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An Introduction to the
Tirazdak
Language

by Timothy L. Smith

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Table of Contents

- 0 Symbols and Abbreviations**
 - 0.1 Note on Phonetic, Phonemic and Graphemic Symbols
 - 0.2 Note on Interlinear Glosses
 - 0.3 Abbreviations Used in Interlinear Glosses
 - 0.4 Other Abbreviations

- 1 Introduction**
 - 1.1 Historical Background
 - 1.2 Genetic Classification and Typology
 - 1.3 About This Paper

- 2 Phonology and Orthography**
 - 2.1 Note on the Writing System
 - 2.2 Overview of Pronunciation
 - 2.3 Consonant Phonemes
 - 2.4 Vowel and Diphthong Phonemes
 - 2.5 Syllabification, Stress and Timing
 - 2.6 Phonotactics and Morphophonemics

- 3 Morphology**
 - 3.1 Word Classes
 - 3.2 Inflectional Morphology
 - 3.2.1 Nouns
 - 3.2.2 Pronouns
 - 3.2.3 Determiners
 - 3.2.4 Quantifiers
 - 3.2.5 Units of Measure
 - 3.2.6 Verbs
 - 3.3 Derivational Morphology
 - 3.3.1 Deriving Nouns from Nouns
 - 3.3.2 Deriving Verbs from Nouns
 - 3.3.3 Deriving Nouns from Verbs
 - 3.3.4 Deriving Verbs from Verbs

- 4 Syntax**
 - 4.1 Clauses and Sentences
 - 4.2 Simplex Sentences
 - 4.2.1 Predicates and Arguments
 - 4.2.1.1 Intransitive Sentences
 - 4.2.1.2 Monotransitive Sentences
 - 4.2.1.3 Ditransitive Sentences
 - 4.2.1.4 Ambitransitive Verbs
 - 4.2.1.5 Existential Sentences

- 4.2.1.6 Predicate Nominals
- 4.2.1.7 Unstressed Pronouns as Arguments
- 4.2.1.8 Demonstrative Pronouns as Subjects
- 4.2.2 Adjuncts
 - 4.2.2.1 Prepositions and Prepositional Phrases
 - 4.2.2.1.1 Prepositions as Case Markers
 - 4.2.2.1.2 Prepositional Phrases as Adjuncts
 - 4.2.2.1.3 Prepositional Phrases as Predicates
 - 4.2.2.1.4 Prepositions as Adverbs
 - 4.2.2.1.5 Semantics of Prepositions
 - 4.2.2.2 Adverbs
- 4.2.3 Other Constituents
 - 4.2.3.1 Vocatives
 - 4.2.3.2 Interjections
- 4.2.4 Tense, Aspect and Mood Marking
 - 4.2.4.1 Primary Tense/Aspect Particles
 - 4.2.4.2 Composite Tenses
 - 4.2.4.3 The Progressive Construction
 - 4.2.4.4 Secondary Aspect Particles
 - 4.2.4.5 Mood Particles
 - 4.2.4.6 Imperatives
- 4.2.5 Negation
- 4.2.6 Questions
 - 4.2.6.1 Yes-No Questions
 - 4.2.6.1.1 Neutral Yes-No Questions
 - 4.2.6.1.2 Affirmatively Biased Yes-No Questions
 - 4.2.6.1.3 Negatively Biased Yes-No Questions
 - 4.2.6.2 Disjunctive Questions
 - 4.2.6.3 WH-Questions
- 4.2.7 The Passive Voice
- 4.2.8 Locative Verbs
- 4.3 Compound and Complex Sentences
 - 4.3.1 Parataxis
 - 4.3.2 Hypotaxis
 - 4.3.2.1 Noun Clauses
 - 4.3.2.1.1 Reported Speech
 - 4.3.2.1.1.1 Indirect Statements
 - 4.3.2.1.1.2 Indirect Questions
 - 4.3.2.1.1.3 Indirect Requests
 - 4.3.2.1.1.4 The Logophoric Pronoun
 - 4.3.2.1.2 Modal and Semi-Modal Verbs
 - 4.3.2.1.2.1 Modal Verbs
 - 4.3.2.1.2.2 Semi-Modal Verbs
 - 4.3.2.1.2.3 Modal and Semi-Modal Verbs with Pronominal Arguments

- 4.3.2.1.3 Complements of Non-Modal Verbs
 - 4.3.2.1.4 Other Noun Clauses
 - 4.3.2.3 Relative Clauses
 - 4.3.2.4 Adverbial Clauses
 - 4.3.2.4.1 Clauses Introduced by Subordinating Conjunctions
 - 4.3.2.4.2 Subordinating Conjunctions and Prepositions
 - 4.3.2.4.3 Conditional Sentences
 - 4.4 The Noun Phrase: Nouns and Their Modifiers
 - 4.4.1 Noun + Attributive Adjective
 - 4.4.2 Noun + Genitive
 - 4.4.3 Noun + Relative Clause
 - 4.4.4 Noun + Determiner
 - 4.4.5 Noun + Quantifier
 - 4.4.6. Ordering and Co-occurrence Rules for Nominal Modifiers
 - 4.5 Counting and Measuring
 - 4.5.1 Cardinal Numbers
 - 4.5.2 Ordinal Numbers
 - 4.5.3. Fractions
 - 4.5.4 Units of Measure
 - 4.6 Word Order, Contrast and Emphasis
 - 4.6.1 Topic and Focus
 - 4.6.2 Clause-Level Variation
 - 4.6.3 Phrase-Level Variation
 - 4.6.4 Restrictions on Variation
 - 4.7 Summary of Clitic Slots
 - 4.7.1 Verbal Proclitics
 - 4.7.2 Nominal Proclitics
 - 4.7.3 Enclitics
- 5 Formulaic Utterances**
- 5.1 Greetings and Partings
 - 5.2 Forms of Address
 - 5.3 Polite Requests
 - 5.4 Apologies
- 6 Sample Texts and Translations**
- 6.1 *Na Wara Kyeldi* (poem)
 - 6.2 Excerpt from *Xunyevandag i Fach* (liturgical text)
 - 6.3 *Chorémat Hayá* (song)
- 7 Tirazdak-English Glossary**

Appendix A The New Atlantean Kinship Structure

- A.1 Overview
- A.2 Names
- A.3 Kinship Terms
- A.4 The Incest Taboo

Appendix B The New Atlantean Religion

- B.1 Theology
- B.2 The Clergy and Its Role in Society

Appendix C Government and Law in New Atlantis

- C.1 The Political System
- C.2 The Legal System
- C.3 Individual Freedom and the Law: Some Test Cases

Appendix D The New Atlantean Calendar

- D.1 Description
- D.2 Sample Calendars

Appendix E The New Atlantean Economy

Appendix F Liturgical Music in New Atlantis

- F.1 Overview
- F.2 The System of Melodic Modes
 - F.2.1. Modes, Scales, and Half-Scales
 - F.2.2. The Metascale
 - F.2.3. Static and Dynamic Modes
- F.3 The Tuning System
 - F.3.1. Pitches and Intervals
 - F.3.2. Human and Divine Music

Tables

- 2.1 Consonant Phoneme Inventory
- 2.2 Phonetic Realization of Vowel Phonemes
- 3.1 Gender-Number Suffixes
- 3.2 Pronouns
- 3.3 Non-Numeric Quantifiers
- 4.1 Non-Numeric Quantifiers (repeated)
- A.1 Lexical Stems of Kinship Terms
- D.1 Calendars for New Atlantean Years 130-144
- F.1 “Divine Pitch” vs. “Human Pitch”

0. Symbols, Abbreviations and Typographical Conventions

0.1. Note on Phonetic, Phonemic and Graphemic Symbols

In this description of the Tirazdak language, I will follow the usual convention that phonetic symbols and phonetic transcriptions are enclosed in square brackets, that phonemic symbols and phonemic transcriptions are placed between slashes, and that graphemes of the Tirazdak orthography are placed between angle brackets. For example, when referring to the alveolar nasal (the sound that is represented in English by the letter “n”), [n] represents a phone, /n/ represents a phoneme in Tirazdak, and <n> represents the letter that stands for that phoneme in the standard Tirazdak orthography. Phonetic and phonemic symbols are those of the International Phonetic Alphabet (IPA).¹

0.2. Note on Interlinear Glosses

For interlinear glosses, I have followed the conventions described in the Leipzig Glossing Rules, which are specified in detail at <<http://www.eva.mpg.de/lingua/resources/glossing-rules.php>>.

To summarize, the glosses are organized as follows:

1. Line 1: the unmodified Tirazdak text;
2. Line 2: the Tirazdak text with words divided into morphemes, and with some phonotactic changes neutralized for greater clarity;
3. Line 3: a literal morpheme-by-morpheme gloss of Line 2;
4. Line 4: a more or less idiomatic English translation.

Line 1 and/or Line 4 may be omitted if given in the immediately surrounding text, or if sufficiently obvious from the context. In Lines 2 and 3, affixes are separated from stems and from each other by hyphens, while clitics are separated from stems, from affixes, and from each other by equals signs, except where morphemes are not readily segmentable (that is, where two or more morphemes are “squished” into a single “portmanteau morph”), in which case the unsegmentable morph is given as a single unit in Line 2, while the glosses of its component morphemes in Line 3 are separated by periods. Words (but not morphemes within a word) are separated by whitespace, adjusted so that each word in Line 2 is aligned with its gloss in Line 3. (By “word” here I mean a phonological word – that is, an orthographic word plus any attached clitics.) The glosses of lexical morphemes are words in ordinary lower-case letters, while the glosses of grammatical morphemes are abbreviations in small capitals. A list of such abbreviations used in this paper is given below. Certain morphemes have more than one gloss; for example, the preposition *na*, which has allative, locative, dative, and accusative meanings, is glossed as “to”, “at”, “DAT”, or “ACC”, depending on the context.

¹In order for IPA symbols to be displayed and/or printed correctly on a personal computer, it is necessary to use both a font that includes the IPA character set (e.g., Doulos SIL) and a word-processing program that is Unicode-aware.

0.3. Abbreviations Used in Interlinear Glosses

1	first person	IMP	imperative
2	second person	INCH	inchoative
3	third person	INCL	inclusive
ACC	accusative	INFER	inferential
AFF	affirmative	INTER	interrogative
ATEL	atelic	IPFV	imperfective
CAUS	causative	ITER	iterative
COL	collective gender	LOG	logophoric
COM	common gender	M	masculine gender
COMP	complementizer	NEG	negative
COND	conditional	NN	non-nominative
CONJ	conjunction	OPT	optative
CONTR	contrafactual	ORD	ordinal
COP	copula	PASS	passive
EMPH	emphatic	PAST	past
EXCL	exclusive	PERF	perfect
EXIST	existential	PFV	perfective
EXP	experiential	PL	plural
DAT	dative	PLACE	“place” class (neuter II gender)
DU	dual	Q	question
EXCL	exclusive	REL	relative pronoun
F	feminine gender	RT	relative tense
FOC	focus	SEMEL	semelfactive
FRAC	fraction	SG	singular
FUT	future	STUFF	“stuff” class (neuter IV gender)
GEN	genitive	THING	“thing” class (neuter I gender)
HYP	hypothetical	TIME	“time” class (neuter III gender)

0.4. Other Abbreviations

lit.	literally	TAM	tense-aspect-mood
NP	noun phrase	VSO	verb-subject-object
SVO	subject-verb-object		

1. Introduction

1.1. Historical Background

Tirazdak is the official language of the Kingdom of New Atlantis (*Thalmad i Tiraz Kuyemmat*), a small independent nation located on an island in the North Pacific Ocean, roughly halfway between Alaska and Hawaii. The island was uninhabited until 1877, when it was settled by a neo-pagan cult led by Lord Geoffrey St. Clair, an eccentric English aristocrat with ties to the Pre-Raphaelite movement, who purchased the island from the British government. Lord Geoffrey claimed that, in a previous incarnation, he had been a priest-king of the lost continent of Atlantis, and that he had been chosen by the gods to re-create as much as possible of the long-vanished Atlantean civilization on the basis of his recovered memories of that former life.

Whether Lord Geoffrey was a charlatan, a madman, a genuine visionary, or a bit of all three, he certainly was an effective and charismatic leader, who, unlike the great majority of cult leaders, succeeded in building an institutional structure that remained viable long after his death. His success in this endeavor was undoubtedly due in large part to the talents of two remarkable women: his wife, Lady Susan Bennington-St. Clair, and his mistress, Gwendolyn Rhys-Jones. They were both highly competent leaders and organizers in their own right, and, far from being rivals in a “love triangle”, they were lovers of each other as well as of Lord Geoffrey, the three of them constituting a stable, lifelong *ménage à trois* which served as a role-model for the institution of *karazyu* or “group marriage” which is a central feature of the New Atlantean society.

Among the cult’s inner circle was a philologist (or, in more modern terms, a historical linguist), Professor Henry Johnson of Oxford University, who appears to have been primarily responsible for the Tirazdak language. The language purports to be the actual language of ancient Atlantis, as painstakingly reconstructed by Johnson from Lord Geoffrey’s recovered memories, but there is no independently verifiable evidence to support this claim (or, for that matter, to support the claim that Atlantis ever actually existed). But even if the language is a total fabrication, invented by Johnson out of whole cloth, it is certainly interesting enough to be worth documenting. Indeed, on a certain level, it is even *more* interesting if it is a total fabrication, because it would then be the only documented case of a totally constructed language becoming the dominant language of an entire (albeit small) nation.

Tirazdak was originally used only as a ritual and liturgical language, much like Hebrew among non-Israeli Jews, or like Latin among pre-Vatican-II Roman Catholics; the everyday vernacular of the community was English. Tirazdak was taught in the New Atlantean schools as a “classical” language, much as Latin and Greek were taught in the English public schools, but with two important differences: (1) it was taught to *all* children, not only to upper-class boys; (2) it was taught much more effectively (meaning, among other things, starting at a much earlier age). Thus, there was a period of time, beginning a decade or so after the founding of New

Atlantis, in which the younger generation (essentially everyone born and raised in New Atlantis) was reasonably fluent in Tirazdak (although not, of course, native speakers, of whom there were still none), while most of their elders (the immigrant generations, who had been born and educated elsewhere and joined the cult as adults) had only a fragmentary, “book-learning” knowledge of the language. Under those conditions, it was natural that Tirazdak came to be used by children and adolescents as a “secret language” in which they could talk among themselves without being understood by adults. When they grew up and had children of their own, many of those children were natively bilingual in English and Tirazdak. The language evolved rapidly under the pressure of everyday use, and by the next generation (the great-grandchildren of the original settlers), the process was essentially complete; Tirazdak had become the mother tongue of most of the population, although the majority was also fluent in English. This is the situation that pertains today.

1.2. Genetic Classification and Typology

Tirazdak is a language isolate, not demonstrably related to any other known language, living or extinct. It has a few lexical items that appear to have cognates in other languages, e.g., *kitavdak* “book” (cf. Arabic *kitab*), but these are obviously either borrowings or mere coincidental similarities rather than indications of genetic relatedness. (If we assume, for the sake of argument, that Tirazdak truly was originally the language of a civilization far older than any of those for which we have direct archeological evidence, we are forced to the conclusion that any such borrowing must have been from Tirazdak to the previously known language (or its ancestor), rather than vice versa. Thus, *kitavdak* could perhaps be explained by assuming that there was some prehistoric contact between Old Atlanteans and speakers of Proto-Semitic, and that the latter got both the concept of books and a word for them from the former. This hypothesis might not stand up well under serious historical-comparative analysis, but arguing such points one way or the other is not the purpose of this paper.)

Typologically, it is not a particularly “exotic” language. In terms of morphology, it is predominantly isolating, with what little affixation there is being mostly agglutinative rather than fusional, but showing clear traces of an earlier, much more highly inflected and somewhat more fusional stage with a system of noun classifiers (perhaps somewhat like certain Australian Aboriginal languages). It now has a system of nominal suffixes which mark gender and number, but not case (although there are remnants of a case system in some of the pronouns), and which are transparently descended from classifiers. Verbal morphology is even simpler and more transparent than nominal morphology. Tense, mood, and aspect are marked, not by affixes on the verb, but by separate particles which, by default, go in Wackernaegel’s Position (enclitic to the first stress-bearing component of the clause). What affixation there is on the verb is entirely derivational except for voice marking.

In terms of syntactic typology, it falls squarely into the VO, head-modifier, right-branching type. The dominant word orders are SVO in main clauses and VSO in subordinate clauses. However,

there is a great deal of freedom to modify these orders – unusually so in a language that lacks nominal case marking. This freedom, which is made possible mainly by the use of a preposition to mark animate direct objects, tends to be utilized mainly to place the topic at the beginning of its clause and the focus at the end (as in the Slavic languages).

Phonologically, the only unusual thing about it is a three-way division of stop phonemes into voiceless aspirated, voiceless unaspirated, and voiced (as in Ancient Greek); otherwise, its phoneme inventory is quite ordinary in size and distribution. In its range of allowable syllable types and tolerance of consonant clusters, it is more limited than most Indo-European languages but less so than most Austronesian languages.

1.3. About This Paper

This paper is an attempt to give a relatively concise description of the Tirazdak language. It is not a teaching tool intended to enable the reader to acquire a working knowledge of the language. Nor does it purport to be a comprehensive reference grammar, although it is organized more like a reference grammar than like a teaching tool.

The paper is written primarily for an audience with some working knowledge of linguistics. A number of technical terms are used without definition, although there is no presumption that the reader accepts (or even understands) any particular theoretical framework. At the same time, my intent was that a non-linguist reader (the so-called “educated layman”) would be able to read the paper and, while not necessarily understanding every word, get the gist and come away with a general sense of what the language is like.

Following the main body of the paper are several appendices describing various extra-linguistic aspects of the society in which Tirazdak is spoken. Some of these impinge on the language in important ways (for example, kinship terms are an important part of the language, as they are in any human language, and they cannot be understood without some knowledge of the kinship structure to which they refer); others are presented merely in the hope that the reader will find them interesting.

I take no position on the question of whether Tirazdak is a naturally evolved language or an artificially constructed one (and thus also, by extension, the question of whether or not Old Atlantis was real, and, if so, whether or not Lord Geoffrey’s “recovered memories” of it are accurate). These questions I leave for others to debate; my interest is in the language and in the society themselves, without regard to their history or lack thereof.

My study of the Tirazdak language and of the New Atlantean society is far from complete. As I learn more, and understand more of what I have learned, I expect to revise this paper many times. In the meantime, it should be taken for what it is: a work in progress.

2. Phonology and Orthography

2.1. Note on the Writing System

The writing system used by the ancient civilization of Atlantis (assuming that Atlantis actually existed and that Lord Geoffrey St. Clair's "recovered memories" of it are correct) was a featural syllabary, similar in concept (though obviously not in specifics) to the Korean *han'gul*. However, this system has never been reconstructed (or invented) in sufficient detail for actual use. Therefore, the Tirzadk language is now written solely in the Roman alphabet, using an orthography devised for it by Professor Henry Johnson (see §1.1). It is this orthography that will be used throughout this paper, except in phonetic and phonemic transcriptions.

2.2. Overview of Pronunciation

For those readers who are not interested in the detailed phonology, but who merely wish to get a rough idea of the pronunciation before moving on to the grammar and/or the appendices, the following general rules should suffice:

- As a first approximation, vowels are pronounced as in Spanish and consonants as in English, with the following exceptions:
 - <x> = /ʃ/
 - <j> = /ʒ/
 - <ch> = /x/
 - <ph>, <th>, and <kh> represent the aspirated stops /p^h/, /t^h/, and /k^h/, respectively, **not** the fricatives /f/, /θ/, and /x/. The corresponding plain voiceless stops, spelled <p>, <t>, and <k>, are always unaspirated, as in the Romance languages.
 - <r> is a light trill or tap; <rr> is strongly trilled.
- Word-level stress falls, by default, on the last closed syllable of the lexical stem. (The lexical stem consists of the root plus any derivational affixes, but excluding any inflectional affixes. Since prefixes are irrelevant to this rule, and since the only inflectional suffixes that are, or include, closed syllables are gender-number suffixes, what this rule means in practice is that the stressed syllable is the last closed syllable that is not part of a gender-number suffix. [The gender-number suffixes are listed in §3.2.1.] A closed syllable is one in which the vowel or diphthong is followed either by two or more consonants or by one consonant followed by a word boundary. [Note: a digraph (as listed in the previous rule) does not count as two consonants.]) Exceptions to this rule are marked with an acute accent on the stressed syllable.

2.3. Consonant Phonemes

Tirzadk has 23 consonant phonemes, which are shown in Table 2.1 as they are spelled in the standard orthography. (Where the appropriate phonemic representation differs from the orthographic representation, the two are shown side by side, with the phonemic representation between slashes.)

Table 2.1. Consonant Phoneme Inventory

	Bilabial	Labio-dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
<u>Stops</u>							
Voiceless							
Aspirated	ph /p ^h /		th /t ^h /			kh /k ^h /	
Unaspirated	p		t			k	
Voiced	b		d			g	
<u>Fricatives</u>							
Voiceless		f	s	x /ʃ/		ch /x/	h
Voiced		v	z	j /ʒ/			
<u>Nasals</u>	m		n				
<u>Lateral</u>			l				
<u>Trill or tap</u>			r				
<u>Approximants</u>	w				y /j/		

Note the rather unusual three-way contrast in the manner of articulation of the stops (voiceless aspirated vs. voiceless unaspirated vs. voiced, as in Ancient Greek), unlike the much more common two-way contrast (either voiceless vs. voiced, as in English, or aspirated vs. unaspirated, as in Mandarin). Other than that, this is a fairly “ordinary” consonant inventory, both in size and in composition.

