tr>
<td>-ya</td>
<td>rivers, streams</td>
</tr>
</tbody>
</table>

Table 5.20: classifiers for natural phenomena

Manufactured objects

A culturally salient manufactured object will typically be associated with its own classifier, rather than being classified in terms of shape or consistency. These include -ri, which
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classifies hammocks, machetes, nets, and paddles; -roru, which classifies woven baskets; -seu, which classifies machines (e.g. ágášèu ‘telephone’ from ágá ‘call’); -tete, which classifies drinking vessels made of gourds and temporary shelters; -to, which classifies bags, sacks, and articles of clothing; -we, which classifies buildings; -yio, which classifies swiddens and gardens; and -yu, which classifies vehicles (e.g. tóáyù ‘boat’, from tóá ‘fire’). These classifiers are shown below in Table 5.3.2.

<table>
<thead>
<tr>
<th>Classifier</th>
<th>Classified things</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ri</td>
<td>nets, hammocks, machetes, paddles</td>
</tr>
<tr>
<td>-roru</td>
<td>baskets</td>
</tr>
<tr>
<td>-seu</td>
<td>machines, roots</td>
</tr>
<tr>
<td>-tete</td>
<td>small houses, dishes</td>
</tr>
<tr>
<td>-to</td>
<td>bags, articles of clothing</td>
</tr>
<tr>
<td>-we</td>
<td>buildings</td>
</tr>
<tr>
<td>-yario</td>
<td>rafts</td>
</tr>
<tr>
<td>-yio</td>
<td>swiddens</td>
</tr>
<tr>
<td>-yu</td>
<td>vehicles</td>
</tr>
</tbody>
</table>

Table 5.21: Classifiers for manufactured objects

Summary of the lexical semantics of classifiers

In §5.3.2, we have seen that semantic classes in Máñi may be divided into two broad categories: general class and specific class. General class determines agreement with the predicate, and exhaustively divides the nominal lexicon into categories based on animacy, sex, and number: common nouns may be specified as masculine singular, feminine singular, or plural. All inanimate nouns pattern with masculine singular animates with respect to general class.

Specific class governs agreement between a noun and its modifiers. For animate nouns, specific class is typically identical with general class: masculine singular, feminine singular, or plural. Exceptions are cases in which inherently plural animates (such as nóni ‘women’ or níjí ‘children’) are suffixed with specific classifiers that indicate something about their spatial configuration, such as -kwiri~kuri, which denotes individuals in a line. In these cases, the general class of the referent is still animate and plural, but the specific class is not.

Shape is the most salient parameter of classification for inanimate objects. Within the domain of shape, Máñi distinguishes between saliently one-dimensional, saliently two-dimensional, and saliently three-dimensional objects. These categories exhibit further distinctions in the rigidity (rigid vs. flexible), axial geometry (thick vs. thin, oblong vs. straight), and orientation (upright vs. prone, organized vs. disorganized, parallel vs. intersecting) of the referent. Objects may also be characterized in terms of the salient presence or absence of material (e.g., whether the object bulges or is a bulge, has holes or is a hole).
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Non-shape-based classifiers divide the world into salient geographical, sociocultural, and ecological categories.

The classifiers exemplified in this section do not form an exhaustive list. The broad definition established for classifiers in §5.2 of this chapter makes it difficult to exhaustively identify them. Nevertheless, an comprehensive list of the morphemes that have been attested in classifier constructions can be found in Appendix C.

5.3.3 The morphosyntactic loci of Máfhikì classifiers

§5.2.2 showed that one of the prominent characteristics of classifier systems of the northwest Amazon basin is the variety of morphosyntactic environments in which classifiers may appear. The Máfhikì system of noun classification is no exception. This section will outline the elements to which Máfhikì classifiers may be suffixed, including mass nouns and the nominal counterparts to repeaters and intermediate classifiers; adjectival roots; numeral roots; demonstrative roots; bare verb roots; and verb roots that have been suffixed with a marker of nominal tense.

Suffixation to nominal roots

Classifiers may be suffixed to mass noun roots, as in (144) below. In this example, the mass noun kìù ‘metal’ is suffixed with various classifiers.

(144) a. kìúgò
   kìù -go
   metal -CL:loop
   ‘chain’

b. kìúgànì
   kìù -gànì
   metal -CL:skin
   ‘corrugated metal’

c. kìúmè
   kìù -mè
   metal -CL:rope
   ‘wire’

d. kìúnàkà
   kìù -nàkà
   metal -CL:spine
   ‘nail’

e. kìútòtò
Classifiers may also be suffixed to nominal roots that have repeater and intermediate classifier counterparts. When suffixed to a nominal root that may also serve as a repeater, a classifier usually specifies a part of the noun in question, as in (145a). In the case of intermediate nominal roots, a classifier indicates a particular shape, as in (145b) and (145c).

(145) a. wètū
   wèè -tu
   house -CL:thick.cylinder
   ‘house post’
  b. chótarà
   chóá -tara
   head -CL:rigid.cylinder
   ‘pointy head’
  c. tóràgà
   tóó -raga
   clothing -CL:intersecting
   ‘pants’

In general, classifiers are not suffixed to pronouns or animate common nouns, although there are exceptions. For instance, the plural classifiers -huna, -pè, and -kwiri, described above in §5.3.2, may be suffixed to the plural pronouns yíki ‘first person plural inclusive’, máí ‘first person plural exclusive’, and mìsà ‘second person plural’, as well as to animate nouns of Groups 1 and 5 (i.e., inherently plural and lower animates). The general restriction on the suffixation of classifiers to elements of a higher reference ratio will be further explored in the semantic analysis of classifiers presented in §5.4.

Suffixation to adjectival roots

Adjectival roots are those that can take neither nominal inflection (i.e., plural and singulative marking, object marking, etc.) nor verbal inflection, but that can be suffixed directly with a classifier. These include hái ‘big'; yàrì ‘small'; tá ‘small'; mámá ‘new'; áí ‘old'; dèò ‘good'; gòà~òà ‘bad'; dòá ‘long, tall'; bìhè ‘short'; máá ‘red'; bóó ‘white'; néá ‘black'; síñò ‘yellow'; and míñà ‘green’. Some examples of classifiers suffixed to adjectival roots are shown below in (146).

(146) a. yàrikà bàisè yàriyà nèèhò
   yàrì -ka    bài -se    yàrì -ya  nèè -hò
   small -CL:branch exist -PAST.REL small -CL:river make -PERF
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‘What were its little branches turned into a stream’ (mbd 343.1)
‘Lo que era sus ramas se formó en quebrada’

b. mamáyió báayí ítidári, yió

mamá -yió báá -yi ítí -rari
new -CL:swidden have -1.SG.PRES.DECL PROX.ANAPH.DEM -CL:location
yió
swidden

‘I have a new swidden there’ (ohe 20.1)
‘Yo tengo mi nueva chacra por allá’

For animate referents, the Set 1 animate classifiers (-kì-i-i and -ko-o shown in Table 5.11 above) are suffixed to adjectival roots, as shown below in (147).

(147) a. jááhóyi dóákìáagí

yááhóyi dóá -kì -ai -agi
dog long -CL:masc -AUG -ANIM.MASC.COP

‘It’s a long dog’ (E.LTN.SJF.6feb2013)
‘Es perro largo’

b. ásé kákó dëókò ñiò

ásé kákó -ko dëó -ko ñiò
INTERJ SPACT.DIST.DEM -CL:fem good CL:fem 3.FEM.SG.PRON

‘Wow, she’s pretty, that one!’ (jv2 4.1) ‘Esa mujer está bonita!’

There is syntactic evidence that the words formed by the suffixation of a classifier to an adjectival root are non-nominal. First, these elements have a predicative function, as shown in (148), where the forms derived via the suffixation of the classifier -kì ‘CL: masc’ to the adjectival roots dòá and háí is predicated of ímì ‘man’.

(148) a. ímì dóákì

ímì dòá -kì
man tall -CL:masc

‘The man is tall’ (E.EMR.SJF.22jun2013)
‘El hombre es alto’

b. ímì háfkì

ímì háí -kì
man big -CL:masc

‘The man is fat’ (E.EMR.SJF.22jun2013)
‘El hombre es gordo’

This is in contrast to the predicate nominal construction, which requires the presence of the copula, as shown in (149).
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(149) ákò tóyákíákòagò
    ákò  tóyá  kíá -ko  -ago
foreign.woman write tell -CL:fem -3.ANIM.FEM.COP

‘She (the mestiza) is a teacher’ (E.RTN.30jan2013)
‘Ella (la mestiza) es profesora’

Suffixation to demonstratives

Classifiers in Máiñkì may also be suffixed to demonstrative roots, which are described in detail in §3.8. The resultant form is pronominal. Some examples of demonstrative + classifier constructions are shown below in (150).

(150) a. íyìà óiyí
    í   -yia  óí  -yí
dem.prox -cl:tapered want -1.sg.pres.decl
‘I want this (manioc) tuber’ (E.SJF.EMR.21jan2013)
b. káiyìà sàà
    ká   -yia  sáà
dem.dist.from.speaker -cl:tapered take
‘Take that (manioc) tuber’ (E.SJF.EMR.21jan2013)
c. kèwè kátò békò dáókò
    kè   -we  ká
dem.dist.from.speech.act -cl:building dem.dist.from.speech.act
 -to  béé  -ko  dáó  -ko
 -cl:place impf -fem.ss.sim walk -3.sg.fem.pres.decl
‘She would walk to the far house, over there’ (sk5 15.1)

Suffixation to numerals

All count inanimate classifiers may be suffixed to the numeral roots tè ‘one’, tèpè ‘two’, and bábab ‘three’.

(151) a. tètíi máíkò
    tè  -titì  máí  -ko
one -cl:hill go.up -3.sg.fem.pres.decl
‘She went up one hill’ (kb5 43.1)
b. tèpètāra chìabì
    tèpè  -tara  chìa  -bi
two -cl:rigid.cylinder buy -1.pl.past.decl
‘We bought two bottles’ (ovi 103.1)
c. áhèhùnàmà tè̀ bá̀ báhùnàmà bà̀ kí òáhì
dáhì
ähè -huna -ma tè̀ bábá -huna -ma bà̀ -ki
go.down -CL:group -INAN.PL also three -CL:group -INAN.PL live -CL:masc
-na dáhì
dáhì
-ANIN.PL come.PAST.NI -3.PL.PAST.DECL.NI

‘Three groups of downriver people also came’ (bau 9.1)
‘Tres grupos de gente de abajo también han venido’

For animate nouns, Set 2 animate classifiers (-akì and -ako—see Table 5.11 above) are suffixed to numerals two and higher (shown in (5.3.3)), while the lenis allomorphs of Set 1 classifiers are suffixed to the numeral one, tè̀, as shown in (153).

(152) ímì̀ nà tèpèákì̀ nà bò̀ gö̀ yà̀ rì̀ yà̀ rì̀

ími -na tèpè -akì -na bò̀ gö̀ -yohì
tè̀ -hi
man -ANIM.PL two -CL:mmasc.being -ANIM.PL meat fish.with.hook -PL.PURP
sá -ya
go.PAST.NI -3.PL.PAST.DECL.NI small -CL:river

‘Two men went fishing in a stream’ (s+s 1.1)

(153) tè̀ ímì̀ gì̀ tè̀ nòmìgò

tè̀ -i ími -gì̀ tè̀ -o nòmì̀ -go
one -CL:mmasc man -ANIM.MASC.COP one -CL:fem woman -ANIM.FEM.COP

‘One man and one woman’ (E.HMR.25ju2013)

Suffixation to verb roots

Classifiers may be directly suffixed to verb roots, resulting in a wide variety of the types of deverbal nominalizations described, for instance, by Comrie & Thompson (1985). The type of deverbal nominalization (i.e., the nature of the event participant derived via classifier suffixation) does not depend on the classifier; that is, whether a given classifier derives an agentive or patientive or instrumental noun cannot be predicted.

An example of an agentive deverbal nominalization is shown in (154), where the animate noun kwàkòkò ‘cook (feminine)’ is derived from the verb root kwàkò ‘cook’ suffixed with the animate feminine classifier -ko, and kàìkì ‘biter’ is derived from the root kàì ‘bite’ plus the animate masculine classifier -ki.

(154) a. kwàkòkò

kwàkò -ko

cook -CL:fem
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158

‘cook (female)’

b. kĩїkà
kũ -ki
bite -CL:masc
‘biter (male)’

In other cases, such as (155), the derived noun is patientive. hẽõňákà ‘hammer (n),’ indicates the prototypical patient of the verb from which it is derived.

(155) hẽõňákà

hẽhõ -õaka
hammer.PLACT -CL:pointy

‘nail’

An example of an instrumental instrumental nominalization is shown below in (156). Here, the classifier -seu ‘CL: device’ is suffixed to the verb hẽhõ ‘hammer’ to derive an instrument associated with the action of hammering.

(156) a. hẽhõsẽũ
hẽhõ -seu
hammer -CL:contraption
‘hammer’

b. tõtẽfĩkà
tõtẽ -tika
mash -CL:stick
‘mashing stick’

Deverbal nominalizations may also be locative or temporal in nature, as shown in (157) below.

(157) a. yĩõ sãniĩəbi tũtũũũ
yĩõ sãĩ -ňia -bi tũũ -nu
swidden go.NI -ASP -1.SG.PAST.DECL wind -CL:time
‘I was going to my swidden at the time of the hurricane’ (hur 2.1)

b. hẽkã tũũbũyũhoũ õõ nũfĩãdãdĩ
hẽkã tũũnẽ bũyũ -hũ -go
firewood set.down.PLACT raise.level.PLACT -PERF -3.SG.FEM.PAST.DECL
õõ õõ nĩkã -rari
3.SG.FEM.PRON 3.SG.FEM.POSS.PRON stand -CL:location
‘Where she was standing, she piled up firewood’ (dos 59.1)
‘Donde que ella para, ella le ha amontonado leña’

It seems, from the above examples, that the classifier in deverbal nominalizations indicates a salient participant in the event, and that there are no restrictions on the semantic role of this participant.\(^5\)

So far, we have only seen examples of classifiers suffixed to tenseless verbs. Nominalized verbs in Máfîkî may also be tensed by the nominal tense suffixes -se and its fortis-context counterpart -chi (past) or -hai and its fortis-context counterpart -ha (future).\(^6\) In these cases, the classifier directly follows the nominal tense marker, as is shown below in (158).

\begin{enumerate}
\item \textit{táčhîní}
ná -\textit{-chi} -\textit{-nî}
fall -PAST.REL -CL:tree
‘fallen tree’ (E.LTN.SJF.9feb2013)
\item balde báťásèbè ókó mélôhî
\begin{itemize}
\item \textit{balde} báťá -\textit{-se} -\textit{bi} ókó mélô -\textit{-hî}
bucket split -PAST.REL -CL:vessel water leak -3.SG.MASC.PRES.DECL
\end{itemize}
‘The bucket that broke is leaking’ (E.AMM.LDM.16jun2012)
\item ábîhâyà
ábî -\textit{-ha} -\textit{-ya}
bathe -REL.FUT -CL:river
‘the river they will bathe in’ (E.LTN.SJF.15aug2014)
\item balde báťâhàbè ókó mélôhî
\begin{itemize}
\item \textit{balde} báťá -\textit{-hai} -\textit{bi} ókó mélô -\textit{-hî}
bucket split -REL.FUT -CL:thing water leak -3.SG.MASC.PRES.DECL
\end{itemize}
‘The bucket that will break is leaking’ (E.LDM.AMM.16jun2012)
\end{enumerate}

As in tenseless deverbal nominalizations, the semantic role of the entity denoted by the tensed deverbal nominalization is variable. For instance, kükúkükû ‘bite’, which has been nominalized via the suffixion of -\textit{ki} ‘CL: masc’, may be interpreted as either agentive or patientive. It may mean ‘the (masculine) one who bit’ or ‘the (masculine) one who was bitten’. These forms are indistinguishable from the headless relative clauses described in §3.14.

\(^5\)Of course, generalizations may be made about the types of classifiers that tend to take on one role or another; for instance, animate classifiers are likelier to be agents, etc.

\(^6\)The classifiers that trigger the fortis-context counterpart of these nominal tense markers are -\textit{bi} (of fallen trees), -\textit{ro}, -\textit{ya}, -\textit{ko}, -\textit{ki}, -\textit{ri}, -\textit{nî}. Following the fortis-context allomorphs of the nominal tense markers, -\textit{ro} and -\textit{ri} will surface as their fortis allomorphs -\textit{to} and -\textit{ti}, respectively.
Summary of morphosyntactic loci

This section has shown that Máihêkì class markers may be suffixed to a variety of roots, including certain nominal roots, adjectival roots, demonstrative roots, numeral roots, and verb roots. The classifier serves to derive a new lexeme, which, in cases in which classifiers are suffixed to nominal or verbal roots, is typically a count noun. In cases in which classifiers are suffixed to adjectival, demonstrative, or numeral roots, classifiers derive words of those syntactic classes, which may then modify nouns at the level of the phrase.

5.3.4 The morphosyntactic and discourse functions of classifiers

In the previous section, we explored the range of possible morphosyntactic loci for Máihêkì classifiers. In this section, we will turn to their syntactic and discourse functions. In particular, I will address classifiers’ role in derivation (and in particular nominalization), discretization, agreement, and reference tracking. It is this variety of functions that places Máihêkì classifiers somewhere between the boundary between inflection and derivation—a feature prevalent in languages of the northwest Amazon Basin.

Derivation and discretization

I have alluded throughout this chapter to the idea that the primary function of classifiers in Máihêkì is their derivation of new lexical items. In the previous section, we saw that classifiers may be suffixed to a variety of (mostly bound) roots, resulting in free forms that may then serve as either the heads or modifiers in a noun phrase.

In the derivation of nouns, it is most often the case that a classifier will also have a discretizing function; that is, it will take a non-nominal or mass nominal root and derive a count noun. As Seifart (2005) points out, the morphosyntactic function of discretization is closely associated with classifier systems, and numeral classifier systems in particular, but is typologically rare in systems of noun class.

Agreement

Steele (1978:610) defines ‘agreement’ as “some syntactic covariance between a semantic or formal property of one element and a formal property of another.” This definition is adopted by Aikhenvald (2000:29) and by Corbett (2003), who additionally defines five ‘elements’ involved in the agreement process. These are the controller, which triggers and determines the agreement; the target, whose form is determined by the controller; the domain, which is the syntactic environment in which agreement occurs; the features, which indicate the features with respect to which there is agreement; and the conditions, which determine whether there will be agreement.

As was established in §5.3.2, there are two salient domains of agreement in Máihêkì: agreement between subject and predicate, and agreement between a head noun and nominal modifiers within the noun phrase. In agreement with the predicate, the subject acts as the
controller, triggering general class agreement on the predicate (the target) in the form of verbal inflection. This agreement exhibits the features of person, number, animacy, and sex. In (159a), we see the controller—the inanimate plural subject ókógaràmà triggering agreement with the predicate in the form of the suffix -gi. In (159b), we see agreement between the plural animate third person controller yáhhòyìnà and the verb, suffixed with -yi.

(159)  

a. ókógaràmà sánìhèagà

ókó -gara -ma sánì -hea -gi
water -CL:clump -INAN.PL go.NI -PERF.PLACT -3.SG.MASC.PAST.DECL

‘The clouds have gone’ (E.SJF.JMM.31jan2013)

b. yáhòyìnà kùjìyì

yáhòyì -na jì -yi
dog -ANIM.PL bite.SGACT -3.PL.PRES.DECL

‘The dogs are biting’ (E.SJF.EMR.2jul2013)

Within the noun phrase, a head noun acts as the controller, triggering specific class agreement on adjectival, numeral, demonstrative, or relative clause modifiers. In example (160), we see the plural classifier -noa suffixed to a mass noun (kì ‘metal’), a demonstrative root (ì ‘proximal’), an adjectival root (néá ‘black’), a numeral (tèpè ‘two’), and a relativized verb (gwénéhéasè ‘that which has been dented’). In this case, the head noun kìönòà is controlling agreement on its modifiers.

(160)  

ìnòà tèpènòa kìönòà néánòà gwénéhéasènòà

ì -noa tèpè -noa kìò -noa néá
PROX.DEM -CL.PL:concave two -CL.PL:concave metal -CL.PL:concave black
-noa gwéné -héá -se -noa
-CL.PL:concave dent -PERF.PLACT -PAST.REL -CL.PL:concave

‘These two black dented metal pots’ (E.LMM.KCN.07aug2012)

Phrases like that the one in (160) are exceedingly rare in natural discourse. Two elements bearing the same classifier typically do not occur in the same clause. Barnes (1990:298) makes a similar observation for Tuyuca: “I have observed that in general the referent of the entity referred to by a classifier is not mentioned in each sentence that contains the classifier unless the statement might be unclear without it. Thus, noun phrases as such are not common in Tuyuca.”

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7For instance, of the 328 occurrences of the adjective hàá + classifier in our corpus, only ten of them are adjacent to a noun with an agreeing classifier. The vast majority occur as the sole nominal element in the phrase.
Reference tracking

In addition to their functions as nominalizers, discretizers, and agreement markers, Máihí’kí classifiers may be used as discourse anaphors. Levinson (2000:267) defines anaphora as “the phenomenon whereby one linguistic expression (the anaphor), lacking clear independent reference, can pick up reference or interpretation through connection to another linguistic expression (usually an antecedent).” Classifiers make very good candidates for anaphors as they encode only vital information about the referent, promoting economy in reference tracking.

Classifiers in Máihí’kí may be interpreted as anaphoric when they are suffixed to demonstrative roots or the numeral te ‘one’. Example (161) below shows the classifier -bì (for containers) and its lenis allomorph -u tracking reference to a strainer, hihèbì, over the course of several utterances. After the initial reference, using the full noun, the classifier is suffixed to the nominalized verb sùù ‘strain’ and to the distal demonstrative root kà-.

(161) a. mámákínàrè hihèbìmàkà ìchìkò ìò sùùchìbì
    mìmákhì -na -re hihè -bì -maka ìchì
cild.MASC -ANIM.PL -NON.SUBJ strainer -CL:vessel -INAN.DIM give
-ko ìò sùù -chì -bì
-3.SG.FEM.PRES.DECL 3.SG.FEM.PRON strain -PAST.REL -CL:vessel
‘She gave the children the strainer with which she had been straining’ (hab 46.1)

b. “kàù dòááùkùmì,” ìkò ìchìkò
    kà -u dòá ákù -ma ì -ko ìchì
dEM.DIST -CL:vessel wash drink -IMPER say -3.FEM.SG.PRES.DECL give
-ko
-FEM.SS.SIM

‘Wash it (the strainer) and drink,” she said, handing it over’ (hab 46.2)

c. kàùmàkà ìní sáíyì ìtíhùnà “dòááùkùyò” ìhù
    kà -u -maka ínì sáí -yì ìtíhùnà
dEM.DIST -CL:vessel -INAN.DIM receive.NI go -3.PL.PRES.DECL 3.PL.PRON
dòá ákù -yo ì -hì
wash drink -3.PL.FUT.DECL say -3.SG.MASC.PRES.decl

‘They took it (the strainer) and left, saying, “Let’s wash and drink”’ (hab 46.2)

In (162), we see another example of the reference-tracking function of classifiers. In this case, the feminine classifier -o is suffixed to the numeral te ‘one’, referring to the peccary that was mentioned in the previous utterance.

(162) a. kwàìkì yòòkì hòyò bàìrè tìààò
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5.3.5 Summary

§5.3 has provided a detailed description of the Máňhìki system of noun classification. First, I addressed the question of what counts as a classifier, and established a ‘fuzzy’ definition based on the morphosyntactic properties of prototypical classifiers. Within the set of morphemes encompassed by this definition, I outlined three subtypes: repeaters, intermediate classifiers, and full classifiers. These subtypes differ with respect to whether there is a homophonous root in the lexicon, and with respect to whether that root may denote an object-level individual. Next, I provided an overview of the lexical semantics of Máňhìki classifiers. I established a distinction between ‘general’ class, which exhaustively divides the lexicon on the basis of animacy, sex, and number, and which governs agreement with the predicate; and ‘specific’ class, which provides information largely about the shape of inanimate referents, and which governs agreement between nouns and nominal modifiers. Finally, I outlined the morphosyntactic loci for classifiers, and described their involvement in the derivation and discretization of nouns, as well as agreement processes and reference tracking.

5.4 A semantic analysis of Máňhìki classification

We have seen in this chapter—in particular in the discussion of ‘full’, ‘intermediate’, and ‘repeater’ classifiers—that the boundary between classifiers and common nouns in Máňhìki is rather blurry. While there are roots that may not serve as classifiers and classifiers that may not serve as roots, there is a large intermediate category of morphemes that lead double lives. Repeaters and certain intermediate classifiers have homophonous nominal roots that may appear bare and that may be inflected with nominal morphology. Other intermediate classifiers have non-nominal counterparts—roots that may not appear bare or be inflected with nominal morphology. Finally, full classifiers are exclusively suffixal; they have no counterpart roots in the lexicon. In addition to classifiers that do not have root counterparts, the Máňhìki lexicon also exhibits the inverse: there are nominal roots, capable of serving as
Chapter 5. Noun classification

the arguments of verbs, that do not have homophonous classifiers. In this section, I will attempt to account for this blurriness, and for the range of morphosyntactic functions exhibited by Ma'akhik classifiers, through a type-theoretic semantic analysis. I will suggest that the classifier construction has two slots: a modifier slot followed by a head slot, and that the predicates in these slots combine via a process akin to Predicate Modification (Heim & Kratzer 1998:65) to form a new property, which, if it meets the semantic criteria for nounhood established in Chapter 4, may be type-shifted via either $\cap$ or $\iota$ to become a kind-level or object-level individual of type $e$.

In Chapter 4, we saw that the ability of a root to serve as a classifier or to be suffixed with a classifier (or, perhaps, the facility with which it may do these things) is predictable from its position on the Reference Wheel (Figure 4.10, Figure 4.14). I suggested there that this position is determined by the degree of similarity between the individuals that some noun denotes. From the analysis of classification presented here, it follows that the ‘ideal’ classifier denotes a set of individuals that share one or two salient properties (e.g., a shape or consistency), but that are otherwise relatively diverse.

Ultimately, I would like to suggest that classification is the pairing of an element with a low reference ratio and an element with a high reference ratio to create something in the middle. In this way, a classifier construction can be viewed as a means of increasing the reference ratio of the set denoted by the classifier by restricting that set to the entities that bear some other property (the property of the modifier). Or it can be seen as decreasing the reference ratio of the set denoted by the modifier by individuating it (making it count).

5.4.1 The semantics of the derivation of nouns via classification

This section looks at the semantics of the derivation of nouns via classification—a process that shares elements of nominal compounding, but which differs in that its components need not be free roots. I am referring here primarily to constructions of the type in Table 5.22 below, which have as their components verbal or nominal roots plus classifiers.

<table>
<thead>
<tr>
<th>Classifier construction</th>
<th>Meaning</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>áóro</td>
<td>‘food pot’</td>
<td>$\ddot{a}o$ ‘food’ + -ro ‘CL: concave’</td>
</tr>
<tr>
<td>bàrò</td>
<td>‘meat pot’</td>
<td>$b\dot{a}i$ ‘meat’ + -ro ‘CL: concave’</td>
</tr>
<tr>
<td>gáhórò</td>
<td>‘outer ear’</td>
<td>$g\acute{a}\ddot{h}o$ ‘ear’ + -ro ‘CL: concave’</td>
</tr>
<tr>
<td>kwákórò</td>
<td>‘cooking pot’</td>
<td>$kw\acute{a}k\ddot{o}$ ‘cook’ + -ro ‘CL: concave’</td>
</tr>
</tbody>
</table>

Table 5.22: Modificational classification constructions

As mentioned above, I propose that classifier constructions in Ma’akhik consist of two slots: a leftmost ‘referential base’ slot and a rightmost head slot. We might think of the elements

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8There are of course non-nominal roots without classifier counterparts, such as the majority of verb roots. These are not considered here because they are outside the domain of nominal and nominalizing elements.
that occupy each of these slots as being of type \( \langle e, t \rangle \)—that is, as denoting sets of entities that have some property in common. In the case of \( \textit{bài} \) ‘meat’, for instance, the predicate \( \lbrack \textit{bai} \rbrack \) denotes the set of individuals that are meat. Our classifier \( \lbrack \text{-ro} \rbrack \) would denote the set of individuals that are concave. This seems simple enough. When we wish to combine these properties, however, we are faced with a type mismatch. Neither predicate may saturate the other as they are both of the same semantic type \( \langle e, t \rangle \).

This predicament recalls the case of English adjectival modification, whose analysis requires either a multiplicity of adjectival types \( \langle e, t \rangle \) for predicative and \( \langle \langle e, t \rangle, \langle e, t \rangle \rangle \) for attributive) or a stipulation that elements of type \( \langle e, t \rangle \) may combine through means other than saturation. The latter hypothesis is explored by Heim & Kratzer (1998), who establish the rule of Predicate Modification presented below in (5.4.1).

(163) If \( X \) is a branching node that has two daughters, \( Y \) and \( Z \), and if both \( Y \) and \( Z \) are of type \( \langle e, t \rangle \), then:

\[
[X] = [\lambda x : x \in D_e \land [Y](x) = \text{True} \land [Z](x) = \text{True}]
\]

In other words, \( [X] \) is the characteristic function of the set of individuals that are in the sets defined by both \( [Y] \) and \( [Z] \).

As an example of how the rule of Predicate Modification might apply to a classifier construction in Māñ̄h̄āki, let’s take a look at the inanimate noun \( \textit{tótòreò} \) ‘clay plate’, which may be analyzed as having a root \( \textit{tótò} \) ‘clay’ and a classifier \( \text{-reo} \) ‘CL: disc-shaped’. The tree in Figure (5.4.1) shows that our \( X, \text{tótòreò} \), has two branching daughters, \( \text{tótò} \) and \( \text{-reo} \), both of which are of type \( \langle e, t \rangle \).

\[
\begin{tikzpicture}
  \node (root) {tótòreò};
  \node (tótò) [below left of=root] {tótò};
  \node (reo) [below right of=root] {-reo};
  \draw (root) -- (tótò) node [midway, left] \{\langle e, t \rangle\};
  \draw (root) -- (reo) node [midway, right] \{\langle e, t \rangle\};
\end{tikzpicture}
\]

We can therefore say that, via Predicate Modification, \( [\text{tótòreò}] \) is the set of entities that are both in the set of \( \text{tótò} \) and the set of \( \text{-reo} \). This seems intuitively true: a clay plate is both a disc-shaped thing and an instance of clay. We will see, however, that this account is problematic in several ways. First, the classifier construction may express a range of relationships between root and classifier, including a ‘made of’ relationship as in \( \text{tótòreò} \), but also including ‘used for’ or ‘contains’ or ‘looks like’ or any other number of vague associations between two elements. \( \text{bàirò} \), for instance, does not typically mean ‘pot made of meat’ (although consultants admit this as one possible interpretation) but ‘pot of meat’ or ‘pot for meat’. When presented with the nonce classifier construction \( \text{oýòro} \) (\( \text{oýò} \) ‘bat’ + \text{-ro} ‘concave’), consultants accepted the form as grammatical but playful, suggesting that it meant either ‘pot of bats’ or ‘pot made of bat skin’ or ‘pot that looks like a bat’. One consultant added, “You gave your pot a name—the ‘bat pot’.” Certainly we do not want to
say that a bà̀rò is both meat and a pot, or that a óyòrò is both a bat and a pot, and so Heim and Kratzer’s Predicate Modification becomes less appealing.

A second problem with Predicate Modification is that it does not capture the intuition that classifier constructions are asymmetrical—that the referent of tòtò̀rò is primarily a dish rather than primarily clay, and that the elements that occupy the head and ‘referential base’ slots are not interchangeable, as we might expect if the sole criterion for the creation of the new property in question were the membership of its extension in two sets. As a potential solution to this problem and the one described above, I propose that the relationship between a classifier and its referential base is not a direct relationship between sets of entities (i.e., between two predicates of type \( \langle e, t \rangle \)), but a relationship between the set of entities denoted by the classifier and a higher order set of sets (type \( \langle \langle e, t \rangle, t \rangle \)). This higher order set denotes the intersection of sets to which all entities denoted by the referential base belong; for instance, in the case of kiù ‘metal’, it would denote the set of properties that all instances of metal have in common (equivalent to the generalized quantifier \[ \text{all metal} \]). The lexical entry for the higher order set corresponding to ‘bat’ is shown below in (164).

(164) \( \lambda P. \forall x [\text{bat'} (x) \to P(x)] \)

In other words, the classifier construction expresses a relationship between a set of entities and the set of properties shared by or characteristic of some other set of entities. Rather than combining through saturation (i.e., the application of the \( \langle e, t \rangle \) function to the \( \langle \langle e, t \rangle, t \rangle \) function), these functions combine through an altered version of Predicate Modification defined below in (165).

(165) If there is a branching node X with two daughters Y and Z, and Y and Z are of types \( \langle \langle e, t \rangle, t \rangle \) and \( \langle e, t \rangle \), respectively, then the following is a possible denotation of X: a set of all non-empty sets of entities that are in Y and that are in one of the sets denoted by Z. For instance, in the case of óyòrò, the entities in the set denoted by this new property will be concave things (probably pots), and will be characterized by (i.e., share at least one property that is characteristic of) bats.

A reasonable objection to an analysis of this type is that the property that allows one to label something ‘bat pot’ may not be a salient property of bats at all. For instance, the pot that I keep my bats in may not share properties with those bats (other than that they occupy basically the same physical space). I admit that determining which kind of property “counts” as good enough to merit the formation of a compound is far from straightforward, but I also see value in my attempt to formalize the relationship between the components of a compound (or classifier construction) beyond saying that it is vague or idiosyncratic.

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9I say ‘possible’ denotation because I do not wish to exclude the possibility that Y and Z combine via saturation as when a generalized quantifier combines, e.g., with a VP.
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This analysis accounts well for the variety of possible relationships between ‘referential bases’ and classifiers in classification constructions. It seems, based on consultants’ comments, that a pot may be called ògòrò simply if it reminds one in some way of a bat—if it smells like a bat, or screeches like a bat, or once had a bat in it. The stipulation that the individuals denoted by the new ⟨e, t⟩ function have at least one property in common with at least one thing that is a bat allows for this level of generality in modification. The pot may have in common with a bat that they were both in location X at time Y, or that they both hang from the roof at night—whatever seems to the speaker to be a salient property of bats.

If we accept that a classifier construction is created by attributing some property that is salient among one set of individuals to another set of individuals, we might expect some morphemes to be better candidates for the referential base slot than others, and some morphemes to be better candidates for the classifier slot than others. We can imagine that the most easily interpretable classifier construction would be one in which there is little ambiguity as to which of the properties indexed by the referential base is the one being attributed to the set of entities in question. A good referential base, therefore, would denote a rather small and uniform set of properties. Similarly, a good classifier would denote a set of entities that have very few properties in common—a shape or a function, perhaps—and that are otherwise relatively diverse. We would therefore be less likely to see highly animate elements as either referential bases or classifiers, as is indeed the case.

5.4.2 Summary

In this section, I proposed that classifier constructions in Máíł̕ikí consist of two elements, a head (of type ⟨e, t⟩) and a referential base (of type ⟨⟨e, t⟩, t⟩), which combine via a modified version of Predicate Modification to form a new lexical item of type ⟨e, t⟩. These new lexical items have reference ratios that typically place them in the range occupied by count nouns, and they therefore be typeshifted via either τ or ⊓ to become referential nouns of type e—either object-like individuals or kinds.