2.4. Vowel and Diphthong Phonemes

At the phonemic level, there are only five vowels: /i/, /e/, /a/, /o/, /u/. However, there are allophonic variations in both quality (close/tense vs. open/lax) and quantity (long vs. short). The choice of allophones is conditioned by syllable type, as determined by three criteria: open vs. closed, final vs. non-final, and stressed vs. unstressed. The rules governing these variations are not yet fully understood, and further analysis is clearly needed, but Table 2.2 is a first approximation.

It can be seen from this table that there are actually three versions of the rule governing allophonic variation of vowels: one for the high vowels /i/ and /u/; another for the mid vowels /e/ and /o/, which are pronounced open in some of the contexts in which the high vowels are pronounced close; and yet another for the low vowel /a/, which does not vary in quality at all, but only in length.

An exception to this rule occurs when a word ending in an unstressed closed syllable is pronounced in close juncture with a following word beginning in a vowel, as with the genitive particles *an* and *i* (see §2.6).

In addition to the five phonemic vowels, there are three phonemic diphthongs: /ai/, /au/, and /oi/. Phonetically these are all falling diphthongs, pronounced [aɪ], [aʊ], and [ɔɪ], respectively.

Table 2.2. Phonetic Realization of Vowel Phonemes

Syllable Type			Vowel Phoneme				
Open	Stressed	Final	/i/	/e/	/a/	/o/	/u/
–	–	–	[ɪ]	[ɛ]	[a]	[ɔ]	[ʊ]
–	–	+	[i]	[ɛ]	[a]	[ɔ]	[u]
–	+	–	[ɪ]	[ɛ]	[a]	[ɔ]	[ʊ]
–	+	+	[i]	[ɛ]	[a]	[ɔ]	[u]
+	–	–	[i]	[ɛ]	[a]	[ɔ]	[u]
+	–	+	[i]	[e]	[a]	[o]	[u]
+	+	–	[i:]	[e:]	[a:]	[o:]	[u:]
+	+	+	[i:]	[e:]	[a:]	[o:]	[u:]

2.5. Syllabification, Stress and Timing

A syllable in Tirazdak can be represented as (C)(C)V(V)(C). In other words, it consists of the following five components, of which all but the third are optional:

- an initial consonant;
- a second initial consonant;
- a vowel;
- a second vowel (turning the vocalic nucleus into a diphthong);
- a final consonant.

Thus, a syllable must consist of, at a minimum, one vowel. Combinations of segments within a syllable, and of syllables within a word, are governed by the following rules:

- If there are two initial consonants, the first must be either a stop or a fricative, and the second must be /r/, /l/, /w/, or /j/ (<y>). Any other combination of two adjacent consonants (including two of the same consonant) must be separated by a syllable boundary (and thus cannot occur either word-initially or word-finally).
- A diphthong cannot occur in a closed syllable that is not word-final.
- If there is a syllable-final consonant, it cannot be /h/, /r/, /w/, /j/, or any of the aspirated stops.
- A syllable cannot begin with a vowel unless it is word-initial. (In other words, there must be at least one consonant after every word-internal syllable boundary.)

All words of more than one syllable, except clitics, have a word-level stress accent which, by default, falls on the last closed syllable that is not part of a gender-number suffix. Exceptions to this rule – that is, any stressed open syllable, or any stressed closed syllable that is not the last closed syllable before the gender-number suffix (if any) – are marked with an acute accent. The acute accent is also used to mark some, but not all, stress-bearing monosyllables (essentially only those that might otherwise be mistaken for clitics): for example, *Nín* (the moon) vs. *nin* (the proclitic nominative form of the third-person masculine dual personal pronoun), or *wá* (the stressed form of the first-person singular personal pronoun) vs. *wa* (the proclitic nominative form

of the same pronoun).

There is a strong preference (though not an absolute rule) for word-level stress to fall on the ultima, the penult, or the antepenult, but not before. This accounts for a number of apparent irregularities in the morphology, e.g., a derivational suffix which is realized as *-techa* or *-decha* (unstressed) when word-final, but as *-techá* or *-dechá* (stressed on its last syllable) when followed by a gender-number suffix.

Timing is another area that has not been adequately analyzed and in which more research is needed. At first glance, Tirazdak appears to be a mora-timed language, but there are some problems with this analysis. In most mora-timed languages (e.g., Japanese, Classical Latin), vowel length is phonemic; therefore the length of any given vowel (and thus the number of morae in the syllable in which that vowel occurs) is inherent in the vowel itself. Moreover, in mora-timed languages that have a stress accent (e.g., Classical Latin), the number of morae in each syllable is one of the factors determining stress assignment. In Tirazdak, however, it is the other way around: stress is one of the factors determining vowel length, and thus mora count, rather than vice versa. Thus, Tirazdak appears to have a combination of mora-timing and stress-timing. Perhaps it is essentially mora-timed, but with an element of stress-timing introduced by interference from English (a stress-timed language); this would not be surprising in view of the fact that most of the population of New Atlantis is bilingual in Tirazdak and English, and that most of the original, non-native speakers of Tirazdak were native speakers of English.

2.6. Phonotactics and Morphophonemics

If the addition of a suffix causes a word-final closed syllable containing a diphthong to become non-word-final (and thus to be in violation of the rule that a diphthong cannot occur in a non-word-final closed syllable), the diphthong is shortened to a single vowel (/ai/ or /oi/ becoming /e/, or /au/ becoming /o/).

A syllable-final /n/ assimilates to the point of articulation of the initial consonant of the next syllable, becoming /m/ before a labial consonant or [ŋ] before a velar consonant. In the former case, the spelling is changed accordingly, from <n> to <m>, but in the latter case, the spelling is unchanged (there being no phoneme /ŋ/ in the language, and therefore no grapheme in the orthography for the phone [ŋ]). This assimilation is mandatory within a word and optional across a word boundary within a phrase; it does not occur across phrase boundaries. (There is no such general rule for /m/, e.g., *charim* + *dan* becomes *charimdan*, not **charindan*.)

The two genitive prepositions, both of which are vowel-initial – the generic or non-referential genitive *i* and the specific or referential genitive *an* – interact phonotactically with both the preceding and following words, in the following ways:

- If the preceding word ends in a consonant:
 - if the consonant is voiceless, it becomes voiced, e.g., *kextak* “house” but *kextag an Yovan* “John’s house”;
 - if the final, closed syllable is unstressed:
 - the consonant is, in effect, moved across the word boundary, becoming phonologically the initial consonant of the following (previously, and still orthographically, vowel-initial) word, and making the first word

phonologically (though, again, not orthographically) vowel-final (what was a closed syllable becoming an open one);

- if the vowel in the affected syllable is /e/, the change from an unstressed closed to an unstressed open syllable triggers a change from the lax allophone [ɛ] to the tense allophone [e] (see the rule on vowel allophones above); thus, for example, *kitavdek* “books” in isolation is pronounced [ki'tavdek], but when it is followed by the prepositional phrase *an Yovan* “of John”, the resulting phrase “John’s books” is spelled *kitavdeg an Yovan* and pronounced [ki'tavde:ganjo'van];
- if the final, closed syllable is stressed, the moving of the final consonant across the word boundary still takes place as described above unless the vowel in that syllable is /e/, in which case the final consonant is doubled, so that the syllable remains closed, allowing the /e/ to retain its lax pronunciation [ɛ], while the second of the doubled consonants moves across the word boundary; the doubling of the consonant, but not the motion across the word boundary, is shown orthographically; for example, *kyell i tí* “to be a lover of women” (either a heterosexual man or a lesbian, from *kyel* “to be a lover or sexual partner of, to have sex with”) is pronounced [ˈkjɛl:i'ti:], as if it were spelled **kyel li tí*.
- If the preceding word ends in a vowel:
 - if the preposition is *i*, an epenthetic /n/ is inserted to avoid having two adjacent vowels, e.g., *kotrandi ni kitav* “(female) bookseller” (cf. *kotrandan i kitav* “(male) bookseller”);
 - if the preposition is *an*, its initial /a/ is elided (and replaced orthographically by an apostrophe), e.g., *mádi'n Yovan* “John’s mother”; however, the final syllable of the preceding word is still treated as an open syllable, so the vowel allophone is unaffected (thus the above example is pronounced [ˈma:diŋjo'van], not [ˈma:dmjo'van]).
- If the preposition is *i* and the following word begins in a vowel, an epenthetic /r/ is inserted to avoid having two adjacent vowels, e.g., *kextag ir autodak* “garage” (lit. “house of cars” or “car-house”).

If a content word beginning with an unstressed CV syllable whose vowel is /a/ is immediately preceded by a preposition or other proclitic ending in a vowel, the /a/ is elided in pronunciation, and replaced by an apostrophe in spelling – for example, *na n'yazdan* “to the man” (instead of **na nayazdan*). This elision is mandatory if the final vowel of the proclitic is also /a/, but optional otherwise; for example, either *e Mari* or *e M'ri* is acceptable, but **na Mari* is not; it must be *na M'ri*.

3. Morphology

3.1. Word Classes

Word classes in Tirazdak are best described as a hierarchy, with three major classes (nominals, verbs, and particles) each divided into subclasses, and some of the subclasses further divided into sub-subclasses. The major classes of nominals and verbs each contain both open and closed subclasses, while the major class of particles is entirely closed.

The Tirazdak word-class hierarchy is structured as follows:

- Nominals
 - Nouns (open class)
 - Common nouns
 - Proper names
 - Pronouns (closed class)
 - Determiners (closed class)
 - Quantifiers (closed class)
 - Cardinal numbers
 - Non-numeric quantifiers
 - Units of measure (semi-open class)
- Verbs
 - Stative verbs (open class)
 - Ordinary stative verbs (open subclass)
 - Modal verbs (closed subclass)
 - Semi-modal verbs (closed subclass)
 - Locative verbs (closed subclass)
 - Dynamic verbs (open class)
- Particles (closed class)
 - Tense-aspect-mood particles
 - Primary tense-aspect particles
 - Secondary aspect particles
 - Mood particles
 - Prepositions
 - Conjunctions
 - Coordinating conjunctions
 - Subordinating conjunctions
 - Adverbs
 - Miscellaneous particles

Boundaries between classes are relatively fluid. In general, any open-class lexical root can be used as either a noun or a verb, by using it with the appropriate affixes (or lack thereof) in the appropriate syntactic environment. For example, any common noun X can be turned into a

stative verb meaning “to be an X” simply by removing the gender-number suffix. Conversely, any non-modal verb X (whether stative or dynamic) can be turned into a noun by adding an appropriate gender-number suffix; for example, adding a masculine, feminine, or common-gender suffix to a verb X gives a noun meaning “person who habitually does X”, “X-er”.

There is no distinct class of adjectives. There is also no copula. Where English would use a copula-plus-predicative-adjective construction, Tirazdak simply uses a stative verb. Conversely, where English would use an attributive adjective to modify a noun, Tirazdak in effect turns a stative verb into an attributive adjective by giving it a gender-number suffix to match the gender and number of the modified noun; the resulting construction is arguably better characterized as two nouns in apposition than as a noun modified by an adjective, but for convenience I will continue to use the more traditional terminology.

3.2. Inflectional Morphology

3.2.1. Nouns

The class of nouns is divided into two subclasses: common nouns and proper names. Common nouns, but not proper names, are marked for gender and number.

There are eight genders (or noun classes), distinguished on a fairly consistent and transparent semantic basis, and three numbers. Table 3.1 shows the gender-number suffixes, along with a brief summary of the semantic criteria for each gender. Where two variants of a suffix are given, the first is used after voiceless consonants and the second is used after vowels or voiced consonants.

When a dual suffix is used with one of the small minority of nominal stems that end in an unstressed open syllable, the first syllable of the suffix is dropped, in keeping with the general tendency to avoid placing word-level stress before the antepenult (see Chapter 2). For example, the dual of *zanzadak* (a musical instrument resembling a large, non-portable hurdy-gurdy) is not **zanzadegin* but *zanzagin*.

The eight genders are grouped into two superclasses: the first four are classified as animate and the other four as inanimate. This grouping is significant because animate and inanimate nouns show different syntactic behavior in several respects (see Chapter 4).

There are a few exceptions to the purely semantic gender-assignment criteria given here. Certain inanimate entities are grammatically masculine or feminine because they are regarded as manifestations of the God or the Goddess. For example, *Máta* (the earth) and *Nín* (the moon) are feminine, and *Sísu* (the sun) is masculine. (These examples are all proper names, unlike their English counterparts, and therefore do not themselves take gender-number suffixes, but their gender still matters because any attributive adjectives that modify them and any pronouns that

refer to them must agree with them in gender and number.)

Table 3.1. Gender-Number Suffixes

<u>Gender</u>	<u>Description</u>	<u>Singular Suffix</u>	<u>Plural Suffix</u>	<u>Dual Suffix</u>
Masculine	Men, male gods, male animals, etc.	<i>-tan</i> <i>-dan</i>	<i>-tain</i> <i>-dain</i>	<i>-tenin</i> <i>-denin</i>
Feminine	Women, goddesses, female animals, etc.	<i>-ti</i> <i>-di</i>	<i>-tre</i> <i>-dre</i>	<i>-trehin</i> <i>-drehin</i>
Common	Humans, deities, animals, etc. of unknown or unspecified sex	<i>-nas</i>	<i>-nex</i>	<i>-nejin</i>
Collective	Groups of humans, animals, deities, etc. where the group is viewed as a single entity	<i>-nal</i>	<i>-nel</i>	<i>-nelin</i>
Neuter I ("thing" class)	Inanimate objects	<i>-tak</i> <i>-dak</i>	<i>-tek</i> <i>-dek</i>	<i>-tegin</i> <i>-degin</i>
Neuter II ("place" class)	Places	<i>-mat</i>	<i>-met</i>	<i>-medin</i>
Neuter III ("time" class)	Times	<i>-sam</i> <i>-zam</i>	<i>-saim</i> <i>-zaim</i>	<i>-semin</i> <i>-zemin</i>
Neuter IV ("stuff" class)	Non-count nouns, including most abstract nouns	<i>-yu</i>	-----	-----

If the "stuff"-class suffix *-yu* is added to a root ending in unstressed *-i*, or in one of the diphthongs *-ai* or *-oi*, the final *-i* of the root is dropped, subsumed into the *-y-* of the suffix. This seems to be particularly common in nouns denoting foods or beverages, e.g., *bambáyu* "bread" (root *bambai*), *silmáyu* "wine" (root *silmai*), *ilyóxu* "water" (root *ilyóxi* – slightly irregular, with the *-y-* dropped along with the *-i*).

It is quite common for a single nominal root to be used with multiple gender suffixes to form multiple nouns with distinct but related meanings: for example, *thaldan* "king" (masculine) vs. *thalmat* "kingdom" ("place" class) vs. *thalyu* "royalty" ("stuff" class); *kitavdak* "book" ("thing" class) vs. *kitavmat* "library" ("place" class) vs. *kitavnas* "scholar, intellectual" (common).

A few nominal roots, such as *vax* "head", are irregular in that their final consonants, normally voiceless, become voiced before a gender-number suffix that begins with a voiced consonant: *vaxtak* "head" (body part), but *vajnas* "head, chief" (person). (With most nominal suffixes, it works the other way, as mentioned above: the initial consonant of the suffix is voiced or

devoiced wherever possible to match the voicing of the final consonant of the stem.)

3.2.2. Pronouns

Tirazdak pronouns have stressed (independent) and unstressed (proclitic) forms (with the exception of the relative pronoun, which has only the unstressed forms). The stressed forms are used only for emphasis (generally either as focus or as contrastive topic), and their syntactic behavior is essentially identical to that of nouns. The unstressed forms are the default forms. Unstressed pronouns, alone among Tirazdak nominals, have a limited sort of case marking: a contrast between a nominative (unmarked) form and a non-nominative form marked with a suffixed *-(r)a*. The non-nominative forms can have genitive, dative, or accusative functions; these will be discussed below in the section on syntax. The personal pronouns (but not the other pronouns) distinguish number; those of the third person distinguish gender as well, and are very similar to the corresponding gender-number suffixes.

Table 3.2 shows the pronouns in all their forms.

The stressed forms of the third-person personal pronouns have a distinctly archaic feel and are seldom used except in ritual and poetry. In ordinary discourse, both spoken and written, their place is taken by demonstratives (see below) with the appropriate gender-number suffixes.

The reflexive and reciprocal pronouns lack the unstressed nominative forms, because they never occur as subjects. The stressed reflexive pronoun *ká* is identical to, and transparently derived from, the stem of the noun *kádak* “soul, self, ego”.

When any pronoun, whether stressed or unstressed, is used to refer to the God or the Goddess, it begins with an upper-case letter. However, this practice of pronoun-capitalization is usually not followed when referring to one of the many lesser gods and goddesses, who are regarded as particular aspects or manifestations of *the* God or *the* Goddess.

Table 3.2. Pronouns

Columns: A = stressed
 B = proclitic nominative
 C = proclitic non-nominative

	Singular			Plural			Dual		
	A	B	C	A	B	C	A	B	C
<u>1st Person</u>									
Exclusive	<i>wá</i>	<i>wa</i>	<i>wara</i>	<i>vré</i>	<i>vre</i>	<i>vreya</i>	<i>vrehin</i>	<i>vrin</i>	<i>vrina</i>
Inclusive	-----	----	-----	<i>kó</i>	<i>ko</i>	<i>kora</i>	<i>koin</i>	<i>kwen</i>	<i>kwena</i>
<u>2nd Person</u>	<i>xí</i>	<i>xi</i>	<i>xia</i>	<i>xwé</i>	<i>xwe</i>	<i>xweya</i>	<i>xwehin</i>	<i>xwin</i>	<i>xwina</i>
<u>3rd Person</u>									
Masculine	<i>tán</i>	<i>tan</i>	<i>tana</i>	<i>tain</i>	<i>ten</i>	<i>tena</i>	<i>tenin</i>	<i>nin</i>	<i>nina</i>
Feminine	<i>tí</i>	<i>ti</i>	<i>tia</i>	<i>tré</i>	<i>tre</i>	<i>treya</i>	<i>trehin</i>	<i>trin</i>	<i>trina</i>
Common	<i>nás</i>	<i>nas</i>	<i>naza</i>	<i>naij</i>	<i>nex</i>	<i>neja</i>	<i>nejin</i>	<i>jin</i>	<i>jina</i>
Collective	<i>nál</i>	<i>nal</i>	<i>nala</i>	<i>nail</i>	<i>nel</i>	<i>nela</i>	<i>nelin</i>	<i>lin</i>	<i>lina</i>
Thing-class	<i>ták</i>	<i>tak</i>	<i>taga</i>	<i>taig</i>	<i>tek</i>	<i>tega</i>	<i>tegin</i>	<i>gin</i>	<i>gina</i>
Place-class	<i>mát</i>	<i>mat</i>	<i>mada</i>	<i>maid</i>	<i>met</i>	<i>meda</i>	<i>medin</i>	<i>din</i>	<i>dina</i>
Time-class	<i>zám</i>	<i>zam</i>	<i>zama</i>	<i>zaim</i>	<i>zem</i>	<i>zema</i>	<i>zemin</i>	<i>min</i>	<i>mina</i>
Stuff-class	<i>yú</i>	<i>yu</i>	<i>yua</i>	----	----	-----	-----	-----	-----
<u>Non-Personal</u>									
Relative	-----	<i>su</i>	<i>sua</i>	-----	-----	-----	-----	-----	-----
Reflexive	<i>ká</i>	----	<i>kara</i>	-----	-----	-----	-----	-----	-----
Reciprocal	<i>kail</i>	----	<i>kela</i>	-----	-----	-----	-----	-----	-----
Logophoric ¹	<i>sá</i>	<i>sa</i>	<i>sara</i>	-----	-----	-----	-----	-----	-----
Impersonal ²	-----	<i>val</i>	<i>vala</i>	-----	-----	-----	-----	-----	-----

¹The logophoric pronoun is used in certain kinds of subordinate clauses to refer to the subject of the matrix clause (see §4.3.2.1.1.4).

²The impersonal pronoun is comparable to French *on*, German *man*, or English unstressed “one”.

3.2.3. Determiners

Determiners in Tirazdak are a third subclass of nominals, which could be regarded as intermediate between nouns and pronouns. Like nouns, they take gender-number suffixes and have only stress-bearing forms, but like pronouns, they can refer to any noun (and must agree in gender and number with their referents). (As mentioned above, there are many noun stems that can have more than one gender, but a determiner can have *any* gender.) There are five determiners: three demonstratives, one interrogative, and one indefinite.

The demonstratives are formed by adding gender-number suffixes to the locative verbs *yé* “be here” (near the speaker), *yó* “be there” (near the addressee), and *yá* “be over there, yonder” (distant from both the speaker and the addressee). Thus, for example, *yédan* means “this man”, *yádek* means “those things over there”, etc.

The interrogative determiner *sú* is used for asking wh-questions: *súnas* “who” (“what person”), *súdak* “what” (“what thing”), *súmat* “where” (“what place”), *súzam* “when” (“what time”), etc. (In a sense, *sú* is the “missing” stressed form of the relative pronoun *su*, but it would be more accurate to say that the relative pronoun originated as an unstressed form of the interrogative, as in English and in the Romance languages.)

The indefinite determiner *suré* means “any” or “whatever”: *surénas* “anyone, whoever”, *surédak* “anything, whatever”, *surémat* “anywhere, wherever”, *surézam* “anytime, whenever”, etc.