5.5 Chapter 5 summary and conclusions

In this chapter, I provided an overview of the phenomenon of noun classification in Máíł̕íki. I began with a discussion of the typology of noun categorization devices and the problems that languages of the northwest Amazon basin pose for this typology. We saw that the systems of noun classification across these languages bear a number of striking similarities, such as classifiers that fall along a continuum of lexicality, the presence of ‘general’ and ‘specific’ subsystems of classification, and the existence of a broad range of morphosyntactic loci and functions for classifiers. I then explored the lexical semantics, morphosyntax, and discourse properites of Máíł̕íki classifiers in detail, attempting to exemplify a set of criteria established for the ‘prototypical’ member of a fairly fuzzy category. Finally, I proposed a formal semantic analysis of classification in which two elements—a referential base and
a head (classifier)—combine via a sort of Predicate Modification to form a compound-like element whose reference ratio is higher than that of the classifier itself. This process is the means by which non-nominal roots may be nominalized. The mechanism of modification proposed in my semantic analysis diverges from simple function application (the saturation of predicates with arguments) in that it relies not simply on whether some element is a member of the set denoted by some other element, but on the relationship between two sets; that is, whether they share members.

Ultimately, it seems that classifiers in Máihïkì, and perhaps in other Amazonian languages, may be characterized by their involvement in lexicogenerative processes. The participation of these morphemes in agreement processes seems epiphenomenal: when every word in a noun phrase is derived via classification, and all elements are coreferential, they might be expected to agree in form. The ability of classifiers to serve as reference trackers also seems to be a natural consequence of their derivational function. The derivation of a number of coreferential elements that differ only in the quantity and quality of information encoded by the morpheme occupying the ‘referential base’ slot might be expected to give rise to a system in which some information is left out for the sake of efficiency after the first mention of the referent.

What is perhaps unusual about the Máihïkì system of classification is that the derivation of new lexemes by classifiers mirrors nominal modification at the level of the phrase. Rather than an inventory of free lexical items that may combine with one another to form phrases, Máihïkì has a lexicon of bound morphemes that must first combine with one another to form words before proceeding to the next level.
Chapter 6

Nominal plurality

In the previous chapter we explored the role of noun classification in establishing reference. I analyzed classifiers as predicates of type \( \langle e, t \rangle \), the most grammaticalized of which denote sets whose members have both few properties in total and few properties in common, making them poor candidates for becoming referential nouns of type \( e \) without further help. The classifier construction—a particular instance of a more general process of compounding—is a means of restricting the number of entities in the set that the classifier denotes by specifying that those entities must also share some salient properties with the entities denoted by the root to which the classifier is suffixed. This process of classification results in a new element with a reference ratio closer to 1, as the set of entities denoted by the head (the classifier) have a higher proportion of properties in common.

In this chapter, we will turn to the role of plurality in establishing reference. I will argue that, like classification, pluralization is a means of increasing an element’s reference ratio by increasing the proportion of properties that elements denoted by some noun have in common. Pluralization does this by ‘smoothing over’ the differences between individuals: the union of the sets to which each individual woman belongs, for instance, is much larger than the union of the sets to which at least two women belong, so the reference ratio for ‘women’ will be much closer to 1 than the reference ratio for ‘woman’. We can imagine that such a process would be most relevant for the most heterogeneous sets (that is, those with the lowest reference ratio), as these are the sets that have the most to ‘smooth over’. In Máihki, we find that this is exactly the case. Group 7 nouns (the ‘higher animates’) and the most grammaticalized (‘full’) classifiers are the two types of elements with plural counterparts, and are arguably the nominal (or nominalizing) elements with the lowest reference ratios.

In addition to its generalizing function, pluralization in Máihki also has a role in specification. Whereas I will argue that inherently plural animates (Group 1 nouns) like nómí ‘women’ and hòyà ‘domestic animals’ may refer to kinds, I will analyze the plural suffixes -ma (inanimate) and -na (animate) as determiner-like operators that return a particular plurality from a set. These two functions of plurality (generalization and specification) and their role in deriving referential arguments will be the primary focus of this chapter.

I will begin in §6.1 by outlining the difficulties of providing a coherent account of plurality
in Máňhĩkĩ, which include the apparent optionality of morphological plural marking, the existence of multiple morphological plurals, and the non-uniformity of the encoding of plurality across the eight nominal groups established in Chapter 4. Next, in §6.2, I will propose that the denotations of both ‘bare singular’ and ‘bare plural’ nouns are number neutral, which will serve as the starting point for my semantic analysis of Máňhĩkĩ plurality. I will argue that mass nouns like ókó ‘water’ and bare plural nouns, which include Group 1 inherently plural animates like nómi, as well as nouns suffixed by one of the plural classifiers in Table 6.3, always refer to kinds. Bare singular nouns, on the other hand, are ambiguous between kind reference and object\(^1\) reference. Recall from Chapter 4 that the ability of these nouns to be typeshifted via \(\cap\) or \(\iota\) is variable, dependent on that noun’s reference ratio. Nouns like \(\text{i}m\text{â} \text{‘man’}\), for instance, will nearly always refer to individual men, while nouns like \(g\dot{\text{i}}\text{ň}\text{‘louse’}\) will nearly always refer to kinds. I will argue that object reference is achieved via a Choice Function (rather than via \(\iota\), as previously stated)—a function that returns a particular individual from a set. I will further argue that the plural suffixes -\(\text{ma}\) and -\(\text{na}\) mark plural objects—the result of the application of multiple choice functions to a single set.

A choice functional analysis of non-kind reference allows us to account for the possible indefinite interpretations of bare singulars and nouns suffixed with -\(\text{ma}\) or -\(\text{na}\). It will also allow us to account for their unique scopal properties, which I will investigate in §6.4 using the tests developed by Carlson (1977) for his analysis of English bare plurals.

### 6.1 An overview of Máňhĩkĩ pluralization strategies

In this section, we will see that in Máňhĩkĩ there is not a one-to-one correspondence between the semantic notion of plurality and the morphosyntactic means of encoding this plurality. That is, a plural form is not used every time the referent may be conceived of as multiple entities, which means that some nouns in some contexts are ambiguous between singular and plural interpretations. Furthermore, for a given noun in Máňhĩkĩ there may be more than one morphological pluralization strategy. In this way, Máňhĩkĩ has both an ‘optional’ plural system (in that non-morphologically plural roots may refer to pluralities) and a ‘multiple’ plural system (in that there are several morphological pluralization strategies for a single root). This section will address each of these complexities—the optionality and multiplicity of plural marking—in turn.

#### 6.1.1 Number neutral nouns and their interpretation

‘Optional’ or ‘non-obligatory’ plurality, in which the morphologically singular form of a noun may have either a singular or plural interpretation, has been described in many of the world’s languages (e.g. Mam and K’ich’ee (England 2011), Indonesian (Dalrymple & Mofu 2011), Cuzco Quechua (Faller 2007), and Mandarin Chinese (Rullmann & You 2003)). Corbett (2000) calls this phenomenon ‘general number’. Bare singular nouns that may refer

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\(^1\)I mean ‘object’ as opposed to ‘kind’ rather than as opposed to ‘subject’.
to pluralities have also been called ‘number neutral’ (e.g. by Kwon & Zribi-Hertz (2004), Zweig (2009), Wilhelm (2008)), particularly in the formal semantics literature. Throughout this chapter, I will use the term ‘general number’ to describe the phenomenon in question and ‘number neutral noun’ to describe a noun that exhibits general number. The term ‘bare singular’ will be used to refer to a bare noun that may refer to singular individuals, while the term ‘bare plural’ will be used to refer to a bare noun that may only refer to pluralities.

General number in Máhíki is exemplified below in (166), which shows that the morphologically singular noun hásótótó ‘shotgun shell packet’ may have either a singular or a plural interpretation. These interpretations become apparent due to the ability of the phrase háyé įchí to mean either ‘sell at a high price’ (which logically may take either a singular or plural object) or ‘sell many things’ (which logically may only take a plural object). This pattern is shown by nouns of classes 4, 5, and 6.

(166) hásótótó háyé įchígítà
    hásó -toto háyé įchí -gi -ta
    shoot -CL:flat.rigid many.times give -3.SG.MASC.OAST.DECL -INFO

‘He would also give us many packets of shotgun shells’ (sl1 14.1)
‘Él también nos entregaba hartos paquetes de cartuchos’ OR
‘He sold us a packet of shotgun shells at an expensive price’ (E.LTN.SJF.12aug2014)
‘Nos ha vendido caro [un paquete de cartuchos]’

In many languages, a separate morphological pluralization strategy exists alongside general number (Corbett 2000). This is the case in Máhíki, where in most cases a number neutral noun has one or more morphologically plural counterparts. We see in (167) that hásótónà, the pluralized form of hásótótó ‘packet of shotgun shells’, may be felicitously used to disambiguate the two possible meanings of (166) above.

(167) hásótónà háyé įchígí
    hásó -toña háyé įchí -gi
    shoot -CL.PL:flat.rigid many.times give -3.SG.MASC.PAST.DECL

‘He gave us many packets of shotgun shells’ (E.SJF.LTN.12aug2014)
‘Bastante paquete de cartuchos ha dado’

The use of a number neutral noun to refer to a plural individual is restricted to certain syntactic conditions. In (168), we see that bare, number neutral nouns may be interpreted as either plural or singular when they act as the syntactic subjects of stative predicates like bài ‘exist’ (168a), or as syntactic objects (168b).

(168) a. mítè bàlíhì
    mítè bài -hi
    mosquito exist -3.SG.MASC.PRES.DECL

‘There are mosquitos/there is a mosquito’ (E.LTN.15aug2014)
Chapter 6. Nominal plurality

békírè ñúbí Quistocochakirò

b. béké -re ñià -bí Quistococha -kiro
tapir -NON.SUBJ see -1.SG.PAST.DECL Quistococha -CL:area

‘I saw a tapir/tapirs at Quistococha (a zoological park in Iquitos)’ (E.AMM.17jun2013)
Consultant’s comment: ‘It could be several or one’ (‘Puede ser varios o uno’)

On the other hand, number neutral nouns like bíbi ‘dolphin’ below may only have singular interpretations when they act as the subjects of episodic verbs, like bíà ‘breach the surface’, shown in (169)².

(169) bíbi háyé bìakò

bíbi háyé bíà -ko
dolphin multiple.instances breach.surface -3.SG.FEM.PRES.DECL

‘The dolphin is breaching a lot’
*‘Many dolphins are breaching’ (E.SJF.JMM.22aug2014)
Consultant’s comment: ‘She goes in and out, in and out’ (‘Ella otra vez sale, otra vez entra, otra vez sale, otra vez entra’)

Number neutral nouns are ungrammatical as the subject of telic, pluractional episodic predicates. In (170), the telic verb tómé ‘fall’, made pluractional via the adverb háyé, cannot take a number neutral subject. Example (170b) shows that this sentence is felicitous with a plural subject. This is further evidence that a bare singular noun must have a singular interpretation as the subject of an episodic construction.

(170) a. *kíorò háyé tómégí

kíò -ro háyé tómé -gí
metal -CL:concave multiple.instances fall -3.SG.MASC.PAST.DECL

Attempted: ‘Many pots fell’ (E.AMM.SJF.21aug2014)
‘Muchas ollas han caído’

b. kíonòa háyé tómégí

kíò -noa háyé tómé -gí
metal -CL.PL:concave multiple.instances fall -3.SG.MASC.PAST.DECL

‘Many pots fell’ (E.AMM.SJF.21aug2014)
‘Muchas ollas han caído’

While it was mentioned above and shown in (166) and (168b) that the number neutral objects of episodic verbs may have either a plural or singular interpretation, there are some circumstances under which the number neutral object may only yield a singular interpretation. When the adverb háyé, which pluralizes events, appears just before the object of a telic

²Note that there is a generic, non-episodic reading of this sentence as well: ‘dolphins breach a lot’.
episodic verb as in (171a), the interpretation of that object is obligatorily singular, resulting in infelicity (a single tree cannot be climbed multiple times as part of the same telic event). This is repaired when the plural form, súkínìà, is used, as in (171b). On the other hand, when háyé directly precedes the verb, as in (171c), the number neutral noun may have either a singular or plural interpretation.

\[(171) \ a. \ *\text{háyé } súkími } mìhì \]
\[\text{háyé } súkí -ní } mì } -hi \]
\[\text{multiple.instances tree -CL:tree climb.PAST.NI -1.SG.PAST.DECL.NI} \]
\[\text{Attempted: ‘I climbed many trees’ or} \]
\[\text{‘I climbed a tree many times’ (E.AMM.SJF.21aug2014)} \]

\[\text{b. } súkínìà \text{ háyé } mìhì \]
\[\text{háyé } súkí -nía } mì } -hi \]
\[\text{multiple.instances tree -CL.PL:tree climb.PAST.NI -1.SG.PAST.DECL.NI} \]
\[\text{‘I climbed many trees’ (E.AMM.SJF.21aug2014)} \]

\[\text{c. } súkími } \text{ háyé } mìhì \]
\[súkí -ní } \text{ háyé } mì } -hi \]
\[\text{tree -CL:tree multiple.instances climb.PAST.NI -1.SG.PAST.DECL.NI} \]
\[\text{‘I climbed a tree/trees a lot’} \]

\[\text{d. } súkínìà \text{ háyé } mìhì \]
\[súkí -nía } \text{ háyé } mì } -hi \]
\[\text{tree -CL.PL:tree multiple.instances climb.PAST.NI -1.SG.PAST.DECL.NI} \]
\[\text{‘I climbed trees a lot’} \]

A syntactic restriction on the ability of ‘bare singulars’ (i.e., morphologically singular number neutral nouns) to serve as the subjects and objects of episodic predicates has been part of a lively conversation about the syntax and semantics of nouns in Brazilian Portuguese (cf. Pires de Oliveira (2012), Müller (2002a), Müller (2002b), Pires de Oliveira & Rothstein (2011), de Moura Menuzzi et al. (2015), Schmitt & Munn (1999), Schmitt & Munn (2002)). Some of the analyses put forth by these authors will be discussed in §6.4, where we will return to the question of why bare singulars have variable interpretations in Máihìki. For now, I will summarize the facts about ‘optional’ plural marking:

1. Number neutral nouns, as the subjects of episodic predicates, are always interpreted as singular. When the verb is telic and pluractional (i.e., when its subject cannot logically have performed the action multiple times as part of the same event), the number neutral subject is infelicitous.
2. Number neutral nouns, as the objects of episodic predicates, may be interpreted as either singular or plural. In certain constructions, such as the one in which h̤ayé directly precedes the object of a telic verb, that object must be interpreted as singular, and the utterance is infelicitous.

3. Number neutral nouns, as the subjects of stative predicates, are interpreted as either singular or plural.

### 6.1.2 The multiplicity of plural marking

In addition to the optionality of plural marking, Máň̤hx̤ also exhibits multiple morphological pluralization strategies. For some nouns, more than one of these strategies may be available. In this section, I will discuss the distribution of the following four morphological realizations of plurality:

1. inherently plural roots
2. classifier plurals
3. the inanimate plural suffix -ma
4. the animate plural suffix -na

The first category consists of those roots—the inherently plural roots of Group 1—that have a plural interpretation by default. These exclusively plural roots have derived singular counterparts which, in many cases, also encode masculine or feminine gender. An exhaustive list is shown below in Table 6.1.

<table>
<thead>
<tr>
<th>Plural</th>
<th>Masc sg</th>
<th>Fem sg</th>
</tr>
</thead>
<tbody>
<tr>
<td>dòĭ</td>
<td>‘siblings’</td>
<td>dòĭ̤ı</td>
</tr>
<tr>
<td>h̤oy̤ă</td>
<td>‘domestic animals’</td>
<td>h̤oy̤ı</td>
</tr>
<tr>
<td>m̤ái</td>
<td>‘people’</td>
<td>m̤ái̤</td>
</tr>
<tr>
<td>ná̤hé</td>
<td>‘grandchildren’</td>
<td>ná̤hë</td>
</tr>
<tr>
<td>nóm̤í</td>
<td>‘women’</td>
<td>nóm̤í̤</td>
</tr>
<tr>
<td>ŋ̤ṳ̃</td>
<td>‘children’</td>
<td>ŋ̤ṳ̤̤̤̤̃</td>
</tr>
</tbody>
</table>

Table 6.1: Group 1 nouns: plural and singularized forms

In example (172), we see that the inherently plural roots nómí and dòĭ may have plural interpretations, as evidenced by their Spanish translations and the fact that these nouns trigger plural predicate agreement. In (6.1.2), we see that nouns of this type may not have singular interpretations, as evidenced by their incompatibility with the numeral tê ‘one’.
Chapter 6. Nominal plurality

(172)  

a. nómí yòmáyí

\[ \text{nómí yòò -má -yì} \]

women work -NEG -3.PL.PRES.DECL

‘Women don’t work’ (jv1 12.1)

‘Las mujeres no quieren trabajar’

b. dòì báámáyí

\[ \text{báá -má -yì} \]

siblings have -NEG -1.SG.PRES.DECL

‘I don’t have siblings’ (mb1 67.1)

‘No tengo hermanos’

(173)  

*tèò nómí

\[ \text{tè -o nómí} \]

one -CL:fem women

Attempted: ‘one woman’ (E.SJF.NMM.8feb2013)

The second morphological realization of plurality is the **classifier plural**, described above in §3.4. A certain subset of ‘full’ classifiers undergo a regular singular-plural alternation, show in Table 6.3 (reproduced below).
Table 6.3: Singular and plural classifiers

<table>
<thead>
<tr>
<th>SINGULAR FORM</th>
<th>PLURAL FORM</th>
<th>THINGS CLASSIFIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>-bi</td>
<td>-mia</td>
<td>round fruits</td>
</tr>
<tr>
<td>-bi</td>
<td>-gia</td>
<td>buckets, canoes, plantains</td>
</tr>
<tr>
<td>-go</td>
<td>-goña</td>
<td>loops, pulleys, chain links</td>
</tr>
<tr>
<td>-gohe</td>
<td>-goña</td>
<td>holes</td>
</tr>
<tr>
<td>-hao</td>
<td>-haña</td>
<td>leaves, sheets of paper</td>
</tr>
<tr>
<td>-ka</td>
<td>-kaña</td>
<td>branches</td>
</tr>
<tr>
<td>-ka</td>
<td>-kaña</td>
<td>cloth-like objects</td>
</tr>
<tr>
<td>-kwa~ko</td>
<td>-kwaña~koña</td>
<td>sheets, blankets</td>
</tr>
<tr>
<td>-ńaka</td>
<td>-ńaña</td>
<td>spines, needles, quills</td>
</tr>
<tr>
<td>-ńi</td>
<td>-ńía</td>
<td>trees, stalks</td>
</tr>
<tr>
<td>-raka</td>
<td>-ńaña</td>
<td>portions of water</td>
</tr>
<tr>
<td>-reo</td>
<td>-neña</td>
<td>disc-shaped objects</td>
</tr>
<tr>
<td>-r</td>
<td>-noa</td>
<td>pots, inner ears</td>
</tr>
<tr>
<td>-tete</td>
<td>-teña</td>
<td>temporary shelters, gourd vessels</td>
</tr>
<tr>
<td>-toto</td>
<td>-toña</td>
<td>scales, buttress roots, tables, planks</td>
</tr>
<tr>
<td>-yo</td>
<td>-ńoa</td>
<td>slender sticks, digits</td>
</tr>
</tbody>
</table>

Plural classifiers differ from inherently plural roots in that their morphologically singular counterparts are inherently number neutral. That is, while the morphologically singular hásótótó ‘shotgun shell packet’ may have a plural interpretation as in (166) above, the morphologically singular nómíó only have a singular interpretation.

The third morphological realization of plurality in Máihaí is the inanimate plural marker -ma, which may be suffixed to nouns of groups 3 and 4. This suffix is shown for the Group 3 noun túrí ‘enclosure, trap’ and the Group 4 noun wècè ‘house’ in (174).

(174) a. ...túríma bà tàñóturimá, ütíhùnà káá tàñóhì àíturimá, dékòrè àįyí
túrí -ma  bà  tàñó  -turi  -ma  ütíhùnà  káá
trap -INAN.PL meat fall.in.trap.PLACT -CL:enclosure -INAN.PL 3.PL.PRON DEM
tàñó  -hi  àį  -turi  -ma  dékò
cfall.in.trap.PLACT -PL:SS.SIM eat -CL:enclosure -INAN.PL unknown.FEM
-re  àį  -yi
-NON.SUBJ eat -3.PL.PRES.DECL

‘Their traps, their game traps, some animal fell into their food traps and they were eating that’ (iy6 397.1)
The inanimate plural suffix -ma may co-occur with the classifier plural suffix, as is shown in (175), where -ma follows the plural classifier -toña.

(175) kūtɔnɔmà ñíchígí ...
  kū ñtoña -ma ñíchí -gi
  metal -CL.PL:flat.rigid -INAN.PL give -INAN.PL

‘He gave metal panels...’ (cam 4.1)
‘Nos ha entregado las planchas...’

When a classifier exhibits a singular-plural alternation, its plural form is nearly always used in conjunction with -ma as above. There are, however, some exceptions. In (176) we see that the singular -toto, rather than its plural counterpart -toña, appears with -ma.

(176) yíkí mëtɔtɔmà bëëí
  yíkí mëí -toto -ma bëë -yi
  1.PL.PRON palm.pl -CL:flat.rigid -INAN.PL carry.on.back -1.PL.PRES.DECL

‘We are carrying the cumbas’ (E.SJF.JMM.19jun2013)
‘Nosotros estamos cargando las cumba’

It is as yet unclear to me the precise circumstances under which the singular form of a pluralizable classifier may be suffixed with -ma, although there is some evidence to suggest that it may have something to do with the degree to which the root + classifier construction has become lexicalized.

The last morphological pluralization strategy is the animate plural suffix -na, which may be suffixed to bare roots of groups 5, 6, and 7, as shown below in (177).

(177) a. kɔrẽnərè títéí
  kɔrẽ -na -re títé -yi
  spider.mite -ANIM.PL -NON.SUBJ extract.PLACT -1.SG.PRES.DECL
  ‘I’m extracting spider mites’ (E.AMM.SJF.14jan2013)
  ‘Estoy sacando isangos’

b. ànànà tìnyòità “po”

---

3A cumba is a cap of woven leaves placed on the peak of a roof.
áñà -na   tíñó -yi -ta po
snake -ANIM.PL answer -3.PL.PRES.DECL -INFO SOUND.SYMB
‘And the snakes answered, “po”’ (vi2 62.1)
‘Las víboras también contestaban “po”’

c. ñmànà ótéyi
ñmì -na   óté -yi
man -ANIM.PL dance -3.PL.PRES.DECL
‘The men danced’ (fi1 145.1)
‘Los hombres bailaban’

Unlike -ma, -na may not be suffixed to an already plural or pluralized stem. Its incompatibility with pluralized classifiers is perhaps a coincidence (there are no animate classifiers that exhibit a singular-plural alternation), but -na also cannot be suffixed directly to inherently plural animates of Group 1, as shown in (178) for the Group 1 noun hòyà ‘domestic animals’.

(178) *høyànà

hòyà -na
domestic.animals -ANIM.PL

Attempted: ‘domestic animals’

In summary, there are four morphosyntactic means of encoding plurality in Máfàhìkì. Some roots, like the Group 1 nouns nómí and hòyà are inherently plural; some plural nouns may be derived via the suffixation of a plural classifier; other nouns may be pluralized by the inanimate or animate plural suffixes -ma and -na.

6.1.3 Summary

We have seen in this section that Máfàhìkì does not exhibit a one-to-one mapping from semantic plurality to morphological plurality. Plurality seems ‘optional’ in some cases because a morphologically singular noun with ‘general number’ may refer to more than one individual, even when a morphologically plural form is available. The system is further complicated by four distinct means of encoding plurality morphologically, multiple of which may be viable options for a single nominal root (e.g., the classifier plural and the inanimate plural -ma).

In what follows, I hope to make sense of the various morphological and syntactic ways that plurality may be encoded in Máfàhìkì by taking a close look at the semantics of these morphemes and constructions. I will argue that the apparent complexity of this system has two origins: 1) the conflation of the generalizing and specifying functions of plurality described above and 2) the role of a noun’s reference ratio in determining which pluralization strategies, if any, are available to it. Once these two things are taken into account, the morphosyntax of Máfàhìkì plurality is much tidier.
6.2 On the denotation of singular and plural nouns

Before we get into the details of an analysis of plurality in Máihîki, it will be useful to say a few words about the denotation of bare nouns, both singular (like bîbî ‘dolphin’) and plural (like nómí ‘women’). In Chapters 4 and 5, I treated nouns like bîbî as denoting characteristic functions of sets of singular individuals. The denotation of bîbî, if $a, b,$ and $c$ are the only dolphins in the world, is shown below in (179).

(179) $\left[bîbî\right] = [a, b, c]$

An intuitive view of the denotation of a plural noun is that it contains all of the possible sums of the atomic individuals denoted by the singular noun. If $d, e,$ and $f$ are all of the individual women in the world, the denotation of the inherently plural noun nómí would on this view be as in (180).

(180) $\left[\begin{array}{c}
\{d, e, f\} \\
\{d, e\}, \{d, f\}, \{e, f\}\end{array}\right]$

This is the analysis put forth by Chierchia (1998a,b) for count nouns. Chierchia proposes a plural operator, PL (defined below in (181), which operates on a set of elements $A$ (the elements in the extension of a singular noun) and forms all sums of the elements of $A$. PL then removes $A$ (the denotation of the singular noun), leaving only the plural individuals. An illustration of this process is provided in Figure 6.1 below.

(181) $PL(A) = *A - A$

where $*A$ is the closure of $A$ under $\cap$ (the set of all sums of elements of $A$)

Chierchia (1998a:59–60)

\[
\begin{array}{c}
\{a, b, c\} \\
\{a, b\}, \{a, c\}, \{b, c\}\end{array}
\]

\[
\begin{array}{c}
\{a, b\} \\
\{a, c\}, \{b, c\}\end{array}
\]

\[
\begin{array}{c}
a \\
b \\
c\end{array}
\]

Figure 6.1: The PL operator: Chierchia (1998b)

While the above denotations of singular and plural nouns seem intuitive, they are problematic for several reasons. First, we saw in §6.1 that certain ‘bare singular’ nouns in Máihîki
are number neutral; that is, they seem to be able to refer to both atomic individuals and pluralities. Second, plural class 1 nouns like nómi seem to have what Farkas & de Swart (2010) call ‘inclusive’ plurality: sentences like the one in (182) cannot be uttered truthfully when the speaker owns just one domestic animal. If the denotation of höyå were as in 180 above, we would expect that the speaker could utter (182) truthfully if he owned just one domestic animal.

(182) höyå báámáyí
    höyå  báá -má -yi
    domestic.animals have -NEG -1.SG.PRES.DECL

    ‘I don’t have domestic animals’

In fact, in the literature on nominal plurality, there has been much disagreement both over whether the denotation of a singular noun contains pluralities, and over whether the denotation of a plural noun contains atomic individuals. Sauerland et al. (2005) summarize the latter debate—whether plural nouns also denote atomic individuals—as a debate between the ‘Strong Theory’, on which plurals are exclusively plural, and the ‘Weak Theory’, on which plurals are ‘semantically unmarked’, containing both atomic individuals and pluralities in their extension. The authors themselves argue for the Weak Theory with experimental evidence based on people’s interpretations of sentences like (182) above, concluding that “the plural is not subject to an inherent lexical restriction as the singular is. Rather, the plural is subject to pragmatic comparison with the singular, and therefore cannot be used in most examples when the singular is possible” (Sauerland et al. 2005:425). (See also (Spector 2007). This analysis of plurality has been standard since Link (1983), who proposes a plural operator, ‘∗’, which “generates all the individual sums of members of the extensions of [some one-place predicate] P” (130). (In other words, [∗P] is the complete join-semilattice generated by [P].) Other proponents of a version of the Weak Theory include Hoeksema (1983), van Eijck (1983), Schwarzschild (1996), Beck & Sauerland (2000), and Chierchia (2010).

Sauerland et al. (2005) acknowledge that the opposite phenomenon (in which morphologically singular nouns may refer to pluralities in addition to atomic individuals) is also attested, but they do not address this in their paper. The problem of ‘number neutral’ bare singulars is taken up by Rullmann & You (2003) for Mandarin Chinese, Wilhelm (2008) for Dëne Súline, and Dalrymple & Mofu (2011) for Indonesian, who argue that the denotation of a singular noun must include both singularities and pluralities. (This is in many ways similar to the analysis of bare nouns put forth in Chierchia (1998b), although Chierchia considers these nouns to be mass and therefore neither singular nor plural.) Rullmann & You (2003) propose the plural operator in (183) in order to differentiate the denotation of plural nouns from bare (number neutral) nouns.

(183) PL(N) = ∗N - At
    where ∗N is the closure under union of N and At is the set of atoms
    (Rullmann & You 2003:5)
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Under this analysis of plurality, bare singular nouns have both atoms and pluralities in their extension (i.e., are number neutral), and the atoms are removed by PL. An illustration is provided below in Figure 6.2.

Such an analysis of plurality does not account for sentences like (182) in Máihkì, and so we still have a problem.

In sum, when it comes to the denotation of bare singular and bare plural nouns in Máihkì, there seems to be a paradox. We want to capture the intuition that singularity is different from plurality—an intuition that is reflected, for example, in the morphological difference between kiòrò ‘pot’ and kiònòù ‘pots’, as well as in the different verbal inflection triggered by the singular biibi ‘dolphin’ versus the plural nómi ‘women’. But we cannot ignore the fact that kiòrò and biibi, under certain circumstances, may refer to more than one entity, or that kiònòù and nómi seem to encompass singular individuals.

If we allow the singular kiòrò ‘pot’ to refer to pluralities (as (166) suggests we may do) and the plural kiònòù ‘pots’ to refer to singularities (as (182) suggests we may do), then both the singular and the plural versions of this noun would have the denotation in Figure 6.3 (where g, h, and i are all of the pots in the world) and we lose the ability to distinguish between them.

Here I will propose that both the ‘strong’ and ‘weak’ theories of both plurality and singularity are correct. The reasoning goes like this: someone tells us that something is a
cat, and so we file it away in our ‘cat’ set. As we are told that more and more things are cats, we build up the extension of ‘cat’ which includes those individuals. As we add individuals to the ‘cat’ set, we also add them to other sets, like ‘fluffy’ or ‘white’ or ‘meows’. It is in this way that we develop an abstraction of ‘cat’: we have a good idea of the properties that are requisite of cats and a good idea of the properties that are incidental of them. For instance, we can suppose that Brubaker and Harvey and Nigel are the only things called ‘cat’ that we have ever encountered. We know that Brubaker is black and fluffy and that he meows and has whiskers, and that Harvey is white and fluffy and that he also meows and whiskers, and that Nigel is spotted and is not fluffy but does meow and have whiskers. Our model of (this part of) the world would look as below:

\[
\begin{align*}
J_{cat} &= \{\text{Brubaker, Harvey, Nigel}\} \\
J_{fluffy} &= \{\text{Brubaker, Harvey}\} \\
J_{meows} &= \{\text{Brubaker, Harvey, Nigel}\} \\
J_{white} &= \{\text{Brubaker}\} \\
J_{black} &= \{\text{Harvey}\} \\
J_{spotted} &= \{\text{Nigel}\} \\
J_{has\ whiskers} &= \{\text{Brubaker, Harvey, Nigel}\}
\end{align*}
\]

I argued in Chapter 4 that a kind may be thought of as the individual that is defined by the properties that are common to the individuals in some set (i.e., the individuals denoted by some noun). In other words, the ‘cat’ kind is the abstract individual that has all of the properties that are requisite of cats. In the case of (??) above, the cat kind would be the abstract individual that meows and has whiskers. It can be thought of as a prototype. Such an analysis differs from but is compatible with the ‘possible worlds’ analysis of kinds proposed by Chierchia (1998b), which states that the kind is the largest individual with some property at any world.

Based on this prototype (the kind), I propose that we can define yet another set: the set of individuals which minimally belong to the sets that the kind-individual belongs to. This set will include all of the individuals in our original set (the extension of ‘cat’) plus anything else that would qualify as being of the ‘cat’ kind given the requisite properties. It is the set of anything that could possibly count as ‘cat’ given these requisite properties—the set of cats, for instance, that I could imagine. These cats would all meow and have whiskers, but might have unattested combinations of incidental properties (e.g., might be both fluffy and spotted).

Now let’s imagine that we see multiple cats, and someone tells us that they are ‘cats’. We file them away in our ‘cats’ set, and as we are told that more and more things are ‘cats’, we build up the extension of ‘cats’, which includes those plural individuals. Our abstraction or prototype of ‘cats’ will denote an individual defined by the set of properties to which all pluralities of cats belong. This individual—the ‘cats’ kind—will be identical or nearly identical to our ‘cat’ kind, as the set of properties that every plurality of cats has in common is identical or nearly identical to the set of properties that every individual cat
has in common. As we did before for the singular ‘cat’, we can now define a new set based on the ‘cats’ kind which will include all individuals that minimally have the definitional properties of ‘cats’. Again, this set will contain both pluralities and singularities, as both types of entities bear the properties that are requisite of cats.

The account proposed here, in which kinds are derived from properties, and properties may in turn be derived from kinds, is in keeping with the spirit of Chierchia (1998b), in which the $\cap$ (down) and $\cup$ (up) operators, respectively, do just this. The proposed difference here is that these operations are not symmetrical: a kind may be derived from a set of individuals via $\cap$, but there is no way to get from this abstraction (the kind) back to the set of individuals from which it was derived, as the details (i.e., the incidental properties) are lost in the abstraction itself. Instead, the $\cup$ (up) operator defines a new set: the set of all individuals that meet the minimal criteria. This new set is the number neutral property denoted by the noun.

If it is truly the case, as I suggested above, that a kind derived from a singular noun and a kind derived from a plural noun are in one sense semantically equivalent, what governs whether one or the other will be used to refer to a kind? Why, for instance, is the plural nómí the designated kind for ‘women’, but the singular bíbí the designated kind for ‘dolphins’? The fact that languages differ drastically with respect to whether singular or plural nouns are recruited for kind reference (kinds in English are referred to almost exclusively with bare plurals, while Chinese uses bare singulars) suggests that this designation is, as we might expect, somewhat random. The Máiháki-internal facts suggest, however, that whether the singular or plural version of a noun may refer to a kind has something to do with a that noun’s reference ratio. As mentioned in §4.4, low reference ratios make for bad kinds, as it is more difficult to form an abstraction based on a set of highly idiosyncratic individuals. In general, plural nouns have higher reference ratios than singular nouns, as the set of properties shared by at least two individuals is smaller than the set of incidental properties (i.e., the properties that any individual may have). Therefore, in cases where the atomic individuals bear a diverse set of properties, the $\cap$ (kind-forming) operator may more easily be applied to a plural noun than a singular noun.

The account outlined in this section makes several predictions for Máiháki singular and plural nouns which will be explored in §6.3 and §6.4 below. First, it predicts that wherever a noun has an intensional (kind) reading, it will always be number neutral. Second, it predicts that wherever a noun has an extensional reading, there will be no ambiguity between singular and plural.

4For instance, the properties that are common to Brubaker, Nigel, and Harvey in our model are also common to Brubaker + Harvey, Harvey + Nigel, etc. A possible exception would be properties that are true only of singletons, or only of pluralities, like ‘meows when alone’ or ‘has multiple tails’, respectively.
6.3 Evidence for the proposed analysis

In §6.2 above, I argued that although singular and plural nouns may be conceived of as having count (i.e., singular or plural) extensions, the property that is derived from the corresponding kind via $\cup$ is always number neutral.

As mentioned in Chapter 4, there are two options for the nominalization of a property, corresponding roughly to the two type-shifting operators proposed by Partee (1987) that take predicates of type $\langle e,t \rangle$ and return arguments of type $e$. These are $\iota$, which returns an object, and $\cap$, which returns a kind. Because $\iota$ is taken to be the denotation of the definite article, and Mâhîkî does not exhibit a morphosyntactic contrast between definite and indefinite noun phrases, I will propose instead that the relevant operator is not $\iota$ but a choice function (a function that returns some individual from a set). The definition of a choice function, which was proposed by Reinhart (1992, 1997) (see also Winter (1997) and Kratzer (1998)) as a means of accounting for the ability of English indefinites to take wide scope, is shown below in (184).