Any determiner can be used either as a pronoun (forming a noun phrase in itself, as in the examples given above) or as an attributive adjective modifying a noun. In the latter usage, they behave somewhat differently from ordinary attributive adjectives³. If the determiner precedes the noun, the construction used is not **yádi chaldi* “that priestess” or **súdak kitavdak* “what book”, but rather *yádi ni chal* or *súdag i kitav* (lit. “that woman of priest” or “what thing of book”), using the generic genitive particle *i* (*ni* after a vowel). However, if the determiner follows the noun (to place contrastive emphasis on the determiner), the standard noun+adjective construction is used: *chaldi yádi* “that priestess” (as opposed to some other priestess), *kitavdak súdak* “what book??”

3.2.4. Quantifiers

Quantifiers include all cardinal numbers (but not ordinal numbers) as well as several words with such meanings as “many”, “few”, etc. Numbers (both cardinal and ordinal) are discussed in detail in §4.6. The non-numeric quantifiers, unlike cardinal numbers (which, by definition, can quantify only count nouns), can be used to quantify uncountables (mass nouns) as well as count nouns. They can also be used as adverbs modifying attributive adjectives or stative verbs (for

³Or rather, stative verbs used attributively, Tirazdak not having a separate lexical category of “adjective”.

example, in comparative expressions). They are listed, with their meanings in these various functions, in Table 3.3.

Table 3.3. Non-Numeric Quantifiers

	<u>with count nouns</u>	<u>with mass nouns</u>	<u>as adverb</u>
<i>jó</i>	many	much, a lot of	very
<i>joven</i>	more	more	more
<i>joverá</i>	most	most	most
<i>vis</i>	few, a few	a little	slightly, a little
<i>vizen</i>	fewer	less	less
<i>vizerá</i>	fewest	least	least
<i>vú</i>	some, several	some	somewhat, sort of
<i>swéla</i>	enough	enough	... enough, sufficiently ...
<i>kwelma</i>	too many	too much	too
<i>sújo</i>	how many?	how much?	how ...?, to what degree?
<i>yéjo</i>	this many	this much	this ...
<i>yójo</i>	that many	that much	that ...
<i>yájo</i>	that many	that much	that ...
<i>manjo</i>	as many as	as much as	as ... as
<i>terai</i>	all, all of	all, all of	completely, totally
<i>duvai</i>	some of	some of, part of	partially

Quantifiers, like determiners, can be used either as pronouns or as attributive adjectives, and the syntax of the latter (more frequent) usage is the same as for determiners, e.g., *jódag i kitav* “many books” (lit. “many thing of book”), not **jódak kitavdak* or **jodek kitavdek*. However, non-numeric quantifiers (though not numerals) can also be used as adverbs, while determiners cannot. The uses of quantifiers will be discussed in detail in §4.4.5 and §4.5.

3.2.5. Units of Measure

Unit of measure are arguably best regarded as a subclass of nouns that, like proper names, do not

take gender-number suffixes, but it seems more convenient to group them with quantifiers. Their prototypical function is to connect a quantifier, most often a cardinal number, with a non-countable noun, e.g., *hin litra ilyóxu* “two liters of water”, but it is possible to omit the quantifier, in which case it is implicitly understood as the number *val* “one”, e.g., *kilogram bambáyu* “a kilogram of bread”, or to omit the noun, e.g., *jai kilometra* “three kilometers”. (Indeed, some units that measure abstract quantities such as time and distance cannot be used with nouns.) Some can be used **only** as units of measure, and thus can never occur with a gender-number suffix, e.g., *litra*, *kilogram*. On the other hand, any noun denoting a type of container can be used either as a unit of measure (without a gender-number suffix) or as an ordinary noun: for example, *xinga silmáyu* “glass of wine”, but *xingadag i silmai* “wine-glass”. The use of units of measure is discussed in §4.5.

3.2.6. Verbs

Tirazdak does not have a great deal of verbal morphology, and most of what it does have is derivational rather than inflectional. Tense, mood, and aspect are marked not by affixes on the verb but by separate particles, and thus do not come under the heading of morphology; they are discussed in §4.2.4.

The only inflectional category in Tirazdak that is morphologically marked on the verb is voice. There are two voices: active (unmarked) and passive (marked by the prefix *at-*). When the stem of the verb begins with a consonant (as the overwhelming majority of verb stems do), the /t/ of the prefix assimilates to the point of articulation of that consonant. Thus,

- *tumfach* “kill” > *attumfach* “be killed”
- *xunai* “say” > *atxunai* “be said”
- *pharé* “see” > *appharé* “be seen”
- *karen* “give” > *akkaren* “be given”
- *charim* “know” > *akcharim* “be known”

Any transitive verb can be passivized. As in English, passivization decreases the valency of the verb by one (changing it from monotransitive to intransitive, or from ditransitive to monotransitive) by eliminating the subject and promoting the object to subject. If the original verb is ditransitive, the object thus promoted can be either the direct object or the indirect object; thus, *kitavdak te akkaren na chaldi* “the book was given to the priestess” (direct object promoted) and *chaldi te akkaren kitavdak* “the priestess was given the book” (indirect object promoted) are equally grammatical. This rarely results in any ambiguity, because in the vast majority of situations expressed by ditransitive verbs, the indirect object is animate and the direct object is inanimate.

There are, however, some severe constraints on passivization (much more so than in English); these will be discussed in §4.2.7.

Verbs are classified as intransitive, (mono)transitive, or ditransitive. They are also classified as active or stative. The division into transitivity classes and the division into active and stative are mutually independent and orthogonal (unlike some languages, such as Indonesian, in which all stative verbs are intransitive). The stative-verb class contains three small, closed subclasses: modal verbs, semi-modal verbs, and locative verbs; modal and semi-modal verbs will be discussed in §4.3.2.1.2 and locative verbs in §4.2.8.

3.3. Derivational Morphology

3.3.1. Deriving Nouns from Nouns

Probably the most common means of deriving a noun from another noun is by changing its gender. For example, *kitavdak* “book” (lit. “book-thing”) can be changed to *kitavmat* “library” (“book-place”), *kitavnas* “scholar, intellectual” (“book-person”), *kitavdan* “(male) scholar” (“book-man”), *kitavdi* “(female) scholar” (“book-woman”), or *kitavyu* “text, printed material” (“book-stuff”). It is often impossible with such sets of related nouns to determine with any certainty which is the original noun and which are the derived forms.

Derivations of this type can be somewhat idiosyncratic. For example, *kextak* (“house-thing”) means “house” (the physical building), while *kexmat* (“house-place”) means “home” (the more general idea of a place where one lives). Comparing this with *kitavdak* “book” and *kitavmat* “library” (see above), we find that the idea of a building or enclosed space is conveyed by the thing-class suffix for one root and by the place-class suffix for the other.

It is also possible to add a verbal tense-marking particle as a suffix to a noun, after the stem but before the gender-number suffix, to indicate temporal displacement into the past or the future. For example, from *karazdan* “male spouse, husband”, we can add the imperfective past tense marker *zo* to get *karazzodan* “ex-husband”, or the imperfective future tense marker *nu* to get *karaznudan* “husband-to-be, fiancé”.

There is a very productive compounding process in which a head noun and a modifying noun are connected by the generic genitive particle *i*. Such compounds are very similar to English compounds such as “doghouse” or “cookie-cutter”, except that the order is reversed (head-modifier instead of modifier-head). For example, combining *kextak* “house” and *varach* “god” in this way gives us *kextag i v'rach* “temple” (lit. “god-house”). In all such compounds, the head takes a gender-number suffix but the modifier does not. If the head ends in a vowel, an epenthetic *n-* is inserted before the *i*, e.g., *kotrandi ni kitav* “(female) bookseller”. If the modifier begins with a vowel, an epenthetic *-r* is inserted after the *i*, e.g., *kextag ir ankulanna* “auditorium” (lit. “listening-house”). This process can be applied recursively, generating long compounds such as *kotranmad i kitav i fiksyon i siyentsi* “science-fiction bookstore” (lit. “sell-place of book of fiction of science”).

Much less productive and more idiosyncratic is a process that involves the following three changes, or any two of them (whichever are applicable to the root in question): (1) initial reduplication; (2) replacement of the vowel in the stressed syllable according to the formula (/i/ > /u/, /e/ > /a/, (/a/|/u/) > /o/, /o/ > /au/); (3) adding voicing to a final unvoiced consonant. The semantic property imparted by this morphological process could be called “augmentative”; it gives a sense of increased size and/or importance, e.g., *kekajdak* “building” < *kextak* “house”.

3.3.2. Deriving Verbs from Nouns

In Tirazdak, as has already been mentioned, any common noun X can be converted into a stative verb meaning “to be an X” simply by removing the gender-number suffix, e.g., *nayazdan chal* “the man is a priest”. Any ambiguity that might arise as to the gender of the predicate (since, as we have seen, some nominal stems can take multiple gender suffixes, with significantly different meanings) is resolved by the fact that a stative verb must have an overt subject (whether it be a noun, a pronoun, or a determiner) and the subject must have a gender (whether or not the gender is overtly marked). Thus,

- *yádak kitav* “that thing is a book”
- *yádan kitav* “that man is a scholar (book-person)”
- *yámat kitav* “that place is a library (book-place)”

The suffix *-(t/d)echa*, applied to a nominal stem X, derives a stative verb meaning “to pertain to X, have to do with X”. Most commonly, such a verb is used, by the addition of the appropriate gender-number suffix, as an attributive adjective meaning “of or pertaining to X”, e.g., *varachtecha*- “divine, of or pertaining to the gods” from *varach*- “god(dess)”. Words formed with this affix have irregular stress: when used attributively (with a gender-number suffix), they are stressed on the last syllable of the derivational affix, but when used predicatively (without any gender-number suffix), they have the expected stress pattern. For example, in *kitavdak varachtecha* “the book is divine”, *varachtecha* is stressed on the last syllable of the lexical root, as predicted by the normal stress rule, but in *kitavdak varachtechádak* “the divine book”, the same word (except for the addition of the singular “thing-class” suffix) is unpredictably stressed on the last syllable of the derivational suffix, rather than the last syllable of the root. This irregularity is a manifestation of a general tendency to shift the stress when necessary to avoid placing word-level stress farther back than the antepenult (see Chapter 2).

Another way of deriving verbs from nouns involves the inchoative prefix *en-*. Since this prefix is also (and more frequently) used in verb-to-verb derivations, discussion of it will be deferred to §3.3.4.

3.3.3. Deriving Nouns from Verbs

Just as removing a noun’s gender-number suffix converts it to a verb, adding a gender-number

suffix to a verb converts it to a noun. The meaning of the resulting noun varies with the gender of the added suffix. Starting with any verb X, by choosing the appropriate suffix we can generate a noun meaning a person who regularly or habitually does X (an “X-er”), a device for doing X, a place where X is done, etc. For example, from the dynamic verb *tunkirex* “heal” (which itself is derived from the stative verb *kirex* “be healthy”, by processes which will be discussed under “Deriving Verbs from Verbs”), we get *tunkirexnas*, *tunkirexti*, *tunkirextan* “healer, physician”; *tunkirexmat* “hospital, clinic”; *tunkirextak* “medical or surgical instrument” (which can refer to anything from the contents of the traditional doctor’s little black bag to a high-tech device such as a CAT scanner).

A special and somewhat non-intuitively-obvious instance of this process is the use of the neuter IV (stuff-class or uncountable) gender-number suffix *-yu* to form something like a gerund: a noun meaning the action or state denoted by the verb, the act of X-ing (for a dynamic verb) or the state of X-ness or X-hood (for a stative verb). For example, from the dynamic verb *xunai* “speak” we get *xunáyu* “speech, language”, and from the stative verb *tarak* “be hard, rigid” we get *tarakyu* “hardness, rigidity”. (The latter example is potentially ambiguous, since *tarakyu* could also mean “hard stuff”, but the context should usually suffice to resolve this ambiguity.) If the verb stem ends in one of the diphthongs *-ai* or *-oi*, or in an unstressed *-i*, the *-i* is dropped when *-yu* is added, as in *xunáyu* < *xunai* (see above) or *zolyu* “walking” < *zóli* “walk”.

The verb stem to which a gender-number suffix is added in this way need not be a simple verb root. A number of participle-like forms can be derived by adding a gender-number suffix to a verb which has already undergone one or more other inflectional and/or derivational processes: for example, *attumfachedan* “man who has been killed” (a word which functions more or less like a perfect passive participle, as in the ritual phrase *Varachtan Attumfachedan ne Fyendan* “the Slain and Living God”) is formed from the stative verb *fach* “dead” by adding first the inchoative prefix *en-* (giving *emfach* “die”), then the causative prefix *tu-* (giving *tumfach* “kill”), then the passive voice prefix *at-* (giving *attumfach* “be killed”), then the enclitic perfective past tense particle *te* (giving *attumfach te* “was killed, has been killed”), and finally the masculine singular gender-number suffix *-dan* (giving *attumfachedan* “man who has been killed, slain man”).

3.3.4. Deriving Verbs from Verbs

There are a number of affixes which can be used to derive verbs from other verbs (at least one of which, as mentioned above, can also be used to derive verbs from nouns). Among these are the following:

The inchoative/inceptive prefix *en-* derives a dynamic verb from a dynamic verb, a stative verb, or a noun. When applied to a noun or to a stative verb, it has an inchoative meaning (to become X), e.g., *enchal* “be ordained (become a priest or priestess)” from *chaldan/chaldi/chalnas* “priest/priestess”, *emfach* “die (become dead)” from *fach* “dead”. (Note that the *-n-* of the prefix

assimilates in point of articulation to the initial consonant of the stem.) When applied to a dynamic verb, it has an inceptive meaning (to begin to X), e.g., *enzai* “start out, get going” from *zai* “go”. The derived verb has the same valency as the original verb.

The causative prefix *tu-* derives a dynamic verb from a dynamic or stative verb, e.g., *tumfach* “kill (cause to die)” from *emfach* “die”, *tupharé* “show (cause to see)” from *pharé* “see”, *tuzai* “send (cause to go)” from *zai* “go”. The valency of the derived verb is one greater than that of the original verb, which may be intransitive or monotransitive but cannot be ditransitive. If the original verb is intransitive, the derived verb is monotransitive, and the original subject is demoted to direct object (*chaldan te emfach* “the priest died” > *xaidan te tumfach na chaldan* “the old man killed the priest”). In general, if the original verb is monotransitive, the original subject is demoted to indirect object while the original direct object remains the direct object (*chaldan te pharé kitavdak* “the priest saw the book” > *xaidan te tupharé kitavdak na chaldan* “the old man showed the book to the priest”), but there are idiosyncratic exceptions for a few verbs such as *zai* “go (to)”, which will be discussed in Chapter 4.

Some of these affixes are less easily categorized; they modify the meaning of a verb in ways that are to some degree idiosyncratic, depending at least in part on the semantics of that verb. (They are also less productive; they cannot be applied to just any verb.) For example:

The infix *-(y)er-* could perhaps be called an intensifier. Applied to a dynamic or stative verb, it adds an element of “weight” (seriousness, gravity), e.g., *xunyerai* “discuss, confer, deliberate” from *xunai* “talk”.

The circumfix *an-...-na* adds an element of volitionality to what would otherwise be a simple verb of perception, e.g., *ampharéna* “look at” from *pharé* “see”, *ankulanna* “listen to” from *kulan* “hear”.

4. Syntax

4.1. Clauses and Sentences

A **clause** in Tirazdak consists, at a minimum, of a **predicate** plus one or more **arguments**. The predicate may be a verb or a non-verbal predicate (a predicate nominal, a particle, or a prepositional phrase). An argument may be a pronoun, a determiner, a noun, or a clause functioning as a noun (see §4.3.2.1); if a noun, it may be modified by any of several kinds of adnominal modifiers (determiners, quantifiers, attributive adjectives, genitives, or relative clauses). The number of arguments depends on the **valency** of the predicate. An intransitive verb or a non-verbal predicate takes one argument: a subject. A monotransitive verb takes two arguments: a subject and a direct object. A ditransitive verb takes three arguments: a subject, a direct object, and an indirect object. Certain verbs are **ambitransitive**, meaning that they can take a variable number of arguments. Tirazdak is not a pro-drop language, so every argument that is required by the predicate must be overtly present in the clause as either a noun or a pronoun; an argument that can be identified from the context may be replaced by a pronoun but may not be omitted entirely.

In addition to the predicate and argument(s), a clause may contain one or more **adjuncts**. An adjunct is generally either a particle or a prepositional phrase; in either case, its function is adverbial, modifying the clause as a whole rather than a particular constituent.¹ (A particle or prepositional phrase modifying a particular constituent is a part of that constituent, not an immediate constituent of the clause; such constituent-level modifiers will be discussed later.)

A clause may also contain one or more tense/aspect/mood (TAM) particles. These are enclitics whose normal position is immediately after the first stress-bearing constituent of the clause. There are also other types of particles, such as negators, question particles, and focus-marking particles. All of these are arguably types of adjuncts, but it will be more convenient to treat them separately.

A **sentence** contains one or more clauses. A **simplex sentence** contains only one clause; a **compound sentence** contains two or more clauses linked by **parataxis** (coordination); a **complex sentence** contains two or more clauses linked by **hypotaxis** (subordination). In parataxis, two or more **coordinate clauses** are connected by coordinating conjunctions such as “and” or “or”; in hypotaxis, there is a **main clause** within which are embedded one or more **subordinate clauses** (which may be adverbial clauses, complement clauses, or relative clauses). Parataxis and hypotaxis may be combined in one sentence, with subordinate clauses embedded within coordinate clauses and/or vice versa.

¹This terminology is not fully standardized. What I am calling “arguments” and “adjuncts”, some linguists would call “core arguments” and “oblique arguments”, respectively.

In addition to one or more clauses, a sentence may include elements that are not constituents of any clause, but are constituents of the sentence as a whole. These include **vocatives** and **interjections**. Unlike arguments and adjuncts, both of which modify the meaning of a clause, vocatives and interjections place the sentence in a larger context without modifying its meaning: vocatives by indicating who the sentence is addressed to, and interjections by indicating how the speaker feels about what is being said.

Except for TAM particles, the constituents of a clause or sentence can occur in any order without changing the propositional content. (In other words, Tirazdak is what is often, somewhat misleadingly, called a “free-word-order” language.) However, some orders are far more common than others. In general, the most common and least pragmatically marked orders are subject-verb-object (SVO) in main clauses and verb-subject-object (VSO) in subordinate clauses. Deviations from these orders are used to single out particular constituents for special emphasis of one sort or another – to place some constituents in the foreground and others in the background. Alternative constituent orders and their functions will be discussed further in §4.6.

4.2. Simplex Sentences

A simplex sentence is one which consists of only one clause. Before going on to complex sentences (those consisting of more than one clause), we will first consider the various types of simplex sentences, and also consider whatever elements of syntax can meaningfully be discussed in the context of simplex sentences.

4.2.1. Predicates and Arguments

Note: Some of the following examples will include the tense/aspect particle *te*, which marks the combination of past tense and perfective aspect (for dynamic verbs, essentially equivalent to the English simple past tense). Tense, aspect and mood (TAM) marking will be discussed in detail in §4.2.4; in the meantime, all the reader needs to know is that TAM particles in Tirazdak are enclitics that immediately follow the first stress-bearing constituent of the sentence or clause.

4.2.1.1. Intransitive Sentences

Probably the simplest kind of sentence is one consisting solely of a subject and an intransitive predicate (that is, a predicate which takes no arguments other than the subject).

Xaidan fach.

xai-dan fach

old-M.SG dead

“The old man is dead.”

In this example, the predicate is a verb (in this case, a stative verb which is best rendered in English as an adjective), but it could just as well be a predicate nominal or a prepositional phrase, as in the following examples:

Xaidan chal.

xai-dan chal

old-M.SG priest

“The old man is a priest.”

Xaidan zel kextak.

xai-dan zel=kex-tak

old-M.SG in=house-THING.SG

“The old man is in the house.”

In all of these examples, the order is subject-predicate. This is the default, least-pragmatically-marked order. It is the order appropriate when the subject is given, old information, and the predicate is new information (by far the most common situation). The reverse order is appropriate in the opposite situation (when the listener knows that someone is dead, but doesn’t know who):

Fach xaidan.

fach xai-dan

dead old-M.SG

“It’s the *old man* who’s dead.” (not someone else)

4.2.1.2. Monotransitive Sentences

A monotransitive verb takes two arguments: a subject and a direct object. For most, but not all, such verbs, the subject is semantically an agent and the direct object is semantically a patient.

Xaidan te pharé kitavdak.

xai-dan=te pharé kitav-dak

old-M.SG=PFV.PAST see book-THING.SG

“The old man saw the book.”

If the direct object is animate, it is preceded by the preposition *na* (which in other contexts means “to” or “at”).

Xaidan te pharé na chaldi.

xai-dan=te pharé na=chal-di

old-M.SG=PFV.PAST see ACC=priest-F.SG

“The old man saw the priestess.”

This use of a preposition as an accusative case marker is similar to the use of the preposition *a* to mark animate, specific direct objects in Spanish, or of the preposition *et* to mark definite direct objects in Modern Israeli Hebrew, although the precise criteria are somewhat different in the three languages. It permits considerable flexibility of word order, even though there is no case marking by affixation on nouns as in more typical “free word order” languages such as Russian and Latin. This flexibility is used for emphasis and to distinguish old information from new information. The example above is appropriate where the old man is the topic. If the priestess is the topic, the more natural order would be:

Na chaldi te pharé xaidan.

na=chal-di=te *pharé xai-dan*
ACC=priest-F.SG=PFV.PAST see old-M.SG

This sentence could also be translated as “the old man saw the priestess,” but a more natural translation would be either “the priestess was seen by the old man” or “as for the priestess, the old man saw her.”