(184) A function $f$ is a choice function ($CH(f)$) if it applies to any non-empty set and yields a member of that set (Reinhart 1997:372)

In sum, the property denoted by a singular or plural noun (of type $\langle e,t \rangle$) may be nominalized into a kind (of type $e$) via $\cap$, or it may be nominalized via a choice function, which will yield an object with an indefinite or definite interpretation. In other words, we would expect bare nouns in Mâhîkî to be ambiguous between kind reference and object reference. This type of ambiguity is discussed by Carlson’s influential paper on English bare plurals (1977), in which he notes that bare plurals have two possible interpretations: generic and existential. The generic reading of bare plurals can be thought of in some cases as having the force of universal quantification, as in (185a), which might be paraphrased as “All horses are mammals/creatures/material objects.” In other cases, like (185b), the bare plural seems to have the force of ‘most’ rather than ‘all’, and in yet others (e.g. 185c), neither ‘most’ nor ‘all’ seems an appropriate paraphrase.

(185) a. Horses are mammals/creatures/material objects.
    b. Horses are smart/larger than mules/good pets.
    c. Horses are widespread.

The other use of the bare plural, Carlson notes, had long been described as an ‘indefinite plural’—the plural counterpart to the indefinite singular article ‘a(n)’. Examples of this use of the English bare plural are shown in (186).

(186) a. Doctors tried to save the dying boy.
    b. Knute threw rotten peaches at the library.
    c. Mice will come out of that wall if you pound it.
Carlson’s primary claim is that bare plurals in English refer unambiguously to kinds. His analysis is supported by a number of tests showing that these forms are not the plural counterparts to singular indefinites. In particular, these tests show that bare plurals exhibit obligatory narrow scope, while true indefinites have either wide or narrow scope readings. Since Carlson’s influential dissertation, it has been widely accepted that English bare plurals may refer to kinds, although there has been much debate over whether they may also have indefinite interpretations, for instance in sentences like the ones in (186). Proponents of what Krifka (2003) calls the ‘ambiguity hypothesis’—that bare plurals are ambiguous between kinds and indefinites—include Wilkinson (1991) and Gerstner-Link & Krifka (1993), among others.

In §6.4 below, I will apply the tests put forth in Carlson (1977) to the Māihāki data in an effort to show that bare singular nouns are ambiguous between object (indefinite/definite) and kind interpretations. As kinds, bare singulars will appear to have obligatorily narrow scope, and will be number neutral. As objects, they will have the ability to take wide scope, and will be obligatorily singular. Plural (indefinite or definite) objects may be derived via suffixation of -ma (inanimate) or -na (animate), which I also give a choice-functional analysis. By contrast with bare singulars, bare plural nouns seem to have exclusively kind reference, and thus only exhibit narrow scope.

6.4 Applying Carlson’s tests to Māihāki

In this section, we will survey the tests used by Carlson (1977) to argue that bare plurals in English refer to kinds. These tests show that while indefinite noun phrases in English exhibit ambiguous scope in various environments, bare plurals have exclusively narrow scope. We will see that Māihāki bare singulars appear to have ambiguous scope in these contexts, while bare plurals pattern like English bare plurals in their ability to take only narrow scope. I argue that bare singulars (in Māihāki) are ambiguous between kinds and indefinite/definite singulars, while bare plurals refer exclusively to kinds. Indefinite/definite plurals are formed via the object plurals -ma and -na.

6.4.1 Scope with respect to intensional verbs

As the object of a certain kind of verb, the English bare plural, which Carlson calls $\phi$ NP, patterns differently from the indefinite singular. These verbs are ‘intensional’ verbs, which include verbs of searching, desiring, creating, and imagining. Bare plurals have exclusively narrow scope with respect to intensional verbs, while indefinites have ambiguous scope.

The example in (187), taken from Carlson’s paper, shows that the indefinite NP ‘a young psychiatrist’ yields an ambiguous interpretation as the object of the intensional predicate ‘wishes to talk to’.

(187) Minnie wishes to talk to a young psychiatrist.
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We could imagine a scenario in which Minnie has a particular young psychiatrist, Dr. Smith, in mind, and Minnie wishes to talk to Dr. Smith. We could also imagine a scenario in which Minnie doesn’t have a particular person in mind and would happily talk to any young psychiatrist. Following Quine (1960), Carlson calls these the ‘transparent’ and ‘opaque’ readings, respectively. Example (188) shows the indefinite plural ‘sm young psychiatrists’, which also has both transparent and opaque interpretations. Either there is a particular group of young psychiatrists that Minnie wishes to talk to, or she will be satisfied by talking to any plurality of young psychiatrists.

(188) Minnie wishes to talk to sm young psychiatrists.

In contrast with the indefinite singular and indefinite plural NPs, bare plurals only yield an opaque reading (i.e., a narrow scope reading) as the objects of intensional verbs. An example of this is shown in (189); the sentence does not entail that there is a particular set of young psychiatrists that Minnie wishes to talk to.

(189) Minnie wishes to talk to young psychiatrists.

Other intensional verbs, like ‘be afraid of’, seem to distinguish even further between φNP and indefinites. In (190a & 190b), we see that the indefinite NPs take obligatory wide scope with respect to the intensional verb: the only available interpretation is that Georgia is afraid of a particular snake or some particular snakes. In (190c), however φNP takes narrow scope as always.

(190) a. Georgia is afraid of a snake.
   b. Georgia is afraid of sm snakes.
   c. Georgia is afraid of snakes.

Carlson takes the fact that ‘sm’ plural pattern with indefinite singulars to mean that they are the true indefinite plurals, while bare plurals refer to kinds. If we were to apply this test to Māhi-ki, we would expect that bare singulars, as they are proposed to be ambiguous between kinds and indefinites, will have both narrow scope and wide scope readings. Furthermore, the wide scope readings should be exclusively singular. This is indeed the case. In (191a), we see that the singular noun bibè, which in the context refers to a particular hawk, appears as the object of the intensional verb gwù ‘be afraid of’. Examples (191b) and (191c) show bare singular nouns with number neutral (kind) interpretations.

(191) a. bibè gwù kwà ñ chò hasta

   bibè -re gwù -ki í chò -bi hasta
   hawk -NON.SUBJ be.afraid -MASC.SS.SIM PRON.SG.MASC head -SING cover
   -hì -3.SG.MASC.PRES.DECL

   ‘Afraid of the hawk, he covers his head’ (fr2 19.1)
   ‘Él, de miedo del gavilán, está tapando su cabeza’
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b. Mámàsò áñàrè gwîkò

Mánásò áñà -re gwî -ko
proper.name snake -NON.SUBJ be.afraid -3.SG.FEM.PRES.DECL

‘Mámàsò is afraid of snakes’ (E.SJF.AMM.14jan2013)

‘[Mámàsò] tiene miedo de las víboras’

5

c. Békò bïbîrè ñámékó

Békò bïbï -re ñámë -ko
proper.name dolphin -NON.SUBJ not.like -3.SG.FEM.PRES.DECL

‘Békò doesn’t like dolphins’ (E.SJF.JMM.22aug2014)

‘A Békò no le gustan los bufeos’

Bare plural nouns (e.g. Group 1 nouns like nómi ‘women’) exhibit exclusively narrow scope with respect to intensional verbs. Examples with the Group 1 nouns máí ‘people’, dòì ‘siblings’, and yáðhoyà ‘dogs’ are shown in (192) below. In the case of (192a), the speaker is talking about his desire for solitude rather than his desire to avoid certain people. In (192b), the only possible interpretation is that the speaker does not have any siblings—not that there are particular siblings that she doesn’t have. And in (192c), there are not particular dogs that the speaker’s wife does not like; she does not like dogs in general. In all cases, the object of the intensional verb has narrow scope and a number neutral interpretation. I argue that this is because it has kind reference.

(192) a. máí óímäyí hànà

máí óí -mà -yì hànà
people want -NEG -1.SG.PRES.DECL now

‘I don’t want anyone’ (cmb 158.1)

‘No quiero a nadie’

b. dòì bàámäyí

dòì bàá -mà -yì
siblings have -NEG -1.SG.PRES.DECL

‘I don’t have siblings’ (mb1 67.1)

‘No tengo hermanos’

c. yì nhò yáðhoyà ñámékó

yì nhò yáðhoyà ñámë -ko
1.SG_PRON wife dogs not.like -3.SG.FEM.PRES.DECL

‘My wife doesn’t like dogs’ (E.SJF.JMM.22aug2014)

‘A mi mujer no le gusta perro’

5In eliciting this example, I clarified that Mámàsò was afraid of snakes in general, rather than of some particular snakes.
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If a bare singular indefinite is exclusively singular and a bare plural has exclusive kind reference, how does one speak of plural indefinites in Máihíkí? I proposed above that nouns suffixed with -ma and -na serve as the indefinite counterparts to bare plurals, and that these suffixes denote variables over choice functions that return pluralities. Example (193) below shows wide and narrow scope interpretations of the object plurals. In (193a), the context is that Mákòbè has some pet cats that he wants to feed. In (193b), Mákòbè wants to buy multiple cats but does not have any particular cats in mind.

\[(193)\]
\[
\text{a. Mákòbè míchínàrè kwèèhá áó áóyíkí}
\]
\[
\text{Mákòbè míchí -na -re kwèè -hí áó áóyíkí}
\]
\[
\text{proper.name cat -ANIM.PL -NON.SUBJ look.for -3.SG.FEM.PRES.DECL food feed -MASC.PURP}
\]
\[
\text{‘Mákòbè is looking for the cats in order to feed (them)’ (E.HMR.SJF.14aug2014)}
\]

\[
\text{b. Mákòbè míchínàrè kwèèhá chiáyíkí}
\]
\[
\text{Mákòbè míchí -na -re kwèè -hí chiá -yíkí}
\]
\[
\text{proper.name cat -ANIM.PL -NON.SUBJ look.for -3.SG.MASC.PRES.DECL buy -MASC.PURP}
\]
\[
\text{‘Mákòbè is looking for some cats to buy’ (E.HMR.SJF.14aug2014)}
\]

The choice functional interpretation of the contrast above is that in (193a), there is choice function \( f \) that picks out a plurality of cats, and Mákòbè is looking for that plurality, while in (193b), Mákòbè is looking for anything that is output by a choice function that returns pluralities of cats.

6.4.2 Scope with respect to negation

Carlson also points out that the indefinite article ‘a(n)’ has ambiguous scope with respect to negation, as shown in (194). The sentence in (194a) has two possible readings: the contradictory one in (194b), in which negation scopes over existence, and the non-contradictory one in (194c), in which existence scopes over negation.

\[(194)\]
\[
\text{a. A cat is in this room and a cat isn’t in this room.} \quad (\neg \exists) \quad (\exists \neg)
\]
\[
\text{b. There’s a cat in this room and there isn’t a cat in this room.} \quad (\exists \neg \exists)
\]
\[
\text{c. There’s a cat in this room and there’s a cat not in this room.} \quad (\exists \exists \neg)
\]

While Carlson does not discuss the scopal properties of indefinite ‘sm’ plurals, we can see in example (195) that they pattern like indefinite singulars. The sentence in (195a) is ambiguous between the contradictory interpretation in (195b), in which negation scopes over existence, and (195c), in which existence scopes over negation.
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(195) a. **Sm cats** are in this room and **sm cats** aren’t in this room.
b. There are sm cats in this room and there aren’t any cats in this room. \((\neg > \exists)\)
c. There are sm cats in this room and there are sm cats not in this room. \((\exists > \neg)\)

\(\phi\) NP, on the other hand, has only the narrow-scope (contradictory) interpretation with respect to negation, as (196) shows.

(196) a. **Cats** are in this room and cats aren’t in this room.
b. *There are cats in this room and there aren’t cats in this room. \((\neg > \exists)\)
c. There are cats in this room and there are cats not in this room. \((\exists > \neg)\)

Performing this test with Máihèïí consultants was especially challenging, as alternations of the sort shown in (195) and (196) are generally expressed in Máihèïí with the demonstrative \(\text{gëkë} ‘\text{another}’\) or ‘a different’ (see §3.8) in cases where there is no contradiction. However, we can obtain the relevant scope data in other ways. Example (197), for instance, shows that the bare singular nouns \(\text{yëò ‘swidden’}, \text{tîrò ‘biting fly’},\) and \(\text{tûkù ‘star’}\) may take narrow scope with respect to negated verbs, and that in these cases they always have number neutral interpretations.

(197) a. \(\text{yëò béóhī kààrov}\
\text{yëò}  \quad \text{béó} \quad \text{-hi} \quad \text{kàà} \quad \text{-ro}\
\text{swidden not.exist} -\text{3.sg.masc.pres.decl dist.anaph.dem -cl:place}\
\text{‘There are no more swiddens there’ (hsj 76.1)}\
\text{‘No hay más chacra en ese lugar’} \((\neg > \exists)\)
b. \(\text{dàdë dëi nûí bëókô, tûrò}\
\text{dàdë} \quad \text{-rari} \quad \text{dëi} \quad \text{nûí} \quad \text{béó} \quad \text{-ko}, \quad \text{tûrò}\
\text{prox.dem -cl:location really a.lot not.exist -3.sg.fem.pres.decl biting.fly}\
\text{‘Here there aren’t really a lot of biting flies’ (m+t 111.1)}\
\text{‘En este lugar no hay mucho del tábano chico’} \((\neg > \exists)\)
c. \(\text{tûkûtà bêógì}\
\text{tûkû} \quad \text{-ta} \quad \text{béó} \quad \text{-gi}\
\text{star -also not.exist -3.sg.masc.past.decl}\
\text{‘There weren’t any stars either’ (sol 5.1)}\
\text{‘No había estrellas’} \((\neg > \exists)\)

Example (198) shows that bare singulars may also take wide scope with respect to negated verbs. (The context is that I know that there is a hammock in Mákòbè’s house, but when I went there, I didn’t see it.)

(198) Mákòbè wèè \(\text{hàirí ñanàngû}\
\text{Mákòbè} \quad \text{wèè} \quad \text{hàirí} \quad \text{-ri} \quad \text{ñiù} \quad \text{-mà} \quad \text{-gu}\
\text{proper.name house swing -cl:manufactured see -neg -1.sg.past.decl}
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‘I didn’t see the hammock in Mákòbè’s house’ (E.HMR.SJF.5feb2013)
‘En su casa de Mákòbè, no he visto la hamaca’ (∃ > ¬)

Unlike bare singulars, bare plurals in Máihìki exhibit exclusively narrow scope with respect to negation. We see that this is the case in (199), which shows the Group 1 inherent plurals máí ‘people’ and nómi ‘women’. In (199a), it is not the case that there are particular people that the man didn’t kill, and in (199b), it is not the case that there are particular women who don’t work.

(199) a. ñgá máí báímáñ-
ñg- máí báí -má -ñi
he -TOP people kill -NEG -3.SG.MASC.PRES.DECL
‘He didn’t kill máí people’ (cho 87.1)
‘Él no mataba a la gente (máí)’ (¬ > ∃)

b. nómi yòòmáyí
nómi yòò -má -ñi
women do -NEG -3.PL.PRES.DECL
‘Women don’t work’ (jv1 12.1)
‘Las mujeres no quieren trabajar’ (¬ > ∃)

6.4.3 Scope with respect to the universal quantifier

Carlson’s tests also show that φ NP has narrow scope with respect to universal quantification. The sentence in (200a) has both the interpretation in (200b), in which universal scopes over existential quantification, and the interpretation in (200c), in which existential quantification scopes over universal quantification.

(200) a. Everyone read a book on caterpillars.
   b. All people read a (possibly different) book on caterpillars. (∀ > ∃)
   c. There is a book on caterpillars that everyone read. (∃ > ∀)

The same ambiguity is present for indefinite ‘sm’ plurals, shown in (201), but not for φ NP, which only yields the narrow-scope interpretation (shown in (202)).

(201) a. Everyone read sm books on caterpillars.
   b. All people read sm (possibly different) books on caterpillars. (∀ > ∃)
   c. There are sm books on caterpillars such that everyone read them. (∃ > ∀)

(202) a. Everyone read books on caterpillars.
   b. All people read (possibly different) books on caterpillars. (∀ > ∃)
   c. *There are books on caterpillars that everyone read. (∃ > ∀)
The Máññí data show that the bare singular noun has either wide or narrow scope with respect to universal quantification. The consultant accepted (203a) both in a context in which the children are gathered around and reading a single book and a context in which each child brings a separate book to his or her house and reads it. My analysis predicts that the narrow scope interpretation of the singular noun will also be number neutral—it makes no other claims about how many books each of the children reads than that they each read at least one. This is confirmed in (203b), where consultant accepts that the people in question could be looking at one or more buffalo.

(203)  

a. ŋínínà póyápi ńíkásògù

\[
\begin{align*}
\text{children} & \quad \text{-CL:group} \\
\text{write} & \quad \text{-CL:stack} \\
\text{speak} & \quad \text{-UNIV.QUANT} \\
\text{-3.PL.PAST.DECL} \\
\end{align*}
\]

‘All of the children all read a book’ (E.NMM.SJF.21jun2013)

‘Todos los niños han leído un libro’ (\(\forall \exists \text{or } \exists \forall\))

b. béóbèsè búfàloù ŋásàòyì

\[
\begin{align*}
\text{all} & \quad \text{-NON.SBJ} \\
\text{see} & \quad \text{-UNIV.QUANT} \\
\text{-1.PL.PRES.DECL} \\
\end{align*}
\]

‘All of us are looking at buffalo’ (E.JMM.SJF.18jun2013)

‘Todos estamos mirando bufalo’ (Consultant’s comment: ‘puede ser varios’ (‘it could be multiple (buffalo)’))

Unlike bare singular nouns, bare plural nouns only have narrow scope with respect to universal quantification. We see this narrow scope in (204) below, where the infelicitous interpretation that the same set of hammocks are in every house is unavailable.