If the subject is animate and the object is inanimate, their order can usually be reversed without causing any ambiguity.

Kitavdak te pharé xaidan.

kitav-dak=te *pharé xai-dan*
book-THING.SG=PFV.PAST see old-M.SG
“The book was seen by the old man.”

In this and most other such situations, the semantics of the two arguments are such that the opposite interpretation does not make sense (men see books, not vice versa). However, if *both* the subject and the object are inanimate, ambiguity is possible; it is resolved by using the passive voice, which will be discussed in §4.2.7.

There are some monotransitive verbs in Tirazdak whose nearest English equivalents are intransitive; the Tirazdak verb takes a direct object where the English verb takes an adjunct. For example, instead of an intransitive verb “go” (requiring a prepositional phrase to indicate where one is going), Tirazdak has a transitive verb “go to” (where the destination is the direct object).

Chaldi te zai kitavmat.

chal-di=te *zai kitav-mat*
priest-F.SG=PFV.PAST go book-PLACE.SG
“The priestess went to the library.”

4.2.1.3. Ditransitive Sentences

A ditransitive verb takes three arguments: a subject, a direct object, and an indirect object, which for most such verbs have the semantic roles of agent, patient, and recipient, respectively. The indirect object (not the direct object, which is almost always inanimate) is marked with the preposition *na*, which has dative as well as accusative case-marking functions: accusative only for animate direct objects, but dative for all indirect objects regardless of animacy (although in practice indirect objects are rarely inanimate).

Xaidan te karen na chaldi kitavdak.

xai-dan=te *karen na=chal-di* *kitav-dak*
old-M.SG=PFV.PAST give DAT=priest-F.SG book-THING.SG
“The old man gave the priestess the book.”

As with monotransitive sentences, the order of the constituents may be freely varied because the dative-marking preposition resolves any potential ambiguity between subject and indirect object, while the inanimacy of the direct object prevents it from being taken for the subject.

4.2.1.4. Ambitransitive Verbs

There are certain verbs that can take a variable number of arguments. The prototypical such verb is *xunai*, whose meaning can be translated by any of several English verbs, all of which have to do with speaking, but which differ in valency. Used intransitively, it means “talk” or “speak”.

Chaldi te xunai zel kextag i v'rach.

chal-di=te *xunai zel=kex-tag* *i=varach*
priest-F.SG=PFV.PAST speak in=house-THING.SG GEN=god
“The priestess spoke in the temple.”

Used monotransitively, it can mean either “say/tell” or “talk to” (in other words, the direct object can be either what is said or the addressee).

Chaldi te xunai na xaidan.

chal-di=te *xunai na=xai-dan*
priest-F.SG=PFV.PAST speak ACC=old-M.SG
“The priestess spoke to the old man.”

Chaldi te xunai manyestak.

chal-di=te *xunai manyes-tak*
priest-F.SG=PFV.PAST speak story-THING.SG
“The priestess told the story.”

Used ditransitively, it means “tell” (with the addressee as the indirect object and the thing told as the direct object).

Chaldi te xunai na xaidan manyestak.

chal-di=te xunai na=xai-dan manyes-tak
priest-F.SG=PFV.PAST speak DAT=old-M.SG story-THING.SG
“The priestess told the old man the story.”

4.2.1.5. Existential Sentences

An existential sentence is a special type of intransitive sentence that has no topic, but says only that something or someone exists (or existed, or will exist), either in general or at a specified place and/or time. It consists of the proclitic existential particle *ya* (originally an unstressed form of *yá*, the locative verb meaning “to be there”), followed by a noun phrase, the whole construction optionally preceded or followed by an adjunct (usually a prepositional phrase) indicating a spatial or temporal location.

Zel kextak ya chaldi. OR *Ya chaldi zel kextak.*
zel=kex-tak ya=chal-di ya=chal-di zel=kex-tak
in=house-THING.SG EXIST=priest-F.SG EXIST=priest-F.SG in=house-THING.SG
“There’s a priestess in the house.”

Syntactically, there are two possible ways of analyzing these sentences: either *ya* is the verb and *chaldi* is its subject, or *ya chaldi* is a predicate with zero valency (that is, one that takes no arguments) and there is no subject. Either way, this construction is unique in the language. If the former analysis is correct, *ya* is the only non-stress-bearing verb in the language, while if the latter is correct, the existential construction *ya <NP>* is the only zero-valency predicate in the language.

4.2.1.6. Predicate Nominals

More often than not, a predicate nominal in Tirazdak is simply a noun stripped of its gender-number suffix; it is indistinguishable, morphologically and syntactically, from a stative verb.

Yádi chal.
yá-di chal
that-F.SG priest
“That woman is a priestess.”

In this construction, the predicate is non-referential; it does not say that the woman is any particular priestess, but only that she is a member of the class of priestesses – or, more accurately

(since the predicate does not include a gender-number suffix), the class of priests and priestesses. In the less common situation where the predicate nominal is referential – specifying not merely class membership, but identity with a specific member of that class – a full noun must be used (that is, the stem plus the gender-number suffix), with the proclitic copular particle *man* (an unstressed form of the stative verb *mán* “to be the same”).

Yádi man Chaldi Vaxti.

yá-di man=chal-di vax-ti
that-F.SG COP=priest-F.SG head-F.SG

“That woman is the High Priestess.”

4.2.1.7. Unstressed Pronouns as Arguments

In sentences where one or more of the arguments are pronouns rather than nouns, the picture is somewhat more complicated. As already mentioned in Chapter 3, most pronouns have distinct stressed and unstressed forms. The stressed forms are used only for emphasis, and behave identically to nouns, so they will not be discussed at this point. The unstressed pronouns are proclitics, which occupy slots immediately before the verb or other predicate. They also have morphological case-marking (unlike all other nominals in Tirazdak), distinguishing nominative from non-nominative forms; the nominative is used for subjects, and the non-nominative for direct and indirect objects (as well as for possessors, a function that will be discussed later).

At this point, it should be noted (although this subject will be discussed in more detail later) that the earlier generalization about default constituent order in Tirazdak (that the default order is SVO for sentences and VSO for subordinate clauses) was something of an oversimplification. The reality is that the underlying default order is VSO in both sentences and subordinate clauses, with, however, a strong tendency toward topic-fronting in sentences but (usually) not in subordinate clauses. Thus, at some level of abstraction, the verb always starts out in initial position regardless of the clause type, but in a main clause, an overt topic which is a full noun phrase and not a clitic pronoun is moved to the position in front of the verb. (In a subordinate clause, more often than not, the topic is coreferential with the topic of the sentence, and thus is referenced only by a clitic pronoun. If there is a separate topic, it may be fronted even in a subordinate clause, especially if it is emphatic or contrastive. This will be discussed further in §4.6.) Because clitic pronouns are not stress-bearing, they are not subject to this movement, but are locked into their immediately pre-verbal positions. Statistically, the most likely constituent to be the topic is the subject, hence the frequency of subject-initial order.

If the subject is an unstressed pronoun and is also the topic, the verb is the first stress-bearing constituent of the sentence, so any TAM particles will follow the verb, rather than preceding it as in the previous examples.

Ti pharé te na xaidan.

ti=pharé=te na=xai-dan

3SG.F=see=PFV.PAST ACC=old-M.SG

“She saw the old man.”

If the direct object is an unstressed pronoun and the subject is a noun, the chances are good that the subject is not the topic, and thus will not occupy the fronted topic position.

Tana pharé te chaldi.

tan-a=pharé=te chal-di

3SG.M-NN=see=PFV.PAST priest-F.SG

“The priestess saw him.”

OR

“He was seen by the priestess.”

The second translation, though less literal, is probably somewhat more natural, because it does not depend on intonation alone to convey the fact that “he” and not “the priestess” is the topic.

If both the subject and the direct object are unstressed pronouns, the subject precedes the object.

Ti tana pharé te.

ti=tan-a=pharé=te

3SG.F=3SG.M-NN=see=PFV.PAST

“She saw him.”

Non-nominative proclitic pronouns can be used as indirect as well as direct objects. (In other words, the *-a* suffix has a dative as well as an accusative function.)

Ti tana karen te kitavdak.

ti=tan-a=karen=te kitav-dak

3SG.F=3SG.M-NN=give=PFV.PAST book-THING.SG

“She gave him the book.”

If the direct and indirect objects are both proclitic pronouns, the indirect object precedes the direct object.

Ti tana taga karen te.

ti=tan-a=tag-a=karen=te

3SG.F=3SG.M-NN=3SG.THING-NN=give=PFV.PAST

“She gave it to him.”

4.2.1.8. Demonstrative Pronouns as Subjects

A sentences of the type that in English would have a demonstrative pronoun as a subject (e.g., “This is John’s brother”) may take either of two forms in Tirazdak, depending on the pragmatic context. When making a statement about someone, one would say:

Yédan sef na Yovan.

yé-dan sef *na* *Yovan*
here-M.SG sibling DAT John

“This is John’s brother.” (lit. “This man is sibling to John.”)

But when introducing someone, one would say:

Yé seftan an Yovan.

yé *sef-tan* *an* *Yovan*
here sibling-M.SG GEN John

“This is John’s brother.” (lit. “Here is the brother of John.”)

4.2.2. Adjuncts

An adjunct is any clause constituent that is neither a predicate nor an argument. It can be either a prepositional phrase or an adverb. (A sentence may have other constituents that are not constituents of any of its component clauses; these will be discussed in §4.2.3 and in §4.3.)

4.2.2.1. Prepositions and Prepositional Phrases

Prepositions are a subclass of particles. Among the more frequently used prepositions are:

- *na* “to, at” (also used as accusative case marker when the direct object is animate)
- *lo* “from, because of, as a result of”
- *do* “with” (in both the instrumental and comitative senses)
- *zel* “in, into”
- *je* “about, concerning, regarding, with respect to, as for, with reference to”
- *an* “of” (referential genitive)
- *i* “of” (non-referential genitive)

A prepositional phrase consists of a preposition plus its object. The object of a preposition can be any kind of noun phrase (NP): a noun (common or proper, with or without modifiers), a determiner, a stressed pronoun, or a proclitic pronoun. If the object is anything other than a proclitic pronoun, the preposition is a proclitic, immediately preceding the object (as the term “preposition” implies). However, if the object is a proclitic pronoun, the preposition **follows** the object, the pronoun takes the non-nominative case suffix, and the pronoun and preposition are

combined (both phonologically and orthographically) into a single word, with word-level stress falling on the preposition. Thus, we have

do chaldi
do=chal-di
with=priest-F.SG
“with the priestess”

but

tiadó
ti-a-dó
3.F.SG-NN-with
“with her”

4.2.2.1.1. Prepositions as Case Markers

As has been mentioned previously, the preposition *na* is used with animate NPs (but not with inanimate ones) as an accusative or dative case marker. For example:

Xaidan te pharé na chaldi.
xai-dan=te pharé na=chal-di
old-M.SG=PFV.PAST see DAT=priest-F.SG
“The old man saw the priestess.” (*na* as accusative marker)

Xaidan te karen na chaldi kitavdak.
xai-dan=te karen na=chal-di kitav-dak
old-M.SG=PFV.PAST give DAT=priest-F.SG book-THING.SG
“The old man gave the priestess the book.” (*na* as dative marker)

There is rarely any room for doubt as to whether *na* is being used as a dative or an accusative marker, because with most ditransitive verbs, the indirect object is almost always animate and the direct object is almost always inanimate.

In addition, the prepositions *an* and *i* are used as genitive case markers; in fact, this is their only use. Genitives will be discussed further in §4.4.2.2.

4.2.2.1.2. Prepositional Phrases as Adjuncts

The most typical use of prepositional phrases is as adjuncts. For example,

Xaidan te pharé kitavdak zel kextak.

xai-dan=te pharé kitav-dak zel=kex-tak
old-M.SG=PFV.PAST see book-THING.SG in=house-THING.SG
“The old man saw the book in the house.”

Any preposition that denotes a spatial relationship (as in the example immediately above) can have either a static or a dynamic meaning, depending on the context. In general, the meaning is dynamic when the predicate is a verb of motion; otherwise, it is static. For example,

Tan zai te zel kextak.

tan=zai=te zel kex-tak
3SG.M=go=PFV.PAST in house-THING.SG
“He went into the house.” (dynamic)

but

Tan tia pharé te zel kextak.

tan=ti-a=pharé=te zel kex-tak
3SG.M=3SG.F-NN=see=PFV.PAST in house-THING.SG
“He saw her in the house.” (static)

It is possible, with a verb of motion, to override the default dynamic interpretation by using the atelic secondary aspect particle *ja*. (An example of this usage is given in the discussion of secondary aspect particles in §4.2.4.4.)

Prepositions in Tirazdak cannot be used adnominally (with the exception of the genitive markers *an* and *i*, which can **only** be used adnominally). In other words, a prepositional phrase (other than one headed by *an* or *i*) cannot modify a noun phrase; it can only modify an entire clause. For example,

Wa pharé te na n'yazdan zel kextak.

wa=pharé=te na=nayaz-dan zel=kex-tak
1SG=see=PFV.PAST ACC=person-M.SG in=house-THING.SG
“I saw the man in the house.”

can only mean “I saw the man when I was in the house”, not “I saw the man who was in the house”. In other words, the prepositional phrase *zel kextak* “in the house” can only modify the sentence as a whole; it cannot modify the noun phrase “the man”. By contrast, the equivalent English sentence can have either meaning, depending on the context. Thus, there is no way to translate literally into Tirazdak the English noun phrase “the man in the house”. (In this respect, Tirazdak resembles Classical Latin rather than English.) In order to impart the latter meaning (to allow the prepositional phrase to modify the noun phrase rather than the entire sentence), the prepositional phrase must be embedded in a relative clause, as in

Wa pharé te na n'yazdan su zel kextak ra.

wa=pharé=te na=nayaz-dan su=zel=kex-tak=ra
1SG=see=PFV.PAST ACC=person-M.SG REL=in=house-THING.SG=RT
“I saw the man who was in the house.”

(Relative clauses will be discussed in §4.3.2.3.)

4.2.2.1.3. Prepositional Phrases as Predicates

Prepositional phrases (other than those headed by *an* or *i*), in addition to their use as adjuncts, can also be used as predicates. This usage is most frequent in sentences or clauses indicating where some person or thing is located, such as

Nayazdan zel kextak.

nayaz-dan zel=kex-tak
person-M.SG in=house-THING.SG
“The man is in the house.”

Such locative predicates can be either literal (as in the example above) or metaphorical. Among the most common metaphorical uses of locative predicates are in the progressive construction (which will be discussed in §4.2.4.3) and in predicative possessive constructions, which are clauses saying that someone has something or that something belongs to someone (as opposed to attributive possessive constructions, in which a possessed NP is modified by a possessor NP; these will be discussed in §4.4.2.2). The following are examples of locative predicates used to indicate possession:

Kitavtak na xaidan.

kitav-tak na=xai-dan
book-THING.SG to=old-M.SG
“The book is the old man’s.” OR “The book belongs to the old man.”

Na xaidan kitavdak.

na=xai-dan kitav-dak
to=old-M.SG book-THING.SG
“The old man has the book.” OR “The old man owns the book.”

Note that the latter example, by reversing the order of subject and predicate in order to topicalize “the old man”, becomes ambiguous as to the distinction between ownership and temporary physical possession.

4.2.2.1.4. Prepositions as Adverbs

A preposition, as such, cannot occur without an object. However, for many (though not all) prepositions, the same lexeme can also be used as an adverb. (Adverbs will be discussed in §4.2.2.2.) Such pairs are homophonous except that the adverb is stress-bearing, while the preposition is proclitic and thus always unstressed (a distinction that is marked orthographically by the use of an acute accent on the adverb). For example, in the first of the following two sentences, the lexeme *zel* “in” is used as a preposition (with an object), and in the second as an adverb (without an object).

Tan zai te zel kextak.

tan zai=te zel=kex-tak
3SG.M go=PFV.PAST in=house-THING.SG
“He went into the house.”

Tan zai te zél.

tan zai=te zél
3SG.M go=PFV.PAST in
“He went inside.”

The majority of prepositions can be converted to adverbs in this way. However, the minority to which this conversion is not applicable includes some of the most important and frequently used prepositions: the accusative/dative/allative/locative preposition *na* and the genitive prepositions *an* and *i*.

4.2.2.1.5. Semantics of Prepositions

Tirazdak and English divide the semantic space occupied by the class of prepositions in different ways, making it unsafe to assume that, because a given Tirazdak preposition and a given English preposition are equivalent in one context, they will be equivalent in another context.² For example, in the following two sentences,

Kitavdak sal fareldak.

kitav-dak sal farel-dak
book-THING.SG on table-THING.SG
“The book is on the table.”

and

²This is not due to anything unusual about Tirazdak or English. The paucity of exact one-to-one equivalences between prepositions (or postpositions or case endings, depending on the type of language) is notorious in translating between any two languages, even closely related ones like English and German.

Tumpharédak ket suvachtak.
tumpharé-dak ket suvach-tak
 picture-THING.SG on wall-THING.SG
 “The picture is on the wall.”

the prepositions *sal* and *ket* are both glossed as “on”, but their meanings are significantly different. Basically, *sal* means “resting on a horizontal surface, held in place by gravity”, while *ket* means “attached to a vertical surface, or to the underside of a horizontal surface, held in place **against** gravity”.

4.2.2.2. Adverbs

Adverbs in Tirazdak are a closed class (actually a subclass of particles), unlike in English and most other Indo-European languages, where adverbs are an open class. They serve a wide variety of functions. Some have meanings that are temporal in nature, such as *taná* “again”, *tále* “always, forever”, *khwezme* “never”, *ile* “now”, *álu* “then”, *hix* “yet, already”, *khwex* “not yet”. Some express the speaker’s attitude toward what is being said, such as *hóya* “surprisingly, unexpectedly”, *vróxe* “unfortunately”, *gwende* “hopefully³”. Some have meanings that are less easily categorized.

In general, an adverb can go anywhere in its clause, but its position can affect its scope. For example, the following two sentences can both be translated as “Unfortunately she found the book.”

Vróxe te ti plarat kitavdak.
vróxe=te ti=plarat kitav-dak
 unfortunately=PFV.PAST 3SG.F=find book-THING.SG

Ti plarat te vróxe kitavdak.
ti=plarat=te vróxe kitav-dak
 3SG.F=find=PFV.PAST unfortunately book-THING.SG

But in the first sentence, the scope of the adverb is the entire sentence; such a sentence would be felicitous in a situation where, for example, the book contained some terrible secret that was being kept from the person referred to. In the second sentence, the scope of the adverb is only one constituent, “the book” (the direct object), and the implied meaning is something like, “Unfortunately, what she found was only the book, not what she was really looking for.”

Tirazdak, in keeping with the fact that it does not have an open class of adverbs, has no

³In the modern colloquial English sense of “hopefully” (“one hopes that”), not the more prescriptivist sense (“being hopeful”, “in a hopeful state”).

morphological means of deriving adverbs from adjectives (that is, nothing directly analogous to affixes such as English *-ly* and French *-ment*). It does, however, have two ways of accomplishing the same thing. One, by far the more frequent of the two, is to use the “stuff”-class gender-number suffix in its nominalizing function to turn an “adjective” X (actually a stative verb) into a noun with the general meaning of “X-ness” (cf. §3.3.3), which is then used as the object of the instrumental/comitative preposition *do* “with”. For example:

do pléyu
do=plé-yu
 with=happy.STUFF
 “happily” (lit. “with happiness”)

The other is to simply insert a stative verb into a clause as if it were an adverb. This construction, which is somewhat reminiscent of the serial-verb constructions that occur in many of the sub-Saharan African languages, is perceived as archaic, and is seldom heard except in a few formulaic expressions such as the formal greeting and leave-taking expressions *plé kriyan* “merry meet” and *plé navarak* “merry part” (see §5.1).

4.2.3. Other Constituents

Vocatives and interjections do not fit readily into any obvious tree-structured syntactic analysis of sentences, clauses and phrases. They are perhaps best understood as constituents of the sentence as a whole but not of any clause or phrase.

4.2.3.1. Vocatives

A vocative does not change the meaning of a sentence; it merely indicates who the sentence (or the larger utterance of which the sentence is a part) is addressed to. It consists of a nominal (usually, but not always, a noun, proper or common) preceded by the proclitic vocative particle *e*. It may be anywhere in the sentence, but the most frequent position is sentence-initial. Regardless of its position, it is set off from the rest of the sentence by an intonation break (represented orthographically by a comma), which goes immediately after the vocative (if it is sentence-initial), immediately before it (if it is sentence-final), or both (if it is neither initial nor final). Because of this intonation break, a vocative does not count as a stress-bearing constituent for purposes of clitic placement. For example:

E Yovan, wa pharé te na xia sefti zel kitavmat.
e=Yovan wa=pharé=te na=xia=sefti zel kitav-mat
 VOC=John 1SG=see=PFV.PAST ACC=2SG-NN=womb.sibling-F.SG in book-PLACE.SG
 “John, I saw your sister in the library.”

Note that the enclitic tense-aspect particle *te* goes after the verb *pharé*, not after the vocative *e Yovan*, even though the vocative is the first stress-bearing constituent of the sentence, because the intonation break after the vocative restarts the count of stress-bearing constituents – or, alternatively, because enclitics go after the first stress-bearing constituent of the **clause**, not of the sentence, and (if the tentative analysis given above is correct) vocatives are constituents of sentences but not of clauses.

4.2.3.2. Interjections

An interjection could be loosely defined as a word that, rather than conveying information, expresses the speaker’s emotional response to the situation being spoken of. In general, it is not part of any syntactic structure, and is written either as a one-word sentence (usually with an exclamation point) or set off from a larger sentence by commas. The following are some common Tirazdak interjections, with approximate English equivalents:

- *Gach!* “Shit!”
- *Au!* “Ouch!”
- *Wahé!* “Super!”
- *Ayó!* “Okay!”
- *Ai!* “Oy veh!”

4.2.4. Tense, Aspect and Mood Marking

All sentences (except imperatives; see §4.2.4.6), and all clauses within a complex sentence, are obligatorily marked for tense, aspect, and mood (TAM). With the exception of the progressive construction, which will be discussed in §4.2.4.3, all such marking is done by means of enclitic particles whose default position is immediately after the first stress-bearing constituent of the clause (sometimes referred to as Wackernagel’s Position, after the 19th-century linguist who first noted the cross-linguistic tendency of clitics to cluster in this position). The absence of any such particle indicates present tense, imperfective aspect, and indicative mood.

For convenience, TAM particles can be divided into the following categories:

- primary tense/aspect particles;
- the relative tense particle;
- secondary aspect particles;
- mood particles.

4.2.4.1. Primary Tense/Aspect Particles

Tense and aspect are related but distinct concepts. They both deal with time, but in different ways. Tense deals with a situation’s location in time: it identifies the time at which an event or

action takes place, or at which a state exists, as being prior to, simultaneous with, or subsequent to the moment of speaking (absolute tense), or as being prior to, simultaneous with, or subsequent to some other point in time identified within the discourse (relative tense). Aspect deals not with *when* something happens but with *how* it is perceived. The perfective aspect views an event or action as a single, unitary whole, something that took place or will take place at a particular time in the past or the future, while the imperfective aspect views it as something ongoing, in progress, in the process of taking place (either continuously or repeatedly) at the time referred to, whether that time is in the past, the present, or the future.

In Tirazdak, perfective aspect is used only with dynamic verbs (that is, non-stative verbs, referring to events or actions), while imperfective aspect is used with both dynamic and stative verbs, as well as with non-verbal predicates (predicate nominals and predicative locative expressions), which are inherently stative. Perfective aspect is incompatible with present tense, while imperfective aspect is compatible with any tense.

There are four primary tense/aspect particles, each of which specifies both an aspect (perfective or imperfective) and a tense (past or future – the present tense being unmarked):

- *te* – perfective past
- *tu* – perfective future
- *so/zo* – imperfective past (*zo* if the immediately preceding word ends in a vowel or a voiced consonant; *so* if it ends in a voiceless consonant)
- *nu* – imperfective future

The perfective past and perfective future correspond fairly closely to the English simple past and simple future, respectively. They are used only with dynamic verbs.

Chaldi te zai kitavmat.

chal-di=te zai kitav-mat
priest-F.SG=PFV.PAST go book-PLACE.SG
“The priestess went to the library.”

Chaldi tu zai kitavmat.

chal-di=tu zai kitav-mat
priest-F.SG=PFV.FUT go book-PLACE.SG
“The priestess will go to the library.”

OR

“The priestess is going to go to the library.”

[Note: It is important not to confuse the “perfective past” (“went”) with the “past perfect” or “pluperfect” (“had gone”). Such confusion can easily be induced by the unfortunate similarity of the terms “perfective” and “perfect”, which in fact have totally distinct meanings. “Perfective” refers strictly to an aspect, while “perfect”, depending on the context (and on what language is being discussed), can refer to a tense, an aspect, or a combination of the two.]

The imperfective past and imperfective future are a bit more complicated, at least if one wishes to define them in terms of their English equivalents. With a stative verb, or with an inherently stative non-verbal predicate, they correspond to the English simple past and simple future.

Chaldi zo zel kitavmat.

chal-di=zo *zel=kitav-mat*
 priest-F.SG=IPFV.PAST in=book-PLACE.SG
 “The priestess was in the library.”

Chaldi nu zel kitavmat.

chal-di=nu *zel=kitav-mat*
 priest-F.SG=IPFV.FUT in=book-PLACE.SG
 “The priestess will be in the library.”

With a dynamic verb, they indicate an action or event taking place repeatedly or habitually in the past or in the future. If in the past, this habitual subset of the imperfective (sometimes referred to as “consuetudinal”) may be represented in English either by the “used to” construction or, if the context makes the habituality sufficiently clear (as by the phrase “every half-month” in the example below), by the simple past tense. If in the future, English has no specific, grammaticalized way of representing it, but must resort to either the simple future or the future progressive, relying on context to make the distinction.

Chaldi zo zai kitavmat na teraizam nefsam.

chal-di=zo *zai kitav-mat* *na=terai-zam* *nefsam*⁴
 priest-F.SG=IPFV.PAST go book-PLACE.SG at=all-TIME.SG half-month
 “The priestess used to go to the library every half-month.”

OR

“The priestess went to the library every half-month.”

Chaldi nu zai kitavmat na teraizam nefsam.

chal-di=nu *zai kitav-mat* *na=terai-zam* *nefsam*
 priest-F.SG=IPFV.FUT go book-PLACE.SG at=all-TIME.SG half-month
 “The priestess will go to the library every half-month.”

OR

“The priestess will be going to the library every half-month.”

4.2.4.2. Composite Tenses

The primary tense/aspect particles can be grouped in various combinations with each other and with the relative tense particle *ra* to form composite tenses. These combinations include the

⁴For the definition of *nefsam* “half-month” in the New Atlantean calendar, see Appendix D.

result in the same particle being repeated twice in succession, the relative tense particle *ra* is inserted between them as a separator, as in the following example, which could be termed either “imperfective pluperfect” or “anterior imperfective past” (imperfective past + *ra* + imperfective past):

Chaldi zo ra zo zel kitavmat.

chal-di=zo=ra=zo *zel=kitav-mat*
 priest-F.SG=IPFV.PAST=RT=IPFV.PAST in=book-PLACE.SG
 “The priestess had been in the library.”

Such constructions are relatively unusual, and this is only a secondary function of *ra*. (Its primary function is to indicate that the tense of a subordinate clause is relative to the tense of the matrix clause rather than to the moment of speaking. Further discussion of *ra* will therefore be deferred until §4.3.2, which deals with the various kinds of subordinate clauses.)

4.2.4.3. The Progressive Construction

We have seen above that the default interpretation of the imperfective aspect with a dynamic verb is habitual (consuetudinal). To give it a progressive interpretation – to indicate that the action or event is actually in progress at the moment referred to – a special construction is used in which the verb is nominalized by the addition of the neuter IV (uncountable or “stuff” class) gender-number suffix, creating a verbal noun that functions as a gerund, and this noun is used as the object of the preposition *na* (which in this context means “at”). If the verb is transitive, its direct object is treated as the possessor of the gerund. Formally, a sentence of this type has a locative expression as its predicate, and can take the same range of tense and mood marking as any other locative-predicate sentence.

Chaldi zo na xunayu 'n manyestak.

chal-di=zo *na=xunai-yu* *an=manyes-tak*
 priest-F.SG=IPFV.PAST at=speak-STUFF GEN=story-THING.SG
 “The priestess was telling the story.”
 (lit. “The priestess was at the telling of the story.”)

There is somewhat less freedom of word order with this construction than with the sentence types previously discussed, because the surface possessor (the underlying direct object) must immediately follow the surface possessum (the underlying verb). Some ways of partially getting around this limitation will be discussed in §4.6.

4.2.4.4. Secondary Aspect Particles

In addition to the primary tense/aspect particles, there are several secondary aspect particles,

which give additional aspectual information, allowing (but not requiring) the broad aspectual categories of perfective and imperfective to be subdivided into finer categories. These include the following:

- *cha* – perfect
- *le* – experiential
- *hi* – semelfactive
- *ja* – atelic

There can only be one secondary aspect particle in a clause, and it must immediately follow the first primary tense/aspect particle.

The perfect aspect particle *cha* is used only in combination with the perfective past particle *te*, and can thus be used only with dynamic verbs. (For reasons mentioned above, the term “perfect” creates a potential for confusion, but I will use it nevertheless for want of a better alternative.) It indicates a present state resulting from a past action. For many verbs, there is no meaningful distinction between this and the perfective past alone, but for some, the distinction can be quite significant. A good example of this distinction in English is “John went to the library” (the simple past tense, which merely states that the person in question went to the library at some time in the past, implying nothing about his present whereabouts) vs. “John has gone to the library” (the perfect tense, which implies that he is still at the library).

Chaldi te cha zai kitavmat.

chal-di=te=cha *zai kitav-mat*
 priest-F.SG=PFV.PAST=PERF go book-PLACE.SG
 “The priestess has gone to the library.”

In Tirazdak, unlike in English, this distinction can also be made in composite tenses. Thus, the two Tirazdak sentences

Chaldi te zo zai kitavmat.

chal-di=te=zo *zai kitav-mat*
 priest-F.SG=PFV.PAST=IPFV.PAST go book-PLACE.SG

and

Chaldi te cha zo zai kitavmat.

chal-di=te=cha=zo *zai kitav-mat*
 priest-F.SG=PFV.PAST=PERF=IPFV.PAST go book-PLACE.SG

would both be translated into English as “The priestess had gone to the library,” even though the first one says nothing about where she was at the time referred to, while the second clearly implies that she was still at the library. Note that the secondary aspect particle goes between the two primary tense/aspect particles, in accordance with the rule that it must immediately follow

the first primary tense/aspect particle.

The experiential aspect particle *le* conveys the meaning of “ever, at any time”, as in English “Have you ever been to London?” or “Will he ever finish school?” – except that *le*, unlike its English counterpart, can be used in statements as well as questions. It has a much wider range of applicability than *cha*, being usable in combination with either past or future tense, and with either perfective or imperfective aspect, and thus with either dynamic or stative verbs, as well as with non-verbal predicates.

Chaldi te le zai kitavmat.

chal-di=te =le *zai kitav-mat*
priest-F.SG=PFV.PAST=EXP go book-PLACE.SG
“The priestess has gone to the library.” (on at least one occasion)

Chaldi nu le zel kitavmat.

chal-di=nu=le *zel=kitav-mat*
priest-F.SG=IPFV.FUT=EXP in=book-PLACE.SG
“The priestess will be in the library.” (on one or more occasions sometime in the future)

The semelfactive aspect particle *hi* is used with a verb that normally represents a series of repeated actions, to indicate that in this instance the action only takes place once. For example, the non-semelfactive sentence

Chaldi te fenal bambáyu.

chal-di=te *fenal bambai-yu*
priest-F.SG=PFV.PAST eat bread-STUFF
“The priestess ate the bread.”

with the addition of the semelfactive particle, becomes

Chaldi te hi fenal bambáyu.

chal-di=te=hi *fenal bambai-yu*
priest-F.SG=PFV.PAST=SEMEL eat bread-STUFF
“The priestess took a bite of the bread.”

The atelic aspect particle *ja* is used with verbs that are normally telic (that is, representing an action that has a clearly definable endpoint – that can, at least in principle, be completed) to give them an atelic interpretation (to represent an action or activity that is not goal-directed and cannot, by its nature, be completed, although it could be stopped). In English, this distinction tends to be made lexically rather than grammatically, e.g., “He walked into the house” (telic) vs. “He walked around in the house” (atelic). In Tirazdak, sentences equivalent to those would probably be identical lexically, and would differ only in the presence or absence of *ja*.

Chaldi te zóli zel kextak.

chal-di=te zóli zel=kex-tak
priest-F.SG=PFV.PAST walk in=house-THING.SG
“The priestess walked into the house.”

Chaldi te ja zóli zel kextak.

chal-di=te=ja zóli zel=kex-tak
priest-F.SG=PFV.PAST=ATEL walk in=house-THING.SG
“The priestess walked (around) in the house.”

In this example, the real purpose of *ja* is to change the meaning of the preposition *zel* from dynamic (“into” – the default interpretation, because *zóli* is a verb of motion) to static (“in”).

4.2.4.5. Mood Particles

The mood particles are the following:

- *ve* – optative
- *ze* – hypothetical
- *da* – inferential
- *vo* – contrafactual
- *go* – conditional

Any mood particle must follow all primary tense/aspect particles and all secondary aspect particles; it can, however, precede the relative tense particle *ra*.

The optative particle *ve* indicates a wish or “mild command” of the sort that in formal or slightly archaic English is often expressed by “let...” or “may...”.

Chaldi ve zai kitavmat.

chal-di=ve zai kitav-mat
priest-F.SG=OPT go book-PLACE.SG
“Let the priestess go to the library.”

Xianá ve somáyu'n Varachti.

xi-a-na=ve somá-yu an=Varach-ti
2SG-NN-DAT=OPT peace-STUFF GEN=god-F.SG
“May the peace of the Goddess be with you.” (a formal greeting; see §5.1)

The other mood particles are used primarily in conditional sentences, and will be discussed in §4.3.2.6. However, the inferential particle *da* may also be used in a simplex sentence to express an element of uncertainty in what would otherwise be a straightforward statement of fact, to indicate that the statement is based on inference or indirect evidence.

Chaldi te da zai kitavmat.
chal-di=te=da *zai kitav-mat*
priest-F.SG=PFV.PAST=INF go book-PLACE.SG
“Apparently the priestess went to the library.”

OR

“The priestess seems to have gone to the library.”

4.2.4.6. Imperatives

As in English and many other languages, a declarative sentence can be turned into an imperative simply by omitting the subject. (The implied subject is second-person, either singular or plural depending on who is being addressed.)

Zai kitavmat!
zai kitav-mat
go book-PLACE.SG
“Go to the library!”

It should be noted, however, that this sort of brusque command is unusual in the polite and rather formal society of New Atlantis.

4.2.5. Negation

To negate a sentence or clause, the negator *khwé* is used.

Chaldi te khwé zai kitavmat.
chal-di=te *khwé* *zai kitav-mat*
priest-F.SG=PFV.PAST NEG go book-PLACE.SG
“The priestess didn’t go to the library.”

If there is a fronted topic, as in the example above, *khwé* follows the topic and precedes the predicate, and is thus the second stress-bearing constituent of the clause. However, if the subject is a proclitic pronoun and there is no other topic, *khwé* is the first stress-bearing constituent, and thus is followed, rather than preceded, by any TAM particles.

Ti khwé te zai kitavmat.
ti=khwé=te *zai kitav-mat*
3SG.F=NEG=PFV.PAST go book-PLACE.SG
“She didn’t go to the library.”

Although a proclitic subject pronoun precedes *khwé*, as in the example above, proclitic object pronouns do not; instead they precede the lexical verb.

Ti khwé te tana karen kitavdak.

ti=khwé=te tan-a=karen kitav-dak
3SG.F=NEG=PFV.PAST 3SG.M-NN=give book-THING.SG
“She didn’t give him the book.”

This is explained by the fact that, when *khwé* is used to negate an entire sentence or clause, it functions as a modal verb. (Modal verbs will be discussed further in §4.3.2.1.2.) It is actually the main predicate of the sentence, while the lexical verb (in this case, *karen* “give”) is a subordinate predicate. The subject of the sentence is the subject of *khwé*, while the direct and indirect objects are objects of the lexical verb.

Khwé can also be used to negate a noun phrase, prepositional phrase, or other non-clausal constituent of a sentence. (By “non-clausal constituent”, I mean a constituent that does not contain a verb or other predicate.) In this function, however, it does not behave as a modal verb, but as a focus-marking particle. (Focus-marking particles will be discussed in §4.6.2.)

Chaldi te karen kitavdak khwé na xaidan.

chal-di=te karen kitav-dak khwé na=xai-dan
priest-F.SG=PFV.PAST give book-THING.SG NEG DAT=old-M.SG
“The priestess didn’t give the book to the old man.” (She gave it to someone else.)

Chaldi te karen na xaidan khwé kitavdak.

chal-di=te karen na=xai-dan khwé kitav-dak
priest-F.SG=PFV.PAST give DAT=old-M.SG NEG book-THING.SG
“The priestess didn’t give the old man the book.” (She gave him something else.)

Na xaidan te karen kitavdak khwé chaldi.

na=xai-dan=te karen kitav-dak khwé chal-di
DAT=old-M.SG=PFV.PAST give book-THING.SG NEG priest-F.SG
“The priestess didn’t give the old man the book.” (Someone else did.)

Note that in all three of these examples, the negated constituent is placed in sentence-final position, which is the usual focus position, just as sentence-initial is the usual topic position. (Topic and focus and their relation to word order will be discussed in more detail in §4.6.)

4.2.6. Questions

In Tirazdak, as in English and many other languages, there are three kinds of questions:

1. A **yes-no question** is one for which there are only two appropriate answers, “yes” and “no”.
2. A **disjunctive question** asks the respondent to choose one of two or more specified

alternative answers.

3. A **wh-question**, also known as a **focused interrogative**, asks for a specific piece of information of the “who, what, where, when, why” kind, and thus has a range of possible answers which is, in principle, open-ended.

4.2.6.1. Yes-No Questions

A yes-no question consists, in essence, of a declarative sentence plus a query as to whether that sentence is true or false. In Tirazdak, this query is marked by the question particle *ni*. Yes-no questions can be divided according to two orthogonal criteria: (1) whether the question is neutral (expecting no particular answer), affirmatively biased (expecting the answer “yes”), or negatively biased (expecting the answer “no”); (2) whether the underlying declarative sentence is being questioned in its entirety, or whether only one constituent of that sentence is being questioned while the remainder of it is presupposed. I have chosen, somewhat arbitrarily, to divide this section according to the first of these criteria.

4.2.6.1.1. Neutral Yes-No Questions

If the question is being posed in a neutral way – that is, if the questioner is not expecting (or, at any rate, does not explicitly indicate that (s)he is expecting) a particular answer – there is no change to the underlying declarative sentence except for the insertion of the proclitic *ni* immediately before the part of the sentence that is being questioned. In the simplest case, the questioned part is the entire sentence, minus the topic (which, by definition, is presupposed). Thus, if there is an overt, fronted topic (other than a proclitic pronoun), *ni* goes immediately before the constituent following the topic (which is typically the verb).

Chaldi te ni zai kitavmat?
chal-di=te ni=zai kitav-mat
priest-F.SG=PFV.PAST Q=go book-PLACE.SG
“Did the priestess go to the library?”

If there is no overt topic, or if the topic is a proclitic pronoun, the question particle is part of the verb complex, after the subject pronoun (if any) and before any other proclitics. In the first of the two following examples, the topic is the proclitic subject pronoun; in the second, it is the proclitic object pronoun, and there is a non-topic subject which is a full noun phrase.

Ti ni zai te kitavmat?
ti=ni=zai=te kitav-mat
3SG.F=Q=go book-PLACE.SG
“Did she go to the library?”

Ni tana pharé te chaldi?

ni=tan-a=pharé=te chal-di
Q=3SG.M-NN=see=PFV.PAST priest-F.SG

“Did the priestess see him?”

OR

“Was he seen by the priestess?”

When only one constituent is being questioned, rather than the entire sentence minus the topic, the question particle immediately precedes the questioned constituent, which is placed in the sentence-final focus position.

Chaldi te zai ni kitavmat?

chal-di=te zai ni=kitav-mat
priest-F.SG=PFV.PAST go Q=book-PLACE.SG

“Did the priestess go to the library?”

OR

“Was it the library that the priestess went to (or was it somewhere else)?”

Tana pharé te ni chaldi?

tan-a=pharé=te ni=chal-di
3.M.SG.NN=see=PFV.PAST Q=priest-F.SG

“Was it the priestess who saw him (or was it someone else)?”

If the focused, questioned constituent is the object of a preposition, the question particle goes before the preposition. In other words, at the syntactic level, it is the entire prepositional phrase that is questioned, not just the object, regardless of whether or not this is also true at the semantic level.

Ti tana pharé te ni zel kitavmat?

ti=tan-a=pharé=te ni=zel=kitav-mat
3SG.F=3SG.M-NN=see=PFV.PAST Q=in=book-PLACE.SG

“Did she see him in the library?”

OR

“Was it in the library that she saw him (or was it somewhere else)?”

The appropriate answer to any of the above questions would be, if affirmative,

Ti xó te.

ti=xó=te
3SG.F=AFF=PFV.PAST
“Yes.” (lit. “She did.”)

or, if negative,

Ti khwé te.
ti=khwé=te
 3SG.F=NEG=PFV.PAST
 “No.” (lit. “She didn’t.”)

Each of these possible answers is a complete sentence, in which the subject is a proclitic pronoun that is coreferential with that of the question and therefore must agree with it in number and gender, and in which the affirmative particle *xó* or the negative particle *khwé* is used as a modal verb with the same tense and aspect as the question. It is also possible to answer with a single word, simply *xó* or *khwé*, but this is done only in very informal speech, and never in writing.

4.2.6.1.2. Affirmatively-Biased Yes-No Questions

In Tirazdak, as in many other languages (including English), if one wishes to pose a question with an affirmative bias – to indicate that the answer one is expecting is “yes” – one does so, paradoxically, by negating the underlying declarative sentence that is being questioned. In the case of a question in which the entire sentence (minus the topic) is being questioned, this is done simply by inserting the negator *khwé* after the question particle (which remains where it would be in a neutral question), thus placing the negator within the scope of the question particle.

Chaldi te ni khwé zai kitavmat?
chal-di=te ni=khwé zai kitav-mat
 priest-F.SG=PFV.PAST Q=NEG go book-PLACE.SG
 “Didn’t the priestess go to the library?”

Ti ni khwé te tana pharé zel kitavmat?
ti=ni=khwé=te tan-a=pharé zel=kitav-mat
 3SG.F=Q=NEG=PFV.PAST 3SG.M-NN=see in=book-PLACE.SG
 “Didn’t she see him in the library?”