(204)  

tèwémàdèa žâñnià bâlì

\[
\begin{align*}
\text{one} & \quad \text{-CL:building} \\
\text{manufactured} & \quad \text{-INAN.PL} \\
\text{swing} & \quad \text{-CL:PL:manufactured} \\
\text{be} & \quad \text{-3.SG.MASC.PRES.DECL} \\
\end{align*}
\]

‘In each house there are hammocks’ (E.AMM.SJF.9aug2013)

‘En cada casa hay hamacas’

There is also evidence from the above example also that the plural noun žâñnià has a number neutral interpretation. In this case, the consultant was drawn a picture of three houses, two of which had multiple hammocks inside of them, and one of which had a single hammock. The consultant said that the utterance was felicitous even though one of the houses had a single hammock.

The object plurals -ma and -na, like the bare singular, exhibit either wide or narrow scope with respect to universal quantification. The sentence in example (205) was deemed felicitous by NMM both in the situation where a group of children all read the same books, and in a situation where different children read different sets of books.
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(205) ŋũ̀hùnà tóyápmà hìkàsàògù

ŋũ̀ -huna tóyá -pi -ma hìkà -sao -gu


‘The children all read some books’ (∀ > ∃ or ∃ > ∀) (E.NMM.SJF.21jun2013)

In sum, bare singular nouns have ambiguous scope with respect to universal quantification. When they have narrow scope, they are number neutral. Bare plurals always have narrow scope with respect to universal quantification and are always number neutral. Object plurals (those suffixed with -ma or -na) have ambiguous scope, but always have a plural interpretation.

6.4.4 Scope with respect to ‘distributed’ predicates

The next of Carlson’s tests concerns so-called ‘distributed’ predicates. He outlines a number of situations in which English indefinite singular NPs have narrower scope than expected due to some pluractional event. We see this in (206), where the primary, or perhaps the only interpretations are that a single dog was in multiple places, that the same accident happened three times, and that Max stretched out what would be a punctual event for anyone else into a two-hour ordeal.

(206) a. A dog was everywhere.
    b. An accident happened today at 3, 4:30, and 6.
    c. Max discovered a rabbit in his yard for two hours.

While Carlson does not address the indefinite ‘sm’ plural, we see in (207) that it has similarly odd scope interactions with predicates that indicate a spatiotemporal non-uniformity of events. The sentence in example (207a) yields the interpretation, perhaps, that a single pack of dogs was dispersed; (207b) suggests a recurring set of accidents; and (207c) still insinuates that Max is a slow discoverer.

(207) a. Sm dogs were everywhere.
    b. Sm accidents happened today at 3, 4:30, and 6.
    c. Max discovered sm rabbits in his yard for two hours.

Bare plurals, however, do not yield infelicitous readings with plural predicates, as (208) shows.

(208) a. Dogs were everywhere.
    b. Accidents happened today at 3, 4:30, and 6.
    c. Max discovered rabbits in his yard for two hours.
We can get at the spatiotemporal non-uniformity of events exhibited by (206) and (208) above with pluractional verbs in Mááhíkí. As mentioned above in §3.11, many verbs in Mááhíkí exhibit a single-action/pluractional alternation. When verbs have no pluractional counterparts, the adverb hágyé may be used to indicate pluractionality.

Bare singulars, as the objects of pluractional verbs, have ambiguous scope when it is logically possible for the patient to undergo the action of the verb multiple times. This is the case for the pluractional verb hùhè ‘bite or sting (of insects, PLACT)’, (shown below in (209)), which does not preclude the repeated suffering of a single patient.

(209) mítè bíríre hùhègì

mosquito white.lipped.peccary -NON.SUBJ bite.PLACT -3.SG.MASC.PAST.DECL

‘A mosquito bit a peccary multiple times’ OR ‘A mosquito bit multiple peccaries’ (E.AMM.SJF.12aug2013)

‘Un zancudo a una huangana varias veces’ OR ‘Un zancudo ha picado a varias huan-
gana’

When it is not logically possible for a single object of a pluractional verb to undergo the action multiple times as part of a single event, only the narrow scope reading is possible for bare singular nouns. This is shown in (210), where the interpretation that the speaker is throwing the same stone into the river repeatedly is unavailable.

(210) gátágà yíàyà héádisòyi

gravel -CL:seed river throw.PLACT make.sink.PLACT -1.SG.PRES.DECL

‘I’m throwing stones into the river’ (E.SJF.AMM.15jan2013)

Like the bare singular, the object plural may have either a wide scope or narrow scope interpretation, as long as the action of the verb may logically be performed multiple times on the same set of individuals. In (211), only the narrow scope interpretation (i.e., that I shot and killed multiple peccaries as opposed to shooting and killing the same peccaries multiple times) is available.

(211) yí bírinàrè hásóhèәbi

1.SG.PRON white.lipped.peccary -ANIM.PL -NON.SUBJ shoot -PERF.PLACT

‘I shot and killed multiple peccaries’
Example (212) below shows the narrow and wide scope possibilities for the plural -ma in the context of a plurational verb whose patient could theoretically undergo the action in question multiple times. The sentence in (212a) was offered as a translation for the local Spanish he leído muchos libros ‘I read many books’. To disambiguate between its narrow and wide scope interpretations, the consultant offered the sentence in (212b) as a translation of the Spanish he leído los libros muchas veces ‘I read the books many times’.

(212) a. tóyápiṁá háyé yétébi
    write -CL:stack -INAN.PL multiple.instances study -1.SG.PAST.DECL

    ‘I read (studied) many books’ (E.LTN.SJF.12aug2014) ‘He leído muchos libros’

b. tóyápiṁá dóe yétéyi
    write -CL:stack -INAN.PL before study -1.SG.PRES.DECL

    ‘I’ve been reading (studying) the books for a long time’ (E.LTN.SJF.12aug2014)
    ‘Mucho tiempo que estoy leyendo los libros’

6.4.5 Conjunction and anaphora

In addition to the inability of φ NP to take wide scope in the contexts of intensional predicates, negation, universal quantification, and distributed predicates, Carlson shows that it also has unique anaphoric properties when compared to indefinite singular and plural NPs.

An English singular indefinite NP has two possible anaphoric pronouns: ‘it’, used in transparent contexts, and ‘one’, used in opaque contexts. This contrast is shown in (6.4.5). In (213a), Kelly and Millie are understood to be seeking the same unicorn, while in (213b), they may be seeking different unicorns.

(213) a. Kelly is seeking a unicorn, and Millie is seeking it, too. (transparent)

b. Kelly is seeking a unicorn, and Millie is seeking one, too. (opaque)

This ambiguity is also possible with a ‘sm’ plural antecedent. The anaphoric pronoun ‘them’ is used in transparent contexts (as in (214a), in which Kelly and Millie are understood to be seeking the same set of multiple unicorns), while ‘sm’ is used in opaque contexts (like (214b), in which the identity of Kelly and Millie’s unicorns is not at issue).

(214) a. Kelly is seeking sm unicorns, and Millie is seeking them, too. (transparent)

b. Kelly is seeking sm unicorns, and Millie is seeking sm, too. (opaque)

The transparent interpretation in (214a) is in contrast with the opaque reading that the same anaphoric pronoun ‘they’ yields with the bare plural antecedent in (215).

(215) Kelly is seeking unicorns, and Millie is seeking them, too. (opaque)
In the above example, Kelly and Millie could be seeking different unicorns, and the existence of unicorns is not presupposed at all, as it seems to be in (214a).

Máihiliki allows for a null anaphoric object in the second of two coordinated clauses as long as the antecedent is interpreted as indefinite or definite (i.e., the output of a choice function) rather than as a kind. Given the proposed analysis, we would expect omitted bare singulars to yield ambiguous interpretations: in the case of an indefinite or definite bare singular, the omitted argument should be coreferential with its antecedent; in the case of a kind-referring bare singular, an omitted argument in the second clause need not bear any relationship to the kind-referring argument in the first clause.

Example (216a) shows a case where the omitted argument has been interpreted as an anaphor, and is therefore deemed infelicitous, as the same dish cannot be broken twice. Example (216b) shows a case where the omitted argument has not been interpreted as an anaphor. In other words, the consultant interprets the sentence as meaning that Mákôbè and I ate the different pieces of manioc. In this case, the alternate interpretation (that both Mákôbè and the speaker ate the same piece of manioc) is infelicitous. In example (216c), the consultant notes the ambiguity between the anaphoric and non-anaphoric interpretations. These examples show that bare singulars in Máihiliki are ambiguous between the two interpretations.

(216) a. # yi tótòdèò tîyôhôbë; Mákôbè tèà tîyôhôgì
   yi tótò -reò tîyô -hô -bh; Mákôbè tèà tîyô
   1.SG.PRON clay -CL:disc break -PERF -1.SG.PAST.DECL proper.name also break
   -hô -gì
   -PERF -3.SG.MASC.PAST.DECL
   'I broke a pot and Mákôbè broke it too' (E.AMM.SJF.17jul2013)
   Consultant’s comment: ‘No se puede romper dos veces un sólo tazón’ (‘You can’t break one cup two times’)

b. yi hásòyîa âhë; Mákôbè tèà âhë
   yi hásô -yià â -hî; Mákôbè
   1.SG.PRON manioc -CL:tapered eat.PAST.NI -1.SG.PAST.DECL.NI proper.name
   tèà â -hî
   also eat.PAST.NI -1.SG.PAST.DECL.NI
   'I ate a manioc tuber; Mákôbè also ate (something)' (E.EMR.SJF.23jul2013)

c. yi hárä nîâyì; Mákôbè tèà nîâhë
   yi háày -rî nîâ -yì; Mákôbè tèà
   1.SG.PRON swing -CL:manufactured see -1.SG.PRES.DECL proper.name also
   nîâ -hî
   look -3.SG.MASC.PRES.DECL
   'I’m looking at a hammock; Mákôbè is looking at it too’ or ‘I’m looking at a hammock; Mákôbè is also looking (at something)’ (E.LTN.SJF.27jul2013)
Bare plural nouns, by contrast, are never anaphoric when omitted from the second of two coordinated clauses. This is shown below in example (217).

\[(217)\] \[hänä\ dā̀yì; Mákò̀bè tè̀ dā̀hi\]

\[hänä\ dā̀ -yi; Mákò̀bè tè̀ dā̀ -hī\]

leaves bring -1.SG.PRES.DECL proper.name also bring -3.SG.MASC.PRES.DECL

‘I’m bringing leaves; Mákò̀bè is also bringing (something)’ (E.LTN.SJF.21jul2013)

Consultant’s comment: ‘Él trae pero no se sabe qué’ (‘He’s bringing (something) but we don’t know what’)

Finally, nouns suffixed with the object plurals -ma and -na may be omitted from the second of two coordinated clauses, creating a null anaphor. Example (218) shows that when tiyónarè is omitted from the second clause, the gap created can be anaphoric.

\[(218)\] \[Mámàsò tiyó na re kwè̀ ko; Mákò̀bè tè̀ kwè̀ -hī\]

\[proper.name parrot.sp -ANIM.PL -NON.SUBJ look.for -3.SG.FEM.PRES.DECL\]

\[Mákò̀bè tè̀ kwè̀ -hī\]

\[proper.name also look.for -3.SG.MASC.PRES.DECL\]

‘Mámàsò is looking for some parrots;
Mákò̀bè is also looking for them’ (E.AMM.SJF.17jul2013)

The results of elicitation on whether sentences like the one in (218) can also yield an interpretation in which Mámàsò and Mákò̀bè are looking for possibly different sets of multiple parrots were inconclusive.

### 6.4.6 A summary of the facts

We saw in this section that Carlson’s tests, originally designed to reveal scope differences between English bare plurals and indefinite NPs, reveal similar differences between Múǹkì bare nouns (both singular and plural) and nouns pluralized with -ma and -na. Bare singular nouns and nouns suffixed with -ma and -na consistently exhibit scope ambiguity, while bare plurals consistently exhibit narrow scope. These facts are summarized below in Table 6.4.6.

<table>
<thead>
<tr>
<th></th>
<th>Wide scope</th>
<th>Narrow scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bare SG</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bare PL</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>-ma/-na</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 6.4: A summary of the scopal properties of singular and plural nouns
I argued in §6.3 that these scope behaviors can be accounted for by positing that bare
singulars are ambiguous between having kind and indefinite interpretations, that bare plu-
rals have uniformly kind interpretations, and that nouns suffixed with -ma and -na have
uniformly indefinite interpretations. The reasoning behind this is summarized below.

**Bare singulars**

Bare singulars are ambiguous between kinds and indefinites, which are analyzed as indi-
viduals of type $e$ that have been derived from properties via either $\cap$ or a choice function,
respectively. Example (219) shows a situation in which $bîbî$ ‘dolphin’ is the object of the
verb $nîâ$ ‘see’.

(219) bîbîrê ŋâbê

\[
\begin{align*}
\text{bîbî} & \quad -re \\
\text{dolphin} & \quad -\text{NON.SUBJ see} \\
& \quad -1.\text{SG.PAST.DECL}
\end{align*}
\]

'I saw a dolphin/dolphins'

The kind and indefinite interpretations of (219) are shown below.

(220)

1. $\text{see}(\cap \text{dolphin})$
2. $\exists f[\text{CH}(f) \land \text{see}(f(\text{dolphin}))]$

Because the denotation of *dolphin* is number neutral, these two interpretations are ba-
sically equivalent. In one case, the speaker is saying that she saw what was output by a
particular choice function applied to the set of dolphins; in the other case, she is saying that
what she saw had the properties that are characteristic of dolphins. In either case, what the
speaker saw could have been one or multiple dolphins.

As soon as we introduce another operator, like $\forall$ or $\neg$, we allow for the possibility of
variable scope interpretations. Example (221) below shows an example of universal quan-
tification with -sao.

(221) ŋîhûnà tòyápi hîksâòbê

\[
\begin{align*}
\text{ŋî} & \quad -\text{huna} \\
\text{tòyá} & \quad -\text{pi} \\
\text{hîkà} & \quad -\text{sao} \\
& \quad -\text{bi} \\
\text{children} & \quad -\text{CL:GROUP write} \\
& \quad -\text{CL:STACK write} \\
& \quad -\text{UNIV.QUANT} \\
& \quad -3.\text{PL.PAST.DECL}
\end{align*}
\]

'All the children read a book/books'

In this case, there are three possible interpretations, shown below. The first is the ‘kind’
interpretation, in which all children read the same kind of thing: the book kind. Because this
reading has a single quantifier, it is scopeless. The second interpretation is the wide-scope
indefinite interpretation. In this case, the existence of a choice function $f$ scopes over the
universal quantifier $\forall$, and we get the interpretation that there is some book (or books) such
that all children read it (or them). Finally, the narrow-scope indefinite interpretation says
that for all children, there exists a choice function that returns a book (or books), yielding the interpretation that the children each read possibly different books. Note that the kind interpretation and the narrow-scope indefinite interpretation are again basically equivalent: both ignore the question of whether the children are reading the same objects as one another.

\begin{align*}
(222) & \quad 1. \forall x[\text{child}(x) \rightarrow \text{read}(\exists \text{book})(x)] \\
& \quad 2. \exists f[\text{CH}(f) \land \forall x[\text{child}(x) \rightarrow \text{read}(f(\text{book}))(x)]] \\
& \quad 3. \forall x[\text{child}(x) \rightarrow \exists f[\text{CH}(f) \land \text{read}(f(\text{book}))(x)]]
\end{align*}

(223) below shows an example of the scope interactions of bare singulars with negation.

(223) Mámásö tóyátiká báámákó

\begin{align*}
\text{Mámásö tóyá -tika} & \quad \text{báá -má -ko} \\
\text{Mámásö write -CL:stick have -NEG -3.SG.FEM.PRES.DECL}
\end{align*}

‘Mámásö doesn’t have a pencil’

In this example, there are again three possible interpretations (listed below). First, the kind interpretation states that Mámásö does not have a certain \textit{kind} of thing. Second, the wide-scope indefinite reading states that there is some choice function that returns a particular pencil or pencils that Mámásö does not have. A paraphrase might be “There’s a pencil that Mámásö doesn’t have.” Finally, the narrow-scope indefinite reading states that there is no choice function that returns a pencil that Mámásö has. In other words, she doesn’t have any pencils. Once again, the kind interpretation and the narrow-scope indefinite interpretation are functionally indistinguishable.

\begin{align*}
(224) & \quad 1. \neg[\text{have(\exists \text{pencil})}(\text{Mámásö})] \\
& \quad 2. \exists f[\text{CH}(f) \land \neg[\text{have}(f(\text{pencil}))(\text{Mámásö})]] \\
& \quad 3. \neg[\exists f[\text{CH}(f) \land \text{have}(f(\text{pencil}))(\text{Mámásö})]]
\end{align*}

\section*{Plurals}

I argued above that bare plurals refer unambiguously to kinds. The apparently ‘narrow’ scope reading in sentences with bare plurals is due to the fact that these sentences are in fact scopeless. Example (225) below shows the interaction of the bare plural \textit{hòyà} with the negative suffix -\textit{ma}.

(225) hòyà báámáyí

\begin{align*}
hòyà & \quad \text{báá -má -yi} \\
\text{domestic.animals have -NEG -1.SG.PRES.DECL}
\end{align*}

‘I don’t have domestic animals’
(225) has a single possible interpretation: that there are no domestic animals that the speaker has. This reading is given in (226). Note that because the property that corresponds to the kind is ambiguous between singular and plural interpretations, the sentence in (225) will not be true even if the speaker has just one domestic animal.

(226) \neg \text{have(\neg \text{domestic.animals})(I)}

Plurals formed via suffixation with -ma and -na, on the other hand, do not exhibit a kind interpretation. I have analyzed these suffixes as plural choice functions, where a plural choice function is defined as a choice function that returns only pluralities. In the examples below, the plural choice function will be written as ‘plCH’.

In (227), we see the plural counterpart to (221) above. The number neutral noun tóyápì ‘book’ has been suffixed with the inanimate plural suffix -ma.

(227) ŋíhùnà tóyápìmá hì₃kàsáòbì

‘All the children read some books’

I analyze (227) as being unambiguously indefinite, and having two scopal interpretations, listed below in (228). The wide-scope interpretation is that there is some plural choice function f which returns a plurality of books that all children read. The narrow-scope interpretation is that for each child there is a plural choice function which returns a plurality of books that that child reads.