An alternative and somewhat less formal way of posing an affirmatively-biased question is to state the underlying declarative sentence, unmodified, and follow it with the tag question *ni khwé?*, which literally means “not?” and is functionally much like the German *nicht wahr?* or the French *n’est ce pas?* Thus, alternative equivalents of the above two examples are:

Chaldi te zai kitavmat, ni khwé?
chal-di=te zai kitav-mat ni=khwé
 priest-F.SG=PFV.PAST go book-PLACE.SG Q=NEG
 “The priestess went to the library, didn’t she?”

Ti tana pharé te zel kitavmat, ni khwé?
ti=tana=pharé=te zel=kitav-mat ni=khwé
 3SG.F=3SG.M-NN=see=PFV.PAST in=book-PLACE.SG Q=NEG
 “She saw him in the library, didn’t she?”

If only one constituent of the sentence is being questioned, that constituent is placed in the sentence-final focus position, preceded by both the question particle and the negator (in that order).

Zai te kitavmat ni khwé chaldi?
zai=te kitav-mat ni=khwé chal-di
 go-PFV.PAST book-PLACE.SG Q=NEG priest-F.SG
 “Didn’t the priestess go to the library?”

OR

“Wasn’t it the priestess who went to the library?”

Ti tana pharé te ni khwé zel kitavmat?
ti=tan-a=pharé=te ni=khwé zel=kitav-mat
 3SG.F=3SG.M-NN=see=PFV.PAST Q=NEG in=book-PLACE.SG
 “Didn’t she see him in the library?”

OR

“Wasn’t it in the library that she saw him?”

The alternative form with *ni khwé?* as a tag question is possible for the first of these two examples:

Zai te kitavmat chaldi, ni khwé?
zai=te kitav-mat chal-di ni=khwé
 go-PFV.PAST book-PLACE.SG priest-F.SG Q=NEG
 “It was the priestess who went to the library, wasn’t it?”

However, it is not possible for the second, because the resulting sentence

Ti tana pharé te zel kitavmat, ni khwé?
ti=tana=pharé=te zel=kitav-mat ni=khwé
 3SG.F=3SG.M-NN=see=PFV.PAST in=book-PLACE.SG Q=NEG
 “She saw him in the library, didn’t she?”

is identical to the version in which no one constituent is singled out for questioning. More generally, the use of the tag-question form for an affirmatively-biased yes-no question in which only one constituent is questioned is limited to questions in which the questioned constituent is not already in sentence-final position in the underlying declarative sentence. The reason for this is that, with neither the question particle nor the negator available to act as a focus marker (since

they are both moved to the tag question), there is no way to mark the sentence-final constituent as the focus (and thus as the constituent being questioned). (There are reasons why this is not an issue in declarative sentences with sentence-final focus; this will be discussed in §4.6.)

4.2.6.1.3. Negatively-Biased Yes-No Questions

To pose a question with a negative bias – to indicate that the answer one is expecting is “no” – a variant of the tag-question form of the affirmatively-biased question is used, in which the negation of the underlying declarative sentence is followed by a tag-question containing the affirmative particle *xó*. For example:

Chaldi te khwé zai kitavmat, ni xó?
chal-di=te khwé zai kitav-mat ni=xó
 priest-F.SG=PFV.PAST NEG go book-PLACE.SG Q=AFF
 “The priestess didn’t go to the library, did she?”

To ask a negatively-biased question with one constituent focused requires only the movement of the negator (and thus its transformation from a modal verb to a focus marker), as in the neutral form of the same question:

Chaldi te zai khwé kitavmat, ni xó?
chal-di=te zai khwé kitav-mat ni=xó
 priest-F.SG=PFV.PAST go NEG book-PLACE.SG Q=AFF
 “The priestess didn’t go to the library, did she?”
 OR
 “It wasn’t the library that the priestess went to, was it?”

4.2.6.2. Disjunctive Questions

A disjunctive question specifies two or more mutually exclusive answers, separated by the coordinating conjunction *xa* “(exclusive) or”. (This and other other coordinating conjunctions will be discussed further in §4.3.1.) A felicitous answer to such a question can only be one of the specified alternatives.

Xi liran txáyu xa kaféyu?
xi=liran txai-yu xa kafé-yu
 2SG=desire tea-STUFF or.EXCL coffee-STUFF
 “Do you want tea or coffee?”

assuming that the addressee wants something to drink, and implying that tea and coffee are the only available alternatives, in contrast to:

Xi ni liran txáyu pa kaféyu?

xi=ni=liran txai-yu pa kafé-yu
2SG=Q=desire tea-STUFF or.INCL coffee-STUFF

“Do you want tea or coffee?” (or perhaps something else, or perhaps nothing?)

In English, these two questions differ only in intonation contour. In Tirazdak, there is a similar intonational difference (the first falling at the end and the second rising, as in English), but they also differ by the contrast between the two kinds of “or”, and also by the presence or absence of the question particle *ni* (the latter question being formally a yes-no question in Tirazdak rather than a disjunctive question, while in English they are both formally disjunctive).

4.2.6.3. WH-Questions

A WH-question consists, in essence, of a declarative sentence in which the identity of one constituent is unknown, plus a request for the identity of that constituent. The unknown constituent is represented by the interrogative determiner *sú*, with the appropriate gender-number suffix (if, as is usually the case, the constituent in question is a noun phrase). As in English and in many other languages, this interrogative normally goes in sentence-initial position, regardless of its syntactic role in the sentence (subject, object, etc.).

Súnas te zai kitavmat?

sú-nas=te zai kitav-mat
INTER-COM.SG=PFV.PAST go book-PLACE.SG

“Who went to the library?”

Súdak te karen chaldi na xaidan?

sú-dak=te karen chal-di na xai-dan
INTER-THING.SG=PFV.PAST give priest-F.SG DAT old-M.SG

“What did the priestess give to the old man?”

However, if the interrogative is not an immediate constituent of the sentence, but rather of a noun phrase or a prepositional phrase, that phrase as a whole goes in sentence-initial position.

Na súmat te xi pharé na chaldi?

na=sú-mat=te xi=pharé na=chal-di
at=INTER-PLACE.SG=PFV.PAST 2SG=see ACC=priest-F.SG

“Where did you see the priestess?”

Kitavdag an súnas te karen chaldi na xaidan?

kitav-dak=an=sú-nas=te karen chal-di na=xai-dan
book-THING.SG=GEN=INTER-COM.SG=PFV.PAST give priest-F.SG DAT=old-M.SG

“Whose book did the priestess give to the old man?”

4.2.7. The Passive Voice

In Tirazdak, as in English, use of the passive voice decreases the valency of the verb by one, so that a monotransitive verb becomes intransitive and a ditransitive verb becomes monotransitive. (A verb that is already intransitive cannot be passivized.) The original subject is deleted, or at least demoted from argument to adjunct, and an original object (direct or indirect) becomes the subject.

Any transitive verb in Tirazdak can be passivized by means of the prefix *at-*. (The final *-t-* of the prefix assimilates in point of articulation to the immediately following consonant, if any, so that the passive forms of the verbs *tumfach*, *pharé*, and *karen* are *attumfach*, *appharé*, and *akkaren*, respectively.) For example, the transitive sentence

Xaidan te pharé na chaldi zel kitavmat.

<i>xai-dan=te</i>	<i>pharé</i>	<i>na=chal-di</i>	<i>zel=kitav-mat</i>
old-M.SG=PFV.PAST	see	ACC=priest-F.SG	in=book-PLACE.SG

“The old man saw the priestess in the library.”

when passivized, becomes

Chaldi te appharé zel kitavmat.

<i>chal-di=te</i>	<i>at-pharé</i>	<i>zel=kitav-mat</i>
priest-F.SG=PFV.PAST	PASS-see	in=book.PLACE.SG

“The priestess was seen in the library.”

The most typical function of the passive is to avoid specifying the subject of a transitive verb, when the subject is unknown or is felt to be irrelevant. Thus, in the preceding example, the speaker either doesn’t know who saw the priestess or doesn’t consider it important enough to be worth mentioning. (In Tirazdak, as in English, this function can be used to obfuscate or to avoid assigning responsibility – the so-called “bureaucratic passive” – and, in fact, it frequently is so used in the Temple hierarchy, with its emphasis is on collective rather than individual responsibility and its convoluted, consensus-based decision-making process [see Appendix B].)

Another important function of the Tirazdak passive is to avoid transitive sentences in which there is a potential for ambiguity between subject and object (where both subject and object are inanimate – recall that only animate objects take the accusative-marking preposition *na*) or in which the intuitive expectation that animate agents act on inanimate patients, and not vice versa, is violated (where an inanimate subject acts on an animate object). Transitive sentences with inanimate subjects are ungrammatical in Tirazdak; such sentences must be recast in the passive voice, with the underlying subject expressed as the object of the instrumental preposition *do* “with”. Thus, the correct way to say “the car hit the bus” is not

**Autodak te phak bostak.*

**auto-dak=te* *phak* *bos-tak*
*car-THING.SG=PFV.PAST hit bus-THING.SG

which, even if it were not ungrammatical, would be ambiguous (it could just as well mean “the bus hit the car”), but

Do autodak te apphak bostak.

do=auto-dak=te *ap-phak* *bos-tak*
with=car-THING.SG=PFV.PAST PASS-hit bus-THING.SG

which literally means “the bus was hit by the car”, even though the word order has been rearranged to topicalize “the car”.

Likewise, “the car hit the old man” would, if translated literally, give the ungrammatical sentence

**Autodak te phak na xaidan.*

**auto-dak=te* *phak* *na=xai-dan*
*car-THING.SG=PFV.PAST hit ACC=old-M.SG

so we must instead say

Do autodak te apphak xaidan.

do=auto-dak=te *ap-phak* *xai-dan*
with=car-THING.SG=PFV.PAST PASS-hit old-M.SG

or, more likely in view of the strong tendency for animates to be more topical than inanimates,

Xaidan te apphak do autodak.

xai-dan=te *ap-phak* *do=auto-dak*
old-M.SG=PFV.PAST PASS-hit with=car-THING.SG
“The old man was hit by the car.”

Another way of putting this is that transitive sentences are allowed in Tirazdak only where the subject is (at least potentially) a conscious agent. (There are, however, certain inanimate entities that are grammatically classed as animate in Tirazdak because of their mythical and/or theological associations – for example, *Máta* “the Earth” and *Nín* “the Moon” – and are treated syntactically in the same way as entities that are “really” animate.)

Conversely, the passive cannot be used in Tirazdak to topicalize an object, or to background or de-topicalize a subject, when the subject is animate. (This is a common use of the passive in English, but in Tirazdak the same thing can be accomplished simply by changing the word order, without changing the syntactic roles.) If the subject of a transitive sentence is animate, that

sentence cannot grammatically be passivized without omitting the subject. There is no way to recast an animate subject as an oblique agent in a passive sentence, because there is no preposition in Tirazdak with the appropriate meaning; *do* can be used only with an inanimate, unconscious instrument, not with a conscious agent. Thus there is no way of literally translating “the priestess was seen by the old man” into Tirazdak; the closest we can get is

Na chaldi te pharé xaidan.

na=chal-di=te *pharé xai-dan*
ACC=priest-F.SG=PFV.PAST see old-M.SG

which literally means “the old man saw the priestess”, even though the marked word order makes “the priestess” the topic rather than “the old man”, and thus has roughly the same pragmatic effect as “the priestess was seen by the old man” does in English.

When a ditransitive verb is passivized, either the direct object or the indirect object may be promoted to subject. Thus, the ditransitive sentence

Chaldi te karen nar encharimdan kitavdak.

chal-di=te *karen na=encharim-dan* *kitav-dak*
priest-F.SG=PFV.PAST give DAT=student-M.SG book-THING.SG
“The priestess gave the book to the student.”

can be passivized in two ways, giving either

Encharimdan te akkaren kitavdak.

encharim-dan=te *at-karen* *kitav-dak*
student-M.SG=PFV.PAST PASS-give book-THING.SG
“The student was given the book.”

or

Kitavdak te akkaren nar encharimdan.

kitav-dak=te *at-karen* *na=encharim-dan*
book-THING.SG=PFV.PAST PASS-give DAT=student-M.SG
“The book was given to the student.”

4.2.8. Locative Verbs

Locative verbs are a closed subclass of stative intransitive verbs. There are three locative verbs:

- *yé* “be here” (near the speaker)
- *yó* “be there” (near the addressee)
- *yá* “be there” (over yonder, not near either the speaker or the addressee)

In addition to their straightforward, literal meanings, they are often used as “dummy predicates” which can host enclitics in situations where a heavy predicate is the first stress-bearing constituent of the clause, so that a strict application of the rule that enclitics are postposed to the first stress-bearing constituent would result in a prosodically awkward sentence. For example,

?*Wa na kextag an wara tyennejin zo.*

wa=na=kex-tak *an=wa-ra=tyen-nejin=zo*

1.SG=at=house-THING.SG GEN=1.SG-NN=friend-C.DU=IPFV.PAST

“I was at my friends’ house.”

is grammatically correct but sounds rather awkward. A smoother alternative would be

Wa yá zo na kextag an wara tyennejin.

wa=yá=zo *na=kex-tak* *an=wa-ra=tyen-nejin*

1.SG=be.there at=house-THING.SG GEN=1.SG-NN=friend-C.DU

“I was at my friends’ house.”

This dummy-predicate construction can be particularly useful in combination with the progressive construction (see §4.2.4.3), especially when the underlying direct object (the surface possessor of the nominalized verb) is modified by a heavy constituent such as a relative clause. For example, instead of

?*Ti na lechanyu ’n kitavdak tia sua karen te ra tia seftan zo.*

ti=na=lechan-yu *an kitav-dak* *ti-a=su-a=karen=te=ra*

3SG.F=at=read-STUFF GEN=book-THING.SG 3SG.F-NN=REL-NN=give=PFV.PAST=RT

ti-a=sef-tan=zo

3SG.F-NN=sibling-M.SG=IPFV.PAST

“She was reading the book that her brother had given her.”

(lit. “she was at reading of the book that her brother had given her”)

(which is grammatically correct but prosodically rather clumsy), one could say

Ti yá zo na lechanyu ’n kitavdak tia sua karen te ra tia seftan.

ti=yá=zo *na=lechan-yu* *an=kitav-dak*

3SG.F=be.there=IPFV.PAST at=read-STUFF GEN=book-THING.SG

ti-a=su-a=karen=te=ra

ti-a=sef-tan

3SG.F-NN=REL-NN=give=PFV.PAST=RT 3SG.F-NN=sibling-M.SG

“She was reading the book that her brother had given her.”

(lit. “she was there at reading of the book that her brother had given her”)

4.3. Compound and Complex Sentences

Thus far, we have considered only sentences that each consist of only one clause. We will now consider structures in which two or more clauses are combined to form one sentence. Such combinations of clauses fall into two general types: **parataxis** (also called **coordination**), in which syntactically co-equal clauses are linked by a coordinating conjunction, and **hypotaxis** (also called **subordination**), in which one clause is embedded within another, with one (the embedded or subordinate clause) becoming a constituent of the other (the matrix clause). (The matrix clause may be the main clause, or it may itself be embedded within a higher-level clause. There is no theoretical limit to the number of levels of embedding, although there are practical limits imposed by the processing capacity of the human brain.) Sentences in which clauses are combined by parataxis and by hypotaxis are called “compound sentences” and “complex sentences”, respectively.

4.3.1. Parataxis

In parataxis, clauses are linked by coordinating conjunctions. There are five coordinating conjunctions in common use:

- *ne* “and”
- *ta* “and, and then”
- *no* “but”
- *pa* “or” (inclusive)
- *xa* “or” (exclusive)

The distinction between *ne* and *ta* is that the clauses linked by *ne* are simultaneous, while the clauses linked by *ta* are sequential. For example:

Encharimdan na lechanyu ne tana tyendan na xunáyu na chaldi.
encharim-dan na=lechan-yu ne tan-a tyen-dan na=xunai-yu na=chal-di
student-M.SG at=read-STUFF and 3SG.M-NN friend-M.SG at=talk-STUFF to=priest-F.SG
“The student is reading and his friend is talking to the priestess.”

But:

Wa tia kuliran te kitavdak ta ti wara taga karen te.
wa=ti-a=kuliran=te kitav-dak ta ti=wa-ra=tag-a=karen=te
1SG=3SG.F-NN=request=PFV.PAST book-THING.SG and 3SG.F=1SG-NN=3SG.THING-NN=
give=PFV.PAST

“I asked her for the book and she gave it to me.”

No is exactly equivalent to its English counterpart “but”; that is, it has the same truth-value meaning as “and”, but with the additional connotation that the following clause is not what the

preceding clause would lead the addressee to expect. For example:

Wa zai te na kextag an Yovan no tan khwé zo yá.
wa=zai=te na=kex-tak an=Yovan no tan=khwé=zo yá
 1SG=go=PFV.PAST to=house-THING.SG GEN=John but 3SG.M=NEG=IPFV.PAST there
 “I went to John’s house but he wasn’t there.”

The distinction between *pa* and *xa* is similar (though not exactly identical) to the distinction between inclusive and exclusive “or” (OR vs. XOR) in Boolean algebra. This distinction is perhaps best illustrated by the use of *xa* in disjunctive questions (see §4.2.6.2). (The use of *xa* in declarative sentences is possible only in very restricted contexts.)

In addition to linking whole clauses, coordinating conjunctions can also link constituents within a clause, provided that the linked constituents are of the same type (e.g., noun phrases). In all such uses, it can plausibly be argued that, at some level of abstraction, the conjunction is “really” linking two complete clauses, but that the constituents that are the same in both clauses are omitted at the surface level. For example,

Suzan te pharé na Yovan ne Mari.
Suzan=te pharé na=Yovan ne Mari
 Susan=PFV.PAST see ACC=John and Mary
 “Susan saw John and Mary.”

is logically equivalent to

Suzan te pharé na Yovan ne Suzan te pharé na M’ri.
Suzan=te pharé na=Yovan ne Suzan=te pharé na=Mari
 Susan=PFV.PAST see ACC=John and Susan=PFV.PAST see ACC=Mary
 “Susan saw John and Susan saw Mary.”

(In the first of the above examples, one could also say *na Yovan ne na M’ri*, using the conjunction to link two prepositional phrases rather than two objects of one preposition. The two are equally grammatical, but the latter has a somewhat more formal sound.)

4.3.2. Hypotaxis

In hypotaxis, a subordinate clause is embedded within, and functions as a constituent of, a matrix clause. In Tirazdak, as in English and many other languages, subordinate clauses can be divided into three general types, depending on what kinds of constituents they can function as. A **noun clause** acts like a noun or noun phrase, and, as such, can function as an argument of the matrix verb (most commonly as the direct object of a verb of saying, thinking, etc.). A **relative clause** acts like an attributive adjective, modifying a noun (and is thus a constituent of a noun phrase

rather than an immediate constituent of the matrix clause). (More precisely, since Tirazdak has no adjectives as such, a relative clause acts like a stative verb in its attributive-adjective-like role as opposed to its predicative role.) An **adverbial clause** acts, as one would expect, like an adverb. Some of these types of clauses have specialized subtypes; for example, the protasis of a conditional sentence is a specialized type of adverbial clause, and an embedded question is a specialized type of noun clause.

4.3.2.1. Noun Clauses

Note: many grammars of English and other “familiar” languages use the term “complement clause” instead of “noun clause”. Unfortunately, the ranges of applicability of the two terms, as I understand them, are almost, but not exactly, coterminous: all complement clauses are noun clauses, but not vice versa. Therefore, to avoid unnecessary confusion, I will avoid the term “complement clause” except when referring to noun clauses that are subordinate to modal or other verbs (see §4.3.2.1.3).

Many, but not all, types of noun clauses are either obligatorily or optionally introduced by the general-purpose complementizer *ha*, which in most contexts can be translated into English as “that”. (In traditional grammars, *ha* and other complementizers would be referred to as “subordinating conjunctions”.)

4.3.2.1.1. Reported Speech

The most frequently occurring types of noun clauses are those that constitute what is commonly referred to in traditional grammars as “indirect discourse”, and in more recent work as “reported speech”. These include indirect statements, indirect questions, and indirect requests.

4.3.2.1.1.1. Indirect Statements

An indirect statement is a noun clause used as the direct object of a verb of saying, thinking, etc. In other words, the noun clause tells what is said, thought, or whatever, though not in the form of a direct quotation. Indirect statements, like most other types of subordinate clauses in Tirazdak, are most frequently verb-initial. The use of *ha* to introduce an indirect statement is optional (and usually omitted) if three conditions are met:

- The verb complex is the first constituent of the subordinate clause. [By “verb complex” I mean the verb (or predicate nominal) and any clitics attached to it (proclitic subject or object pronouns or enclitic TAM markers).]
- The verb complex of the subordinate clause includes the relative tense marker *ra*, which cannot occur in a main clause.
- The subordinate clause occurs after (though not necessarily immediately after) the verb of the

matrix clause.

In the following example, which shows the most common and least marked word order for this type of sentence, all of the above conditions are met, and the complementizer is accordingly omitted:

Mari te xunai zai te ra Yovan kitavmat.
Mari=*te* *xunai* *zai=te=ra* *Yovan kitav-mat*
Mary=PFV.PAST say go=PFV.PAST=RT John book-PLACE.SG
“Mary said that John had gone to the library.”

But if any one of these conditions is not met, as in the following two examples, the complementizer is mandatory. Here, the subject of the subordinate clause is moved to clause-initial position, in order to mark it as the topic of the embedded statement:

Mari te xunai ha Yovan te ra zai kitavmat.
Mari=*te* *xunai* *ha* *Yovan=te=ra* *zai kitav-mat*
Mary=PFV.PAST say COMP John=PFV.PAST=RT go book-PLACE.SG
“Mary said that John had gone to the library.”

And here, the subordinate clause as a whole is fronted, to topicalize the embedded statement and focus the matrix subject:

Ha Yovan te ra zai kitavmat xunai te Mari.
ha *Yovan=te=ra* *zai kitav-mat* *xunai=te* *Mari*
COMP John=PFV.PAST=RT go book-PLACE.SG say=PFV.PAST Mary
“It was Mary who said that John had gone to the library.”

4.3.2.1.1.2. Indirect Questions

An indirect question is similar to an indirect statement, except that the embedded clause represents a question rather than a declarative sentence. As with direct questions (see §4.2.6), indirect questions can be any of three types: yes-no questions, disjunctive questions, and wh-questions.

An indirect yes-no question differs from an indirect statement in two ways:

- In place of the complementizer *ha*, it is introduced by another complementizer, *ni* “whether”, which is identical in surface form, though not in syntactic function, to the question particle *ni*, and which, unlike *ha*, is mandatory regardless of word order (in either the subordinate clause or the matrix clause) and regardless of the presence or absence of the relative tense marker *ra*.
- It requires one of a different set of verbs in the matrix clause: verbs of asking, wondering, etc.

Mari te kunzi na Yovan ni tan zai te ra kitavmat.

Mari=te kunzi na=Yovan ni tan=zai=te=ra kitav-mat
 Mary=PFV.PAST ask DAT=John whether 3SG.M=go=PFV.PAST book-PLACE.SG
 “Mary asked John whether he’d gone to the library.”

In a direct yes-no question (see §4.2.6.1.1), the question particle *ni* can be used to single out one constituent, rather than an entire statement, as the element being questioned. This option is not available in an indirect yes-no question; the question particle *ni* cannot be embedded within the scope of the complementizer *ni*. The same result can be achieved simply by moving the indirectly-questioned constituent to the clause-final focus position within the embedded question:

Mari te xunai ni zai te ra kitavmat Yovan.

Mari=te kunzi ni zai=te=ra kitav-mat Yovan
 Mary=PFV.PAST ask whether go=PFV.PAST book-PLACE.SG John
 “Mary asked whether it was John who had gone to the library.”

However, this will not work if the questioned constituent is the one that would appear in clause-final position in the default, unmarked word order (in this case, *kitavmat*). In that case, the marked and unmarked variants of the sentence would have the same word order; the only way to distinguish between them is by intonation.

Indirect disjunctive questions, like indirect yes-no questions, are introduced by the complementizer *ni*. For example:

Mari te kunzi ni zai te ra Yovan kitavmat xa kextag i v’rach.

Mari=te kunzi ni zai=te=ra Yovan kitav-mat xa
 Mary=PFV.PAST ask whether go=PFV.PAST=RT John book-PLACE.SG or.EXCL
kex-tak=i=varach
 house-THING.SG=GEN=god

“Mary asked whether John had gone to the library or the temple.”

In an indirect wh-question, *ni* is not used, either as a complementizer or as a question particle. Instead, the interrogative determiner *sú* is used, with whatever gender-number suffix is appropriate. The strategy for turning a direct wh-question into an embedded one is essentially the same as in English, and quite different from that used for embedding other types of questions: the question to be embedded is simply inserted bodily into the matrix clause. For example:

Mari te kunzi sunas te ra zai kitavmat.

Mari=te kunzi sú-nas=te=ra zai kitav-mat
 Mary=PFV.PAST ask INTER-COM.SG=PFV.PAST=RT go book-PLACE.SG
 “Mary asked who had gone to the library.”

Note that *súnas* is not marked as accusative by the preposition *na*, even though it is animate, because it is not the direct object of the matrix verb, but rather the subject of the embedded question, while the embedded question as a whole is the direct object of the matrix verb. (A clause or other abstract syntactic entity is grammatically inanimate, and thus does not take *na* when used as a direct object.)

If *sú* is not the subject of the embedded question, it is marked appropriately for whatever its clause-internal syntactic role is. In the first of the following examples, *sú* is the direct object of the embedded question; in the second, it is the object of a preposition; in the third, it is a possessor; but in all three examples, the embedded clause itself remains the direct object of the matrix verb (and also remains unmodified from the form it would have taken as a direct question, except for the addition of the relative tense marker *ra*).

Mari te kunzí súmat te ra zai Yovan.

Mari=te kunzí sú-mat=te=ra zai Yovan
 Mary=PFV.PAST ask INTER-PLACE.SG=PFV.PAST=RT go John
 “Mary asked where John had gone.”

Mari te kunzí do súnas te ra zai Yovan kitavmat.

Mari=te kunzí do=sú-nas=te=ra zai Yovan kitav-mat
 Mary=PFV.PAST ask with=INTER-COM.SG=PFV.PAST=RT go John book-PLACE.SG
 “Mary asked who John had gone to the library with.”

Mari te kunzí kextag an súnas te ra zai Yovan.

Mari=te kunzí kex-tak=an=sú-nas=te=ra zai Yovan
 Mary=PFV.PAST ask house-THING.SG=GEN=INTER-COM.SG=PFV.PAST go John
 “Mary asked whose house John had gone to.”

4.3.2.1.1.3. Indirect Requests

Although a polite request is generally formulated as a question (see §5.3), an indirect request does *not* take the form of an indirect question, but rather of an indirect statement in the optative mood. For example:

Mari te kuliran na Yovan ha tan zai ve kitavmat.

Mari=te kuliran na=Yovan ha tan=zai=ve kitav-mat
 Mary=PFV.PAST request DAT=John COMP 3SG.M=go=OPT book-PLACE.SG
 “Mary asked John to go to the library.”

In this example, the requestee (John) is the indirect object of the matrix clause, cross-referenced by a pronoun in the embedded clause. There is an alternative formulation in which the requestee is not a constituent of the matrix clause but rather the subject of the embedded clause:

Mari te kuliran ha zai ve Yovan kitavmat.

Mari=te kuliran ha zai=ve Yovan kitav-mat
Mary=PFV.PAST request COMP go=OPT John book-PLACE.SG
“Mary asked John to go to the library.”
(lit. “Mary asked that John go to the library.”)

The semantic difference between these two sentences is that the first clearly implies that Mary addressed the request directly to John, while the second does not; it permits this interpretation but does not require it, leaving open the alternative interpretation that she relayed the request through a third party.

4.3.2.1.1.4. The Logophoric Pronoun

The logophoric pronoun *sa* is used in reported speech (and more generally in noun clauses that are complements of verbs of saying, thinking, wishing, etc.) to refer to the subject of the matrix clause. For example,

Yovan te xunai sa zai te ra kitavmat.
Yovan=te xunai sa=zai=te=ra kitav-mat
John=PFV.PAST say LOG=go=PFV.PAST=RT book-PLACE.SG
“John said that he (himself) had gone to the library.”

But

Yovan te xunai tan zai te ra kitavmat.
Yovan=te xunai tan=zai=te=ra kitav-mat
John=PFV.PAST say 3SG.M=go=PFV.PAST=RT book-PLACE.SG
“John said that he (someone else) had gone to the library.”

In the first example, the subject of the embedded statement can only be interpreted as coreferential with the subject of the matrix clause (John); in the second, it can only be interpreted as referring to someone other than John.

In the above example, the logophoric pronoun is the subject of the embedded clause, but this is not a requirement. The logophoric pronoun must refer to the subject of the matrix clause, but it can be any constituent of the embedded clause. In the first of the following two examples, the logophoric pronoun is the indirect object of the embedded clause; in the second, it is used as the possessor of the indirect object of the embedded clause.

Yovan te xunai sara karen te ra David kitavdak.

Yovan=te xunai sa-ra=karen=te=ra David kitav-dak
John=PFV.PAST say LOG-NN=give=PFV.PAST=RT David book-THING.SG
“John said that David had given him the book.”

Yovan te xunai karen te ra David kitavdak na sara karazdi.

Yovan=te xunai karen=te=ra David kitav-dak na=sara=karaz-di
John=PFV.PAST say give=PFV.PAST=RT David book-THING.SG DAT=LOG-NN=spouse-F.SG
“John said that David had given the book to his wife.” (to John’s wife, not to David’s or someone else’s wife)

The logophoric pronoun must have a third-person referent; it cannot be used if the subject of the matrix clause is first- or second-person. Thus, for example, when the speaker is the subject of both matrix and embedded clauses, the first-person pronoun is used for both:

Wa xunai te wa zai te ra kitavmat.

wa=xunai=te wa=zai=te=ra kitav-mat
1SG=say=PFV.PAST 1SG=go=PFV.PAST=RT book-PLACE.SG
“I said that I’d gone to the library.”

NOT

**Wa xunai te sa zai te ra kitavmat.*

**wa=xunai=te sa=zai=te=ra kitav-mat*
*1SG=say=PFV.PAST LOG=go=PFV.PAST=RT book-PLACE.SG

The logophoric pronoun is not marked for number, and it can only refer to exactly the subject of the matrix clause, whether singular, dual or plural, not to a subset or superset of that subject. This can result in ambiguity if, for example, the matrix subject is singular and a constituent of the embedded clause is a plural NP that includes, but is not limited to, the matrix subject. For example, the sentence

Yovan te xunai nex zai te ra kitavmat

Yovan=te xunai nex=zai=te=ra kitav-mat
John=PFV.PAST say 3PL.COM=go=PFV.PAST=RT book-PLACE.SG
“John said that they had gone to the library.”

does not specify whether or not the group referenced by “they” included John. In most situations, context will suffice to resolve this ambiguity; if not, the sentence can be rephrased as something like

Yovan te xunai sa zai te ra nejadó kitavmat.

Yovan=te xunai sa=zai=te=ra nej-a-dó kitav-mat
John=PFV.PAST say LOG=go=PFV.PAST=RT 3PL.COM-NN-with book-PLACE.SG
“John said that he had gone to the library with them.”

4.3.2.1.2. Modal and Semi-Modal Verbs

In Tirazdak, as in English and in many other languages, there is a small, closed subclass of verbs known as **modal verbs**, which convey such notions as ability, permission, and obligation, and whose syntactic behavior differs substantially from that of other verbs. The English modal verbs include *can*, *could*, *will*, *would*, *shall*, *should*, *may*, *might*, *must*, and *ought*. Tirazdak modal verbs cover a similar but not identical range of meanings:

- *bai* – ability (“can”)
- *fló* – possibility (“might”)
- *nau* – permission (“may”)
- *machal* – weak obligation (“should”, “ought to”)
- *zach* – strong obligation (“must”, “have to”)
- *mandé* – necessity, inevitability (“must”, “will inevitably”)
- *khwé* – negation
- *xó* – emphatic or contrastive affirmation

In addition to these, Tirazdak has a few verbs that can function as either modal or non-modal; I will refer to these as **semi-modal verbs**:

- *liran* – desire (“want to”)
- *baxliran* – preference (“would rather”, “prefer to”)
- *chomaz* – intent (“intend to”)

Modal and semi-modal verbs are closed subclasses of the open class of stative verbs. They differ from each other and from non-modal verbs in the following ways:

A modal verb *must* take (and can *only* take) a complement clause with the following characteristics:

- its subject is not expressed, and is understood to be coreferential with the subject of the modal verb;
- it cannot be introduced by a complementizer;
- it cannot have any TAM marking.

A modal verb cannot take any arguments other than the subject; any other arguments are arguments of the complement verb.

A semi-modal verb *can* take the type of complement clause described above, but can also take an “ordinary” complement clause, which:

- has its own subject, which is expressed overtly either as an NP or a pronoun, and which may or may not be coreferential with the subject of the semi-modal verb;
- may or may not be introduced by a complementizer, depending on the syntactic and prosodic rules discussed elsewhere;
- may or may not have its own TAM marking.

A non-modal verb either does not take a complement clause or takes an “ordinary” complement clause (as, for example, in reported speech [see §4.3.2.1.1]).

4.3.2.1.2.1. Modal Verbs

The following is an example of a Tirazdak sentence whose predicate is a modal verb:

Yovan machal zai kitavmat.
Yovan machal zai kitav-mat
John should go book-PLACE.SG
“John should go to the library.”

Note that the complement clause (*zai kitavmat* “go to the library”) meets the criteria listed above for complements of modal verbs: it has no overt subject (its subject can only be understood as *Yovan*, the subject of the matrix clause); it is not introduced by *ha* or any other complementizer; and it has no TAM marking (it is roughly equivalent to an English infinitive).

Although Tirazdak does not allow TAM marking on the complement of a modal verb, it does (unlike English) allow TAM marking on the modal verb itself (or, more accurately, in the clause whose predicate is a modal verb; recall that TAM marking in Tirazdak is seen as applying to the entire clause rather than merely to the verb). For example:

Yovan zo machal zai kitavmat.
Yovan=zo machal zai kitav-mat
John=IPFV.PAST should go book-PLACE.SG
“John should have gone to the library.”

In the English translation of the above example, it is the verb of the complement clause, rather than the modal verb in the matrix clause, that is formally tense-marked (“should” is unchanged, but “go” becomes “have gone”), but the tense marking is in fact understood, in both languages, as semantically applying to the modal verb rather than to the complement verb. (It is the obligation, not the unrealized potential act, that existed in the past. But because English does not allow TAM marking on modal verbs,⁵ it has no direct, literal way of indicating that.)

In Tirazdak, in contrast to English, either a modal verb or its complement, or both, can be negated independently of each other. (In English, only the modal verb can be negated.) Thus, for example, it is possible to make an explicit distinction between, on the one hand,

⁵The prohibition of TAM marking on modal verbs in English is a relatively recent development. A few centuries ago, *should* was understood as the past tense of *shall*, rather than as a different verb with a distinct meaning; likewise for *can/could*, *may/might*, *will/would*.

Yovan khwé machal zai kitavmat.
Yovan khwé machal zai kitav-mat
John NEG should go book-PLACE.SG
“John doesn’t have to go to the library.”

and, on the other hand,

Yovan machal khwé zai kitavmat.
Yovan machal khwé zai kitav-mat
John should NEG go book-PLACE.SG
“John shouldn’t go to the library.”

The first example means that John is under no obligation to go to the library; the second means that he **is** obligated **not** to go to the library. A modal verb in English can express only one of these two meanings; the other must be expressed by a paraphrase not involving a modal verb.

Note that, since the negator *khwé* is itself a modal verb when used in this way (see §4.2.5), the above examples show that Tirazdak allows the nesting of one modal verb in a complement clause governed by another, which is not allowed in Standard English. To give another example of this type of construction:

Yovan fló machal zai kitavmat.
Yovan fló machal zai kitav-mat
John might should go book-PLACE.SG
“Maybe John should go to the library.”

A literal translation of this example is not possible in Standard English, although there are some regional dialects of English in which “might should go” is perfectly acceptable.

4.3.2.1.2.2. Semi-Modal Verbs

A semi-modal verb behaves syntactically like a modal verb when its subject is coreferential with the subject of its complement clause, and like a non-modal verb when its complement clause has a different subject, as in the following two examples:

Yovan liran zai kitavmat.
Yovan liran zai kitav-mat
John want go book-PLACE.SG
“John wants to go to the library.”

Yovan liran ha zai ve Mari kitavmat.

Yovan liran ha zai=ve Mari kitav-mat

John want COMP go=OPT Mary book-PLACE.SG

“John wants Mary to go to the library.” (lit. “John wants that Mary go to the library.”)

In the first example, where *Yovan* is the subject both of the matrix clause and (implicitly) of its complement clause, *liran* behaves like a modal verb, taking the kind of stripped-down complement clause that modal verbs take. But in the second example, where *Yovan* is only the subject of the matrix clause, and *Mari* is the subject of the complement clause, *liran* behaves like a non-modal verb, taking an “ordinary” complement clause of the sort discussed in §4.3.2.1.3.

4.3.2.1.2.3. Modal and Semi-Modal Verbs with Pronominal Arguments

In the examples in the preceding two sections, which were chosen for maximum simplicity, all arguments are nouns and the matrix clause has zero TAM marking. However, the distribution of arguments and of TAM marking between the matrix clause and the complement clause, and the way in which this differs depending on whether the verb of the matrix clause is modal or non-modal, comes into sharper focus when the arguments are proclitic pronouns rather than nouns and when the matrix clause has non-zero TAM marking. To illustrate this, I will give two additional pairs of examples. In the first pair, the semi-modal verb *liran* is used modally; in the second pair, it is used non-modally. In each pair, the two sentences are equivalent except that in the first, the arguments are nouns, while in the second, they are proclitic pronouns.

Modal:

Nayazdan zo liran lechan kitavdak.

nayaz-dan=zo liran lechan kitav-dak

person-3SG.M=IPFV.PAST want read book-3SG.THING

“The man wanted to read the book.”

Tan liran zo taga lechan.

tan=liran=zo tag-a=lechan

3SG.M=want=IPFV.PAST 3SG.THING-NN=read

“He wanted to read it.”

Non-modal:

Nayazdan zo liran ha lechan ve ra nayazdi kitavdak.

nayaz-dan=zo liran ha lechan=ve=ra nayaz-di kitav-dak

person-3SG.M=IPFV.PAST want COMP read=OPT=RT person-3SG.F book-3SG.THING

“The man wanted the woman to read the book.”

Tan liran zo (ha) ti taga lechan ve ra.
tan=liran=zo (ha) ti=tag-a=lechan=ve=ra
 3SG.M=want=IPFV.PAST COMP 3SG.F=3SG.THING-NN=read=OPT-RT
 “He wanted her to read it.”

The sentences in which the arguments are proclitic pronouns show clearly that:

- whether the matrix verb is used modally or not, it only has one argument (its subject), and any other NP is an argument of the complement verb;
- when the matrix verb is used non-modally, the complement verb has its own TAM marking.

(In the last example, the complementizer *ha* is optional, and would probably be omitted, for reasons that are essentially prosodic rather than syntactic.)

4.3.2.1.3. Complements of Non-Modal Verbs

Noun clauses can also occur as complements of verbs other than modal verbs. Such a clause most frequently expresses reported speech (see §4.3.2.1.1), but it can also express a desire, intention, plan, purpose, request, command, etc. Clauses of this type are similar to reported speech, except that they must be introduced by the complementizer *ha* (even when the verb complex is clause-initial) and are usually in the optative mood (indicated by the mood particle *ve*). For example:

Chaldi zo kuliran ha lechan ve encharimdan kitavdak.
chal-di=zo kuliran ha lechan=ve encharim-dan kitav-dak
 priest-F.SG=IPFV.PAST want COMP read=OPT student-M.SG book-THING.SG
 “The priestess asked the student to read the book.”
 or, somewhat more literally,
 “The priestess requested that the student read the book.”

4.3.2.1.4. Other Noun Clauses

In addition to reported speech and other complement clauses governed by modal and non-modal verbs, Tirazdak also has noun clauses of the sort that in English might be introduced by “the fact that...”, even though they are not limited to statements of fact (either in Tirazdak or in English). These are obligatorily introduced by the complementizer *ha*. For example:

Ha tana karazdi te ra khwé zendai na kextak tunsufrú te na xaidan.
ha ta-na=karaz-di=te=ra khwé zendai na=kextak
 COMP 3SG.M-NN=spouse-F.SG=PFV.PAST=RT NEG come to=house-THING.SG
tu-en-sufrú=te na=xai-dan
 CAUS-INCH-worry ACC=old-M.SG

“The fact that his wife had not come home worried the old man.”

Or, alternatively:

Na xaidan te tunsufrú ha tana karazdi te ra khwé zendai na kextak.

na=xai-dan=te tu-en-sufrú ha ta-na=karaz-di=te=ra

ACC=old-M.SG=PFV.PAST CAUS-INCH-worry COMP 3SG.M-NN=spouse-F.SG=PFV.PAST=RT

khwé zendai na=kex-tak

NEG come to=house-THING.SG

“The old man was worried because his wife had not come home.”

The above two examples exemplify the flexibility of the position of noun clauses within the sentence. The Tirazdak sentences differ only in word order, not in syntactic structure, and are exactly equivalent in truth-value meaning, but with differences in emphasis that require different syntactic structures to convey in English.

4.3.2.3. Relative Clauses

Just as a noun clause acts like a noun, a relative clause acts like an adjective: it modifies a noun, and thus is a constituent of a noun phrase headed by that noun. In effect, the noun modified by the relative clause (the “head noun”) is a constituent both of the relative clause and of the matrix clause, and its syntactic role in one is logically independent of its syntactic role in the other. For example, two separate sentences (“I saw the man.” and “The man gave the book to the woman.”) can be combined into one sentence by turning the second sentence into a relative clause embedded within the first (“I saw the man who gave the book to the woman.”). In this combined sentence, “the man” is semantically the direct object of the matrix clause but the subject of the relative clause; it appears overtly in the matrix clause, while the relative pronoun “who” takes its place in the relative clause.

The relative-clause-forming strategy used by Tirazdak is essentially the same as that used by English.⁶ In Tirazdak, the relative pronoun is *su*. Its behavior is essentially identical to that of the clitic (unstressed) personal pronouns: it precedes the verb; when used as the direct or indirect object, or as the possessor of a noun, it takes the non-nominative form *sua*; when used as the object of a preposition, it is prefixed to the preposition. Its one idiosyncrasy, compared to the other clitic pronouns, is that when it is used as the prefixed object of a preposition, its disyllabic non-nominative form *sua* is compressed into the monosyllabic form *swa*. It is not marked for either gender or number.