(228) 1. \exists f[\text{CH}(f) \land \forall x[\text{child}(x) \rightarrow \text{read}(f(\text{book}))(x)]]

2. \forall x[\text{child}(x) \rightarrow \exists f[\text{CH}(f) \land \text{read}(f(\text{book}))(x)]]

Note that in this case, the narrow-scope interpretation is not functionally equivalent to a kind interpretation, as it is plural rather than number neutral.

In sum, the analysis proposed here has presented evidence that bare singulars in Mááhìcí are ambiguous between kinds and indefinites, that bare plurals refer exclusively to kinds, and that -ma and -na are variables over plural choice functions, yielding indefinites.

### 6.5 Chapter 6 summary and conclusions

I began this chapter by illustrating the problems of ‘optional’ and ‘multiple’ plural marking in Mááhìcí. In §6.1, I showed that bare singular Mááhìcí nouns may be used in singular or plural contexts, and that there are multiple morphological plural strategies: ‘inherent’ plurality like that of Group 1 nouns, ‘classifier’ plurality, and the plural suffixes -ma and -na. Next, in §6.2, I addressed the issue of the denotation of singular and plural nouns, which is complicated by the fact that both of these seem to have number neutral interpretations.
Based on an understanding of kinds as entities bearing the set of properties (i.e., belonging to the sets that are common to some individual), I proposed that the kind-deriving and property-deriving operators $\cap$ and $\cup$ are not symmetrical. $\cap$ may apply to a set of atoms, deriving a kind; $\cup$ may then apply to that kind, deriving a number neutral set. Likewise, $\cap$ may apply to a set of pluralities, deriving a kind, and $\cup$ will still derive a number neutral property from that kind. In this way, both plurals and singulars are eligible for kindhood (contra Chierchia (1998b)). §6.4 outlined the scopal properties of bare singular and bare plural nouns, plus nouns suffixed with -ma and -na. I applied several of the tests discussed in Carlson (1977) to the Máhâki data in an effort to show that Máhâki bare singulars are ambiguous between kind and indefinite interpretations, and therefore may have either wide or narrow scope; that bare plurals have an exclusively kind interpretation, and therefore appear only to have narrow scope (but are actually scopeless); and that -ma and -na plurals have an exclusively indefinite interpretation and may therefore have either wide or narrow scope. These scopal properties were given a choice function analysis in §6.4.6, where I showed that the ‘singular’ choice function in episodic contexts was basically equivalent to the kind, while the plural choice function proposed for -ma and -na is not.
Chapter 7

Conclusions

7.1 Summary of findings

This dissertation has provided the most thorough grammatical description of Máiñiki to date as well as an in-depth exploration of the mechanisms through which reference is establishing in this language. The sketch grammar of Chapters 2 and 3 expands upon the preliminary work of Velie (1975) in three major ways. First, it provides a detailed description of tone in the language, which is crucial to understanding certain facts about wordhood and suffixation, and which will play an important role in the study of the origins of tone in Western Tukanoan, as only Máiñiki and Koreguaje appear to exhibit contrastive tone. Second, this grammatical sketch pays close attention to dialectal and idiolectal variation in Máiñiki. Discussions of linguistic variation are largely absent from the Velies’ sketch, but are important to document both for the purpose of future historical work on Tukanoan languages or on the Western Tukanoan subgroup, and because the data themselves provide insight into a sociolinguistic situation that is not well understood. Specifically, the fact that the Máiñína speak a highly endangered language, have very small speech communities, live in three relatively isolated zones, and exhibit a high degree of linguistic diversity, would make for an interesting study on the factors that drive linguistic change and maintenance. Finally, the sketch grammar provides a more thorough description of both nominal and clausal phenomena in Máiñiki. For instance, it describes a diverse set of subordinating constructions, including temporal clause linking devices, purposive constructions, and relative clauses, which is absent from Velie (1975). It also provides a novel synthesis of verb stem alternations that indicate differences in the structure of events. The paradigm, shown in Table 3.11, has cognate paradigms in other Western Tukanoan languages, so their collection here should prove useful for a reconstruction of Proto-Western Tukanoan event structure. Discussions of even structure in Western Tukanoan languages has largely centered on the so-called -i or -ni verbs, which I have shown to be part of a much larger system which includes several types of pluractionals. The systematicity of this paradigm, as well as its gaps, may also contribute to our understanding the interactions of transitivity and event plurality in general.
Chapter 7. Conclusions

The theoretical part of this dissertation begins in Chapter 4 with a discussion of the notion of a 'hierarchical lexicon'—a lexicon whose elements exhibit different morphosyntactic behaviors based on some properties of their lexical semantics. That the Máíhíki lexicon is sensitive to some sort of hierarchy is extremely apparent; I showed in Chapter 4 that one can define at least eight separate 'groups' of nouns based on unique patterns of morphosyntactic behavior. While these eight groups can be defined in terms like 'more animate' or 'less animate', I found these characterizations unsatisfyingly vague. My search for a more principled means of distinguishing the groups led me to posit that nouns vary with respect to the uniformity of the entities that they denote, and that the distinctions we see between animates and inanimate, kind and non-kin humans, parts of things and autonomous things, masses and objects, etc. emerge from this basic fact. That nouns denote things of varying degrees of uniformity, and that these varying degrees have implications for grammar, is not a novel idea. As I see it, my contribution to the discussion of nominal hierarchies is my attempt to account for variations in lexical semantics in formal semantic terms, which is possible if we take the basic locus of variation between nouns to be the ease with which they may be made referential, and we defined reference as holding when a term identifies an individual that is associated with some unique set of properties. I have labeled this locus of variation the 'reference ratio', and have attempted, in Chapters 5 and 6, to show some of its implications for the grammar of Máíhíki.

In Chapter 5, I discussed the phenomenon of noun classification, whose characterization has proven problematic for languages of the Amazon basin due to the diverse set of morphosyntactic functions that classifiers in these languages may exhibit. I surveyed the typological literature on classifier systems and Amazonian classifier systems in particular before getting into the details of the lexical semantics and morphosyntax of Máíhíki classifiers. This description revealed that Máíhíki classifiers occupy a continuum from 'full' (i.e., highly grammaticalized) classifiers to 'repeaters', which have fully nominal counterparts in the lexicon. My semantic analysis of classification attempted to account for this continuum by positing that classification is, ideally, a relationship between a set of elements denoted by the classifier and the set of sets of elements that characterizes the referential base. Understood in this way, the 'slots' of the classifier construction are best suited for elements with a certain reference ratio, which helps to explain why different morphemes pattern differently with respect to whether they may serve as or take classifier suffixes.

Finally, in Chapter 6, I turned toward the mechanisms through which Máíhíki encodes nominal plurality. I showed that the 'number neutrality' of bare nouns makes plural marking appear optional, and that the language's number marking system is complicated by the presence of various morphological pluralization strategies, multiple of which may be available for a single noun. I argued that these complications can be reconciled by considering that there are two basic kinds of plurality in Máíhíki. First, there is kind plurality, which is when the plural form of a noun is used to refer to a kind. Second, there is a plural choice function, which is an operator that returns a plural individual from a set. The choice functional plural is the only means of unambiguously yielding a wide scope plural interpretation. The discussion of plurality in Máíhíki contributed to the greater discussion of the nature of
plurality in several important ways. First, it provided an explanation for why plurals might be good candidates for kind reference (namely that they denote relatively uniform sets of individuals). Second, it provided some insight into why singulars and plurals both seem in some contexts to have number neutral denotations—a longstanding question in the literature on plurality. Finally, it showed that ‘plurality’ is not a uniform phenomenon: that kind plurals are different from choice function plurals, and that the latter are likely associated with ‘optional’ plurality, as they are only necessary in wide scope plural contexts.

7.2 Revisiting the Nominal Mapping Parameter

In the beginning of this dissertation I outlined the Nominal Mapping Parameter proposed by Chierchia (1998b) as an introduction to the discussion of the crosslinguistic relationship between plurality, classifiers, and determiners. Now that we have explored the two of these phenomena that Máihikki exhibits, I will revisit the claims made by Chierchia (1998b) and the ways in which the Máihikki data challenge them.

As mentioned above, a major difference between Chierchia’s approach and my own is in the formalization of the derivation of kinds Chierchia describes kinds as the largest individual at a world, which necessitates their plurality. By contrast, I have argued for a view of kinds as the entity that belongs to all of the sets in the intersection of sets to which entities bearing some property belong. That is, it is not the \textit{largest} entity with some property, but the entity defined by what other entities bearing that property have in common.

Chierchia’s view of kinds explains the apparent correlation between a lack of definite and indefinite articles and a lack of a plural/singular contrast nicely: in a [+arg -pred] language, where nouns come out of the lexicon number neutral (i.e., may be bare), the singular/plural distinction will be inactive because nouns are in some sense already plural (i.e., by virtue of being kinds with number neutral “mass” property counterparts). In a [+pred] language, however, predicates must be typeshifted via $\cap$ to become kinds and $\cap$ is only defined for properties that have pluralities in their denotation. Furthermore, there is no reason that properties should not contrast between singular and plural, as they are not derived via $\cup$ as in [+arg -pred] languages. Therefore, languages with determiners will have a singular/plural contrast, and kinds will be plural.

My understanding of kinds does not require that they be plural, nor that a language without determiners should also be devoid of a singular/plural contrast. Both of these things are good news for Máihikki, which does not have definite and indefinite determiners, does have a singular/plural contrast, and exhibits both singular and plural kinds.

In my attempt to count for the Máihikki data, I confronted the puzzling issue that the denotation of plural nouns has at times been proposed to consist only of pluralities, and at other times to consist of both pluralities and atoms; conversely, the denotation of singular nouns has at times been proposed to consist only of atoms, and at other times to consist of both atoms and pluralities. I proposed that, in a strange way, all four of these theories are correct. The set of individuals that we use to derive a kind—i.e., the set of individuals the
intersection of whose properties we attribute to some abstract entity—may consist entirely of atoms (i.e., be singular) or of pluralities (i.e., be plural). But the set of entities that we may then ‘back-derive’ from that kind via $\cup$ will always be number neutral, as this set will consist of the entities which minimally have all of the requisite properties of that kind, and this does not distinguish between singular and plural individuals.

If this understanding of kinds is correct, we would expect two things:

1. that singular and plural nouns alike have the potential to refer to kinds
2. that even in the presence of a singular/plural distinction, both bare singulars and bare plurals will be number neutral

Both of these predictions are borne out in Máihìkì. What, then, explains the apparent fact that in languages with an obligatory singular/plural contrast, the plural form is used to refer to kinds? Here I offer the non-linguistic explanation that plurals are recruited (when available) for kind reference because they denote sets of relatively uniform individuals. I have attempted to formalize this idea by arguing that plurals denote individuals who belong to a higher proportion of overlapping sets than their singular counterparts. This is because the set of properties that at least two of something have is likely much smaller than the set of properties that all atoms have.

Another observation about plurality that was not predicted by the Nominal Mapping Parameter is the existence of ‘optional’ plurality—in the case of Máihìkì, plurality encoded by -ma and -na. My analysis of these morphemes is that they are variables over (plural) choice functions, which gives them a function basically to that proposed for the English indefinite determiner ‘some’. While the narrow scope interpretation of these plurals overlaps with that of the bare plural and the narrow scope bare singular, the wide scope plural interpretation is unique to -ma and -na. I would predict, therefore, that in a language where plurality is otherwise absent, there might exist some mechanism through which a wide scope plural interpretation would be obtained.

Another of Chierchia’s claims is that a [+arg -pred] language will have a classifier system for enumeration and quantification. The reasoning behind this claim is that all nouns in these languages have mass denotations (per Chierchia’s somewhat non-standard definition of ‘mass’). The stance taken in this dissertation is that nouns can be bare without being mass, as evidenced by their ability in many cases to be pluralized. In some sense, Chierchia’s claims about classifiers are inevaluable for Máihìkì, as the Máihìkì system of noun classification is fundamentally different from the numeral classifiers that Chierchia discusses.

In summary, I believe that Chierchia’s observation that there is a correlation between mass nouns and classifiers must be qualified in two ways. First, while classifiers do seem to be correlated with massness, bare nouns should not be assumed to be mass. Second, a finer-grained understanding of the variation between types of classifier systems is needed before we can make generalizations based on them. While it is clear that Chierchia’s paper is only making a claim about numeral classifiers of the sort found in many East Asian languages, I
believe that a closer look at what these systems do and do not have in common with other
types of classifier systems, like that of Máihíki, would enlighten the discussion about the
relationship between classifiers and number.

We saw in this dissertation that Máihíki challenges the Nominal Mapping Parameter
because it lacks definite and indefinite articles, but has a robust singular/plural distinction
as well as a system of noun classification. In this way, none of Chierchia’s predictions
holds. But I can’t help but feel that the spirit of the proposal is basically right. Plurality,
classification/modification, and determiners are all mechanisms that a language may employ
to alter the reference ratio of a noun, and we might therefore expect their presence or absence
to be correlated in any given language. In other words, these phenomena are probably
dependent on one another, and understanding the precise nature of this dependence will
mean understanding the phenomena.

7.3 Further questions and future work

I can imagine two broad directions for future research on the topic of this dissertation. The
first is further research on reference in Máihíki. In Chapter 4 I outlined seven ways in which
the Máihíki nominal lexicon seems sensitive to a hierarchy, but only explored two of these in
any detail. An investigation of differential object marking, for instance, might be an obvious
next step. Another potentially fruitful area of research might be the interactions between
event structure (and in particular verbal plurality) and the scopal properties of singular
and plural nouns. Chapter 3 described a complex paradigm of verb stem alternations that
revealed an elaborate system of encoding the structure of events, and we saw briefly in
Chapter 6 that the nature of the event has implications for the number and scope of the
noun. The second broad direction of research is crosslinguistic in nature. The semantic
literature on plurality, determiners, and classifiers is sorely lacking in terms of the diversity
of languages it addresses. A line of research that pursues a semantic typology of these
phenomena and their interactions would no doubt contribute significantly to our ability to
model them.
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Appendix A

Morpheme gloss abbreviations

<table>
<thead>
<tr>
<th>Morpheme</th>
<th>Tag</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>-aka</td>
<td>-INAN.DIM</td>
<td>inanimate diminutive</td>
</tr>
<tr>
<td>-ago</td>
<td>-ANIM.FEM.INTER.COP</td>
<td>animate feminine interrogative copula</td>
</tr>
<tr>
<td>-ago</td>
<td>-ANIM.FEM.COP</td>
<td>animate feminine copula</td>
</tr>
<tr>
<td>-agî</td>
<td>-ANIM.MASC.INTER.COP</td>
<td>animate masculine interrogative copula</td>
</tr>
<tr>
<td>-agî</td>
<td>-ANIM.MASC.COP</td>
<td>animate masculine copula</td>
</tr>
<tr>
<td>-ai</td>
<td>-AUG</td>
<td>augmentative</td>
</tr>
<tr>
<td>-ai</td>
<td>-3.SG.PAST.DECL</td>
<td>3rd person singular past declarative</td>
</tr>
<tr>
<td>-ani</td>
<td>-ITER</td>
<td>iterative</td>
</tr>
<tr>
<td>-ao</td>
<td>-ANIM.FEM.COP</td>
<td>animate feminine copula</td>
</tr>
<tr>
<td>-ao</td>
<td>-3.SG.FEM.PAST.DECL</td>
<td>3rd person singular feminine past declarative</td>
</tr>
<tr>
<td>-aye</td>
<td>-INAN.INTER.COP</td>
<td>inanimate interrogative copula</td>
</tr>
<tr>
<td>Morpheme</td>
<td>Tag</td>
<td>Gloss</td>
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<tr>
<td>----------</td>
<td>-----------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>-ayi</td>
<td>-2.SG.INTER.COP</td>
<td>2nd person singular interrogative copula</td>
</tr>
<tr>
<td>-ayi</td>
<td>-1.SG.INTER.COP</td>
<td>1st person singular interrogative copula</td>
</tr>
<tr>
<td>-ayi</td>
<td>-1.PL.INTER.COP</td>
<td>1st person plural interrogative copula</td>
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<td>-ai</td>
<td>-ANIM.MASC.COP</td>
<td>animate masculine copula</td>
</tr>
<tr>
<td>-bai</td>
<td>-PROHIB</td>
<td>prohibitive</td>
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<td>-1.PL.PAST.DECL</td>
<td>1st person plural past declarative</td>
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<td>-3.PL.PAST.DECL</td>
<td>3rd person plural past declarative</td>
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<tr>
<td>-bi</td>
<td>-SING</td>
<td>singulative</td>
</tr>
<tr>
<td>-chi</td>
<td>-PAST.REL</td>
<td>past relativizer</td>
</tr>
<tr>
<td>-chi</td>
<td>-3.SG.MASC.FUT.DECL.NI</td>
<td>3rd person singular masculine future declarative -ni</td>
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<td>1st person singular future declarative -ni</td>
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<tr>
<td>-chiko</td>
<td>-FEM.PURP.NI</td>
<td>feminine purposive -ni</td>
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<td>-chiki</td>
<td>-MASC.PURP.NI</td>
<td>masculine purposive -ni</td>
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<td>2nd person singular feminine present interrogative -ni</td>
</tr>
<tr>
<td><strong>MORPHEME</strong></td>
<td><strong>TAG</strong></td>
<td><strong>GLOSS</strong></td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>-gi</td>
<td>-3.SG.MASC.PAST.DECL</td>
<td>3rd person singular masculine past declarative</td>
</tr>
<tr>
<td>-gi</td>
<td>-ANIM.MASC.COP</td>
<td>animate masculine copula</td>
</tr>
<tr>
<td>-gire</td>
<td>-MASC.DS.SEQ</td>
<td>masculine different-subject sequential</td>
</tr>
<tr>
<td>-go</td>
<td>ANIM.FEM.COP</td>
<td>animate feminine copula</td>
</tr>
<tr>
<td>-ga</td>
<td>-TOP</td>
<td>topic (?)</td>
</tr>
<tr>
<td>-gani</td>
<td>-ITER</td>
<td>iterative</td>
</tr>
<tr>
<td>-go</td>
<td>-3.SG.FEM.PAST.DECL</td>
<td>3rd person singular feminine past declarative</td>
</tr>
<tr>
<td>-gore</td>
<td>-FEM.DS.SEQ</td>
<td>feminine different-subject sequential</td>
</tr>
<tr>
<td>-gu</td>
<td>-1.SG.PAST.DECL</td>
<td>1st person singular past declarative</td>
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<tr>
<td>-gu</td>
<td>-3.PL.PAST.DECL</td>
<td>3rd person plural past declarative</td>
</tr>
<tr>
<td>-hi</td>
<td>-1.PL.PAST.DECL.NI</td>
<td>1st person plural past declarative -ni</td>
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<tr>
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### Appendix C. List of texts

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### Appendix C. List of texts

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<td>oral literature</td>
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<td>How to make a canoe</td>
<td>MRP</td>
<td>procedural</td>
<td>EM</td>
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Appendix D

Glossary of terms relating to noun categorization

**Class term**  A classifying morpheme that derives new nouns. These morphemes have transparent lexical origins.

**Classifier**  An intermediately grammaticalized classifying morpheme, usually with transparent lexical origin, that may appear outside of the noun in specific morphosyntactic constructions. In systems of noun classification, not all nouns must be associated uniquely with a classifier, nor with any classifier at all.

**Concordial classifier language**  A language with gender. (Allan 1977)

**Gender**  A feature of a noun that is realized outside the noun itself by some via a process of agreement or concord. Systems of gender are typically highly grammaticalized and may range in size from two (typically based on sex) to many. Every noun has one and only one gender, and genders may have their basis in semantics, phonology, or both. Some authors use the term ‘gender’ to refer exclusively to sex-based distinctions, but most advocate for the equivalence of the terms gender and noun class.

**Genitive classifier**  A classifier that is suffixed to the possessive element of a possessive construction, indicating in the classification of the possessee. Genitive classifiers have also been called “attributive” (Benton 1969), “possessive” (Carlson and Payne 1989), or “relational” (Lichtenberk 1983). The set of nouns classified in systems of genitive classification is generally small.

**Intra-locative classifier language**  A language in which a classifying morpheme may appear in a locative construction. (Allan 1977)

**Measure term**  A lexical item used to specify quantities or arrangements of nouns in languages without true classifiers.

**Noun class**  See gender.
Mensural classifier  A type of numeral classifier that specifies a quantity or packaging of the noun in question.

Noun classifier  A classifier that does not appear in quantificational contexts. A noun classifier is non-agreeing. They may be “swapped out” for one another based on semantics, so that a given noun is possibly compatible with more than one. ‘Noun classifier’ is often used as a general term for morphemes that categorize nouns, including numeral classifiers.

Numeral classifier  A classifier that appears, minimally, in quantificational contexts, either free or bound.

Predicate classifier language  A language in which verb stems may exhibit alternations based on the classification of the objects associated with the event. (Allan 1977)

Sortal classifier  A type of numeral classifier that specifies a salient characteristic of the noun in question.

Verbal classifier  A classifier that appears inside the verb form, classifying one of the arguments of the verb. The classifier may either have the form of a generic noun, or a phonologically eroded form.
# Appendix E

## List of classifiers

Below is a table of attested classifiers in Máiñkí. Recall from §5.3.2 that not all classifiers exhibit a singular/plural alternation.

<table>
<thead>
<tr>
<th>Singular form</th>
<th>Plural form</th>
<th>Objects classified</th>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td>-ako</td>
<td></td>
<td>feminine beings</td>
<td>gôhéâkò ‘paca’ from gôhé ‘hole’ + -ako</td>
</tr>
<tr>
<td>-aki</td>
<td></td>
<td>masculine beings</td>
<td>dôcâkì ‘male ancestor’ from dôé ‘before’ + -aki</td>
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<tr>
<td>-akwe</td>
<td></td>
<td>fruits</td>
<td>éréâkwè ‘shapaja fruit’ from éré ‘shapaja’ + -akwe</td>
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<tr>
<td>-baru</td>
<td></td>
<td>jumbles of rigid, long objects</td>
<td>nêtuârù ‘beard’ from nêtí ‘jaw’ + -baru</td>
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<td></td>
<td>worlds, environments, atmospheres</td>
<td>ókobèsè ‘rainy weather’ from ókó ‘water’ + -bese</td>
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<tr>
<td>-bì</td>
<td>-mia</td>
<td>vessels</td>
<td>ókobì ‘bucket’ from ókó ‘water’ + -bì</td>
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<tr>
<td>-bìti</td>
<td>-miña</td>
<td>flat, round things</td>
<td>kúchkhìtì ‘coin’ from kúchkhì ‘money’ + -bìti</td>
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<tr>
<td>-cho--chio</td>
<td></td>
<td>heads</td>
<td>máîchò ‘human head’ from máî ‘people’ + chìg</td>
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<td>Singular form</td>
<td>Plural form</td>
<td>Objects classified</td>
<td>Example</td>
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<tr>
<td>-ga</td>
<td>-gaña</td>
<td>small, round spheres; seeds</td>
<td>ërigà ‘shapaja seed’ from ërí ‘shapaja’ + -ga</td>
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<tr>
<td>-gani</td>
<td></td>
<td>skins</td>
<td>yágâñi ‘jaguar pelt’ from yáí ‘jaguar’ + -gani</td>
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<td>-gara</td>
<td></td>
<td>accumulations, clumps</td>
<td>ókogârà from ókó ‘water’ + -gara</td>
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<tr>
<td>-go</td>
<td>-goña</td>
<td>loops</td>
<td>ñúkâgo ‘rings of chambira fiber’ from ñúkâ ‘chambira’ + -go</td>
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<td>-hao</td>
<td>-haña</td>
<td>flexible sheets; leaves</td>
<td>kúchkihâo ‘paper bills’ from kúchki ‘money’ + -hao</td>
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<tr>
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<td></td>
<td>marks, scratches, letters</td>
<td>dhíhâne ‘wound; scratch’ from dhâ ‘sting; burn (of skin)’ + -hene</td>
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<td>-ho</td>
<td></td>
<td>sheaths</td>
<td>gôhô ‘boot’ from gô ‘foot’ + -ho</td>
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<tr>
<td>-hu</td>
<td></td>
<td>clusters of slender, pointed objects</td>
<td>bâhú ‘string of fish’ from bâi ‘meat’ + -hu</td>
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<tr>
<td>-hu</td>
<td></td>
<td>lights</td>
<td>tôâhú ‘glow of cooking fire’ from tôâ + -hu</td>
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<td>groups, herds</td>
<td>hôyâhûnà from hôyà ‘domestic animals’ + -huna</td>
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<td>-ka</td>
<td>-kaña</td>
<td>cloth-like things</td>
<td>òyôkà ‘bat wing’ from òyô ‘bat’ + -ka</td>
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<td>-ka</td>
<td>-kaña</td>
<td>branches</td>
<td>mënékà ‘shimbillo branch’ from mëné ‘shimbillo’ + -ka</td>
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<td>-kanu</td>
<td></td>
<td>chunks</td>
<td>gââkanù ‘chunk of flesh’ from gâá ‘flesh’ + -kanu</td>
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<td>Singular Form</td>
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<td>Objects Classified</td>
<td>Example</td>
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</tr>
<tr>
<td>-kwa~ko</td>
<td>-kwaña~koña</td>
<td>sheets</td>
<td>miökò  'sheet of thorns' from mió 'spine' + -ko</td>
</tr>
<tr>
<td>-kwaru~koru</td>
<td></td>
<td>swampy groves</td>
<td>nèkwärù 'moriche palm grove' from nèè + -kwaru</td>
</tr>
<tr>
<td>-kwiri~kuri</td>
<td></td>
<td>lines, rows</td>
<td>núkĩ́rì 'line of children' from nú + -kwiri</td>
</tr>
<tr>
<td>-ki</td>
<td></td>
<td>masculine beings</td>
<td>dòkì 'brother' from dòi 'sibligs' + -ki</td>
</tr>
<tr>
<td>-ma</td>
<td>-maña</td>
<td>paths, stripes</td>
<td>áírö́mà 'path to high ground' from áíró + -ma</td>
</tr>
<tr>
<td>-me</td>
<td></td>
<td>long, thin, flexible things</td>
<td>yáhĩ́mè 'tamshi rope' from yáhí 'tamshi + -me</td>
</tr>
<tr>
<td>-nàka</td>
<td>-nàña</td>
<td>pointy things, spines, thorns</td>
<td>miònàkà 'thorn' from mió 'spine' + -nàka</td>
</tr>
<tr>
<td>-nìi</td>
<td>-nìa</td>
<td>plants</td>
<td>súkì́nì 'tree' from súkì + -nì</td>
</tr>
<tr>
<td>-nòo</td>
<td></td>
<td>curves</td>
<td>yìayànò 'river bend' from yìayà 'river' + -nò</td>
</tr>
<tr>
<td>-ògu</td>
<td></td>
<td>stout, hollow cylinders</td>
<td>ókò́ògú 'water cup' from ókò + úkú 'drink' + -ògu</td>
</tr>
<tr>
<td>-nü</td>
<td></td>
<td>times, seasons, epochs</td>
<td>ìnè́nù 'peach palm season' from ìnè 'peach palm' + -nü</td>
</tr>
<tr>
<td>-pe</td>
<td></td>
<td>pairs</td>
<td>ñìhòpè 'pair of wives' from ñìhò 'wife' + -pe</td>
</tr>
<tr>
<td>-pere</td>
<td></td>
<td>parallel lines</td>
<td>hùtípè́rè 'forearm' from hùtí 'hand' + -pere</td>
</tr>
</tbody>
</table>
## Appendix E. List of classifiers

<table>
<thead>
<tr>
<th>Singular form</th>
<th>Plural form</th>
<th>Objects classified</th>
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</tr>
</thead>
<tbody>
<tr>
<td>-pene</td>
<td>smashed or sunken things</td>
<td>чо́пё́нё ‘mishapen head’ from чо́ ‘head’ + -pene</td>
<td></td>
</tr>
<tr>
<td>-pepe</td>
<td>uneven surfaces</td>
<td>гу́пёрё ‘snaggletooth’ from гу́ ‘head’ + -pepe</td>
<td></td>
</tr>
<tr>
<td>-pi</td>
<td>stacks</td>
<td>хо́опи ‘stack of leaves’ from хо́ ‘leaf’ + -pi</td>
<td></td>
</tr>
<tr>
<td>-ra</td>
<td>bodies of water</td>
<td>яо́ори ‘mud puddle’ from яо́ ‘earth’ + -ra</td>
<td></td>
</tr>
<tr>
<td>-rari</td>
<td>locations</td>
<td>Nueva Vidарари ‘Nueva Vida’ from Nueva Vida + -rari</td>
<td></td>
</tr>
<tr>
<td>-raka</td>
<td>-naña</td>
<td>о́корака ‘water’ from о́ ‘water’ + -raka</td>
<td></td>
</tr>
<tr>
<td>-rare</td>
<td>things with bulging tops (?)</td>
<td>гу́ридарё ‘molar’ from гу́ ‘head’ + -dare</td>
<td></td>
</tr>
<tr>
<td>-raro</td>
<td>cut one-dimensional objects</td>
<td>сукёраро ‘cut tree’ from сукёр ‘cut tree’ + -raro</td>
<td></td>
</tr>
<tr>
<td>-reo</td>
<td>-неña</td>
<td>туро́ ‘plate’ from тур ‘clay’ + -reo</td>
<td></td>
</tr>
<tr>
<td>-ro</td>
<td>-noa</td>
<td>гоно́р ‘masato pot’ from гоно́ ‘masato’ + -ro</td>
<td></td>
</tr>
<tr>
<td>-ro</td>
<td>places</td>
<td>бэр ‘homeland’ from бэр ‘live’ + -ro</td>
<td></td>
</tr>
<tr>
<td>-ruru</td>
<td>directions</td>
<td>га́рур ‘downriver’ from га́ ‘go down’ + -ruru</td>
<td></td>
</tr>
<tr>
<td>-ri</td>
<td>-nia</td>
<td>фар ‘hammock’ from фар ‘swing’ + -ri</td>
<td></td>
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<tr>
<td>-sa</td>
<td>shoots and sprouts</td>
<td>óósà ‘plantain shoot’ from óó ‘plantain’ + -sa</td>
<td></td>
</tr>
<tr>
<td>-sari</td>
<td>twins; things stuck together in a pair</td>
<td>óósàrì ‘two plantains stuck together’ from óó + -sari</td>
<td></td>
</tr>
<tr>
<td>-sagu</td>
<td>slender forked things</td>
<td>súkíságù ‘forked tree branch’ from súkí + -sagu</td>
<td></td>
</tr>
<tr>
<td>-saka</td>
<td>slender, pointed, and bundled things</td>
<td>dábìsákà ‘shaman’ + -saka</td>
<td></td>
</tr>
<tr>
<td>-sayi</td>
<td>spikes, bristles</td>
<td>chchésayì ‘spiky hair’ from chóó ‘head’ + -sayi</td>
<td></td>
</tr>
<tr>
<td>-sako</td>
<td>slender, clustered, splayed things</td>
<td>súkísákò ‘tree splinters’ from súkí ‘tree’ + -sako</td>
<td></td>
</tr>
<tr>
<td>-sani</td>
<td>points, tips</td>
<td>súkísànì ‘tip of tree’ from súkí ‘tree’ + -sani</td>
<td></td>
</tr>
<tr>
<td>-saro</td>
<td>openings</td>
<td>wèsárò ‘door to house’ from wèè ‘house’ + -saro</td>
<td></td>
</tr>
<tr>
<td>-sai</td>
<td>powders, dregs</td>
<td>gónósàì ‘masato’ dregs’ from gónó ‘masato’ + -sai</td>
<td></td>
</tr>
<tr>
<td>-sepa</td>
<td>disorganized fibers</td>
<td>nánàsèpà ‘messy hair’ from nánà ‘hair’ + -sepa</td>
<td></td>
</tr>
<tr>
<td>-seu</td>
<td>roots; devices</td>
<td>ãgàsèù ‘telephone’ from ãgá ‘call’ + -seu</td>
<td></td>
</tr>
<tr>
<td>-so</td>
<td>quantities</td>
<td>kèsò ‘how much’ from kée ‘which’ + -so</td>
<td></td>
</tr>
<tr>
<td>-su</td>
<td>heaps</td>
<td>hékàsù ‘pile of firewood’ from hékà + -su</td>
<td></td>
</tr>
<tr>
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<td>Plural form</td>
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<td>Example</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
<td>--------------------</td>
<td>---------</td>
</tr>
<tr>
<td>-soru</td>
<td>-tara</td>
<td>viscous bodily excretions</td>
<td>ūkwēsūrū ‘booger’ from ūkwē ‘nose’ + -soru</td>
</tr>
<tr>
<td>-tara</td>
<td></td>
<td>cylindrical hollow things</td>
<td>mātārā ‘human bone’ from mā ‘people’ + -tara</td>
</tr>
<tr>
<td>-tio</td>
<td></td>
<td>intestines</td>
<td>bāitio from bā ‘animal’ + tio</td>
</tr>
<tr>
<td>-tete</td>
<td>-teña</td>
<td>shelters; gourd dishes</td>
<td>wētētē ‘temporary shelter’ from wē ‘house’ + -tete</td>
</tr>
<tr>
<td>-ti</td>
<td></td>
<td>bundles of one-dimensional objects</td>
<td>hēkāti ‘bundle of firewood’ from hēká ‘firewood’ + -ti</td>
</tr>
<tr>
<td>-ti</td>
<td></td>
<td>opposing sides</td>
<td>kwākōti ‘left side’ from kwākō ‘cook (?)’ + -ti</td>
</tr>
<tr>
<td>-to</td>
<td></td>
<td>sacks and bags</td>
<td>nēētō ‘sack’ from nē ‘thing’ + -to</td>
</tr>
<tr>
<td>-to</td>
<td></td>
<td>clothing</td>
<td>nōmītō ‘women’s clothing’ from nōmī ‘women’ + -to</td>
</tr>
<tr>
<td>-togu</td>
<td></td>
<td>spent or depleted things</td>
<td>bēātōgū ‘empty corncob’ from bēā + -togu</td>
</tr>
<tr>
<td>-toto</td>
<td>-toña</td>
<td>rigid flat sheets</td>
<td>mātōtō ‘roofing panel’ from mā ‘irapay’ + -toto</td>
</tr>
<tr>
<td>-toya</td>
<td></td>
<td>paints, designs</td>
<td>mātōyā ‘red paint’ from mā ‘red’ + -toya ‘paint’</td>
</tr>
<tr>
<td>-tu</td>
<td></td>
<td>thick cylinders</td>
<td>wētū ‘housepost’ from wē ‘house’ + -tu</td>
</tr>
<tr>
<td>-turi</td>
<td></td>
<td>enclosed spaces</td>
<td>wētūri ‘room’ from wē ‘house’ + -turi</td>
</tr>
</tbody>
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<tr>
<td>-titi</td>
<td></td>
<td>raised flat surfaces</td>
<td>háýatiti ‘elevated bank of the big river’ from háýa ‘big river’ + -titi</td>
</tr>
<tr>
<td>-tika</td>
<td></td>
<td>sticks</td>
<td>súkitikà ‘stick from tree’ from súkí ‘tree’ + -tika</td>
</tr>
<tr>
<td>-we</td>
<td></td>
<td>buildings</td>
<td>tóyáyétéwè ‘schoolhouse’ from tóyá ‘write’ + yété ‘learn’ + -we</td>
</tr>
<tr>
<td>-ya</td>
<td></td>
<td>rivers</td>
<td>Mítóyà ‘Tobacco River’ from mítò + -ya</td>
</tr>
<tr>
<td>-yia</td>
<td></td>
<td>oblong, tapered things</td>
<td>kúráyìà ‘chicken egg’ from kúrá + -yia</td>
</tr>
<tr>
<td>-yigo</td>
<td></td>
<td>spans of space or time</td>
<td>tóyápiyìgò ‘length of notebook’ from tóyá ‘write’ + -yigo</td>
</tr>
<tr>
<td>-yo</td>
<td>-ñoa</td>
<td>slender, one-dimensional objects</td>
<td>mòyò ‘finger’ from mò ‘lift (?)’ + -yo</td>
</tr>
</tbody>
</table>

Table E.1: Classifiers in Máihíki