Thus, given the following simplex sentence:

⁶This strategy is actually a rather unusual one among the languages of the world overall, though very common in the Indo-European language family, which includes English and most of the other languages of Europe.

Mari te pharé na sefti'n Yovan zel kitavmat.

Mari=te pharé na=sefti an=Yovan zel kitav-mat
Mary=PFV.PAST see ACC=sibling-F.SG GEN=John in book-PLACE.SG
“Mary saw John’s sister in the library.”

we can derive any of the following complex sentences containing relative clauses:

Mari man nayazdi su pharé te na sefti'n Yovan zel kitavmat.

Mari man nayaz-di su=pharé=te na=sefti an=Yovan zel=kitav-mat
Mary COP person-F.SG REL=see=PFV.PAST ACC=sibling-F.SG GEN=John in=book-PLACE.SG
“Mary is the woman who saw John’s sister in the library.”

Sefti'n Yovan man nayazdi sua pharé te Mari zel kitavmat.

sefti an=Yovan man nayaz-di su-a=pharé=te Mari zel=kitav-mat
sibling-F.SG GEN=John COP person-F.SG REL-NN=see=PFV.PAST Mary in=book-PLACE.SG
“John’s sister is the woman that Mary saw in the library.”

Kitavmat man kekajdak swazel te pharé Mari na sefti'n Yovan.

kitav-mat man kekaj-dak su-a-zel=te pharé Mari na=sefti
book-PLACE.SG COP building-THING.SG REL-NN-in=PFV.PAST see Mary ACC=sibling-F.SG
an=Yovan
GEN=John

“The library is the building in which Mary saw John’s sister.”

Yovan man nayazdan na sua sefti te pharé Mari zel kitavmat.

Yovan man nayaz-dan na=su-a=sefti=te pharé Mari zel=kitav-mat
John COP person-M.SG ACC=REL-NN=sibling-F.SG=PFV.PAST see Mary in=book-PLACE.SG
“John is the man whose sister Mary saw in the library.”

If we add another level of complexity by turning the original simplex sentence into an indirect statement, and embedding that within a relative clause, we find that the same relativization strategy still works – that being a constituent of an indirect statement (or, for that matter, any other kind of embedded sentence) does not render a noun inaccessible to relativization. However, the construction that we now must use, involving the preposition *je* “about, concerning, with regard to”, is a bit more elaborate than the subject- or object-raising that would be used for the same purpose in English. Thus, changing our original sentence to the following:

Dyána te xunai ha pharé te ra Mari na sefti'n Yovan zel kitavmat.

Dyána=te xunai ha pharé=te=ra Mari na=sefti an=Yovan
Diane=PFV.PAST say COMP see=PFV.PAST=RT Mary ACC=sibling-F.SG GEN=John
zel=kitav-mat
in=book-PLACE.SG

“Diane said that Mary had seen John’s sister in the library.”

gives us the following derived sentences containing relative clauses corresponding to those in the previous examples:

Mari man nayazdi swajé te xunai Dyána ti pharé te ra na sefti'n Yovan zel kitavmat.

Mari man nayaz-di su-a-jé=te xunai Dyána
 Mary COP person-F.SG REL-NN-about=PFV.PAST say Diane
ti=pharé=te=ra na=sef-ti an=Yovan zel=kitav-mat
 F.SG=see=PFV.PAST=RT ACC=sibling-F.SG GEN=John in=book-PLACE.SG

“Mary is the woman that Diane said had seen John’s sister in the library.”

(lit. “Mary is the woman about whom Diane said that she had seen John’s sister in the library.”)

Sefti'n Yovan man nayazdi swajé te xunai Dyána tia pharé te ra Mari zel kitavmat.

sef-ti an=Yovan man nayaz-di su-a-jé=te xunai Dyána
 sibling-F.SG GEN=John COP person-F.SG REL-NN-about=PFV.PAST say Diane
ti-a=pharé=te=ra Mari zel=kitav-mat
 F.SG-NN=see=PFV.PAST=RT Mary in=book-PLACE.SG

“John’s sister is the woman that Diane said that Mary had seen in the library.”

(lit. “John’s sister is the woman about whom Diane said that Mary had seen her in the library.”)

Kitavmat man kekajdak swajé te xunai Dyána ha tagazel te ra pharé Mari na sefti'n Yovan.

kitav-mat man kekaj-dak su-a-jé=te xunai Dyána
 book-PLACE.SG COP building-THING.SG REL-NN-about=PFV.PAST say Diane
ha tag-a-zel=te=ra pharé Mari na=sef-ti an=Yovan
 COMP THING.SG-in=PFV.PAST see Mary ACC=sibling-F.SG GEN=John

“The library is the building that Diane said that Mary had seen John’s sister in.”

(lit. “The library is the building about which Diane said that Mary had seen John’s sister in it.”)

Yovan man nayazdan swajé te xunai Dyána ha na tana sefti te ra pharé Mari zel kitavmat.

Yovan man nayaz-dan su-a-jé=te xunai Dyána
 John COP person-M.SG REL-NN-about=PFV.PAST say Diane
ha na=tan-a=sef-ti=te=ra pharé Mari zel=kitav-mat
 COMP ACC=M.SG-NN=sibling-F.SG=PFV.PAST=RT see Mary in=book-PLACE.SG

“John is the man whose sister Diane said that Mary had seen in the library.”

(lit. “John is the man about whom Diane said that Mary had seen his sister in the library.”)

or, alternatively,

Yovan man nayazdan je sua sefti te xunai Dyána tia pharé te ra Mari zel kitavmat.

Yovan man nayaz-dan je=su-a=sef-ti=te xunai Dyána
 John COP person-M.SG about=REL-NN=sibling-F.SG=PFV.PAST say Diane
ti-a=pharé=te=ra Mari zel=kitav-mat
 F.SG-NN=see=PFV.PAST-RT Mary in=book-PLACE.SG

“John is the man whose sister Diane said that Mary had seen in the library.”

(lit. “John is the man about whose sister Diane said that Mary had seen her in the library.”)

The last two examples, both corresponding to the last one of the previous examples, are, as far as I have been able to determine, exactly equivalent – merely alternative ways of saying the same thing. (Note that in my English glosses I have given them the same idiomatic translation but different literal translations.) My native-speaker informants consistently judged them to be equally acceptable, and, moreover, to be equivalent not only in truth-value meaning but also in connotations, level of formality, etc. Thus, the difference between them seems to be purely a matter of free variation.

4.3.2.4. Adverbial Clauses

An adverbial clause, as the name implies, acts like an adverb (modifying the predicate, or the clause as a whole), as opposed to a noun clause, which acts like a noun (functioning as an argument of the predicate), or a relative clause, which acts like an adjective (modifying a noun). Adverbial clauses in Tirazdak can be divided into two broad types: those which are introduced by subordinating conjunctions and those which are not. Generally speaking, the former are clauses of time, place, manner, cause, purpose, result, etc., and the latter are protases of conditional sentences. (The protasis of a conditional sentence is introduced by a subordinating conjunction in English, but not in Tirazdak.)

4.3.2.4.1. Clauses Introduced by Subordinating Conjunctions

Subordinating conjunctions are a small, closed class including *mat* “where”, *zam* “when”, *nahenna* “while”, *navechha* “before”, *naxalla* “after”, *peya* “so that, in order that”, *va* “as, as if”, *kalla* “because”, and a few others that will not be discussed here. As noted above, an adverbial clause introduced by a subordinating conjunction generally serves to indicate the time, place, manner, cause, purpose, result, or some such attribute of the situation indicated by the matrix clause. A prepositional phrase may serve essentially the same function, but an adverbial clause, unlike an adverbial prepositional phrase, contains a verb or other predicate, and must therefore also contain a subject.

A clause of this type may either precede or follow its matrix clause, as shown in the following two examples:

Zam wa kazat te lechanyu'n kitavdak, wa taga venkaren te na kitavmat.

<i>zam</i>	<i>wa=kazat=te</i>	<i>lechan-yu</i>	<i>an=kitav-dak</i>
when	1SG=finish=PFV.PAST	read-STUFF	GEN=book-THING.SG
	<i>wa=tag-a=venkaren=te</i>		<i>na=kitav-mat</i>
	1SG=3SG.THING-NN=return=PFV.PAST		DAT=book-PLACE.SG

“When I finished reading the book, I returned it to the library.”

Wa venkaren te kitavdak na kitavmat zam wa kazat te taga lechanyu.

wa=venkaren=te kitav-dak na=kitav-mat
1SG=return=PFV.PAST book-THING.SG DAT=book-PLACE.SG
zam wa=kazat=te tag-a=lechan-yu
when 1SG=finish=PFV.PAST 3SG.THING-NN=read-STUFF
“I returned the book to the library when I finished reading it.”

These two sentences are equally acceptable and are identical in truth-value meaning, but with a difference in emphasis. The first would be an appropriate response to a question such as “What did you do with the book when you finished reading it?”, whereas the second would be an appropriate response to a question such as “When did you return the book to the library?”

If the subordinating conjunction introducing a clause is *nahenna* “while”, *navechha* “before”, or *naxalla* “after” (conjunctions that unambiguously indicate the temporal relationship between the matrix clause and the subordinate clause), as in the following three examples, there is no tense or aspect marking in the subordinate clause.

Yovan te zai kextag i v'rach nahenna zai Mari kitavmat.

Yovan=te zai kex-tag=i=varach nahenna zai Mari kitav-mat
John=PFV.PAST go house-THING.SG=GEN=god while go Mary book-PLACE.SG
“John went to the temple while Mary went to the library.”

Naxalla xi lechan kitavdak wa taga venkaren tu kitavmat.

naxalla xi=lechan kitav-dak wa=tag-a=venkaren=tu na=kitav-mat
after 2SG=read book-THING.SG 1SG=3SG.THING-NN=return=PFV.FUT DAT=book-
PLACE.SG

“After you’ve read the book, I’ll return it to the library.”

Xi machal lechan kitavdak navechha wa taga venkaren na kitavmat.

xi=machal lechan kitav-dak navechha wa=tag-a=venkaren na=kitav-mat
2SG=should read book-THING.SG before 1SG=3SG.THING-NN=return DAT=book-
PLACE.SG

“You should read the book before I return it to the library.”

Clauses of purpose and clauses of result are introduced by the same subordinating conjunction, *peya* “so that, in order that”, the distinction being made entirely by the tense and/or mood marking in the clause. (In this, though in little else, Tirazdak resembles Classical Latin.) If the clause indicates a purpose, without specifying whether or not the purpose is accomplished, it is in the optative mood, indicated by the mood particle *ve*, and is unmarked for tense. If, on the other hand, the clause indicates an actual result, it is in the default (unmarked) indicative mood, with tense marking based on the time of the result. Thus:

Yovan te zai kitavmat peya tan venkaren ve kitavdak.

Yovan=te *zai kitav-mat* *peya tan=venkaren=ve* *kitav-dak*
John=PFV.PAST go book-PLACE.SG CONJ 3SG.M=return=OPT book-THING.SG
“John went to the library to return the book.” (lit. “in order that he might return the book”)

Mari te tunzaldin kitavdak peya wa khwé zo taga pharé.

Mari=te *tunzaldin kitav-dak* *peya wa=khwé=zo* *tag-a=pharé*
Mary=PFV.PAST hide book-THING.SG CONJ 1SG=NEG=IPFV.PAST 3SG.THING-
NN=see

“Mary hid the book so I didn’t see it.”

4.3.2.4.2. Subordinating Conjunctions and Prepositions

A majority of the subordinating conjunctions discussed in the previous section are transparently derived from a combination of a preposition and a more basic subordinating conjunction, the complementizer *ha* “that” (as in “he said that he had gone to the library”):

- *nahenna* “while” < *nahen* “beside, along with, while” + *ha*
- *navechha* “before” < *navech* “in front of, preceding, before” + *ha*
- *naxalla* “after” < *naxal* “behind, following, after” + *ha*
- *peya* “so that, in order that” < *pe* “for” + *ha*
- *kalla* “because” < *kal* “because of” + *ha*

A majority of those prepositions, in turn, are derived from a combination of a more basic preposition, *na* “at, to”, and a noun denoting a spatial relationship (minus its gender-number suffix):

- *nahen* “beside” < *na* + *hen* “side”
- *navech* “before, in front of” < *na* + *vech* “face”
- *naxal* “after, behind” < *na* + *xal* “back”

For each of these preposition/conjunction pairs, there is a clear progression from the original, spatial meaning of the preposition, through a metaphorical extension of that meaning to a temporal meaning, through a use of the temporal meaning with a gerund, to a subordinating conjunction with a temporal adverbial clause. We can see this in the following set of four example sentences:

Yovan te endó na M’rí navech kitavmat.

Yovan=te *endó na=Mari* *navech=kitav-mat*
John=PFV.PAST meet ACC=Mary before=book-PLACE.SG
“John met Mary in front of the library.” (preposition with spatial meaning)

Yovan te endó na M'ri navech xanchalzam.

Yovan=te endó na=Mari navech=xan-chal-zam
John=PFV.PAST meet ACC=Mary before=day-holy-TIME.SG
“John met Mary before the festival.” (preposition with temporal meaning)

Yovan te endó na M'ri navech záyu'n kitavmat.

Yovan=te endó na=Mari navech=zai-yu an=kitav-mat
John=PFV.PAST meet ACC=Mary before=go-STUFF GEN=book-PLACE.SG
“John met Mary before going to the library.”
(preposition with temporal meaning with gerund)

Yovan te endó na M'ri navechha ti zai te kitavmat.

Yovan=te endó na=Mari navechha ti=zai=te kitav-mat
John=PFV.PAST meet ACC=Mary before 3SG.F=go=PFV.PAST book-PLACE.SG
“John met Mary before she went to the library.”
(subordinating conjunction with adverbial clause of time)

In the third example, the prepositional phrase is, in effect, an abbreviated adverbial clause with no overt subject; its implied subject can only be understood as being coreferential with the subject of the matrix clause. In a full adverbial clause, as shown in the fourth example, there is no such restriction; this, therefore, is the form that must be used when the subordinate and matrix subjects are not coreferential.

There is a similar progression with the preposition *pe*, from an original benefactive meaning with a noun as object, through a purposive meaning with a gerund as object, to a subordinating conjunction with an adverbial clause of purpose:

Yovan te maksí kitavdak pe Mari.

Yovan=te maksí kitav-dak pe=Mari
John=PFV.PAST buy book-THING.SG for=Mary
“John bought the book for Mary.” (preposition with benefactive meaning)

Yovan te maksí kitavdak pe taga karenyu na M'ri.

Yovan=te maksí kitav-dak pe=tag-a=karen-yu na=Mari
John=PFV.PAST buy book-THING.SG for=3SG.THING-NN=give-STUFF DAT=Mary
“John bought the book to give it to Mary.” (preposition with purposive meaning with gerund)

Yovan te maksí kitavdak peya taga lechan ve Mari.

Yovan=te maksí kitav-dak peya tag-a=lechan=ve Mari
John=PFV.PAST buy book-THING.SG so.that 3SG.THING-NN=read=OPT Mary
“John bought the book so that Mary could read it.”
(subordinating conjunction with adverbial clause of purpose)

4.3.2.4.3. Conditional Sentences

A conditional sentence consists of two propositions linked by a logical relationship such that the truth value of one is contingent upon the truth value of the other. Neither proposition is asserted to be true; the only thing that is actually asserted is the logical relationship between them. In English, the prototypical conditional sentence is “if X, then Y”, where X and Y are (in theory) any two statements. In traditional classical grammars, X is called the *protasis* and Y is called the *apodosis*. In terms of formal syntactic structure, the apodosis is the main clause and the protasis is a subordinate clause, even though, in logical terms, it is the apodosis that is dependent on the protasis and not vice versa.

There are two types of conditional sentence, traditionally called “open” and “closed”. In the open type, the truth values of both the protasis and the apodosis are presented as unknown, e.g., “If John is here, (then) we’ll talk to him.” In the closed type, they are both presented as being already understood by both the speaker and the hearer to be false, e.g., “If John were here, (then) we’d talk to him.” Note that in English, the conditionality of the sentence (the logical relationship between the two clauses) is indicated by conjunctions (mandatory “if” introducing the protasis and optional “then” the protasis), while the difference between the open and closed condition is indicated by the tenses and moods of the verbs in the two clauses.

In Tirazdak, as in English, the protasis of a conditional sentence is formally an adverbial clause subordinate to the apodosis. However, unlike in English, a conditional sentence contains no conjunctions. Mood particles (see §4.2.4.5) in both clauses indicate both the fact that the sentence is conditional and whether the condition is open or closed. The particles used are: for the open condition, *ze* (hypothetical) for the protasis and *da* (inferential) for the apodosis; and for the closed condition, *vo* (contrafactual) for the protasis and *go* (conditional) for the apodosis. For example:

Pharé tu ze Marí na Yovan, ti tana karen tu da kitavdek.
pharé=tu=ze Marí na=Yovan ti=tan-a=karen=tu=da kitav-dek
see=PFV.FUT=HYP Mary ACC=John 3SG.F=3SG.M-NN=give=PFV.FUT=INFER book-THING.PL
“If Mary sees John, she’ll give him the books.” (open condition)

Pharé te vo Marí na Yovan, ti tana karen te go kitavdek.
pharé=te=vo Marí na=Yovan ti=tan-a=karen=te=go kitav-dek
see=PFV.PAST=CONTR Mary ACC=John 3SG.F=3SG.M-NN=give=PFV.PAST=COND book-
THING.PL

“If Mary had seen John, she would have given him the books.” (closed condition)

The protasis and the apodosis can occur in either order, depending on pragmatic factors, although the protasis-first order is somewhat more common. The above two examples could be reordered as follows, with the same semantic content, though with somewhat different emphasis:

Mari tu da karen na Yovan kitavdek, ti tana pharé tu ze.

Mari=tu=da karen na=Yovan kitav-dek ti=tan-a=pharé=tu=ze

Mary=PFV.FUT=INFER give DAT=John book=THING.PL 3SG.F=3SG.M-NN=see=PFV.FUT=HYP
“Mary will give John the books if she sees him.” (open condition)

Mari te go karen na Yovan kitavdek, ti tana pharé te vo.

Mari=te=go karen na=Yovan kitav-dek ti=tan-a=pharé=te=vo

Mary=PFV.PAST=COND give DAT=John book=THING.PL 3SG.F=3SG.M-NN=see=PFV.PAST=CONTR
“Mary would have given John the books if she’d seen him.” (closed condition)

Note that in Tirazdak, open and closed conditional sentences differ only in mood, not in tense – unlike English, where they differ in both mood and tense. The tense particles in both protasis and apodosis, in all four of the above sentences, are the same as they would be if each clause were an independent sentence in the indicative (unmarked) mood.

4.4. The Noun Phrase: Nouns and Their Modifiers

A noun phrase (commonly abbreviated as NP) may consist of a noun alone, or of a noun modified by one or more of the various types of nominal modifiers: demonstratives, quantifiers, attributive adjectives, genitives, and relative clauses. (It may also consist of a pronoun, a determiner, a quantifier, a noun clause – anything that can function syntactically as a noun – but all of these are dealt with elsewhere in this paper; this section will confine itself to noun phrases in the narrower sense of structures consisting of a noun plus one or more modifiers.)

4.4.1. Noun + Attributive Adjective

As already stated, adjectives are not a separate word class in Tirazdak. When I refer here to an “adjective”, what I actually mean is a stative verb in its adjectival form (that is, with a gender-number suffix) being used to modify a noun.

In English and other Indo-European languages, which do have adjectives as a distinct word class, any occurrence of an adjective is either attributive (directly modifying a noun) or predicative (functioning as a predicate, with or without an overt copula), but in Tirazdak, all adjectives are attributive; the functional equivalent of a predicative adjective is simply a verb. For example, in the sentence

Wa pharé te kextak kuyemdak.

wa=pharé=te kex-tak kuyem-dak

1SG=see=PFV.PAST house-THING.SG new-THING.SG

“I saw the new house.”

the stative verb *kuyem* “be new” is used with the neuter I singular suffix as an attributive adjective modifying *kextak* “house”, with which it agrees in gender and number. But in the sentence

Kextak kuyem
kex-tak *kuyem*
house-THING.SG new
“The house is new.”

the same word is used with no suffix as a verb, the predicate of the sentence.

In Tirazdak, an adjective can either precede or follow the noun it modifies, although the noun-adjective order occurs more frequently. The choice of order is not arbitrary, but conveys a subtle difference in emphasis which, while it seldom, if ever, affects the truth-value meaning of an utterance, does, more often than not, cause one order or the other to be clearly infelicitous in a given context. Probably the best way to explain this difference is that, when the adjective is used contrastively, it follows the noun, but when it is used non-contrastively, it precedes the noun. “Contrastive” in this context means that an adjective modifying a noun X is used to specify which individual X one is referring to, out of all the possible members of the class X, while “non-contrastive” (or perhaps a better term might be “descriptive” or “rhetorical”) means that the speaker is merely making a comment or providing additional information about a particular X whose identity is already known. (The same distinction is conveyed in the same way in some of the Romance languages, perhaps most productively in Italian.) For example, some New Atlantean lawyers have adopted the British barristers’ custom of referring in court to the opposing attorney as “my learned friend”:

wara charimdan tyendan
wa-ra=charim-dan *tyen-dan*
1SG-NN=learned-M.SG friend-M.SG

One would not, in this context, say

wara tyendan charimdan
wa-ra=tyen-dan *charim-dan*
1SG-NN=friend-M.SG learned-M.SG
“my learned friend”

which would seem to imply that one’s other friends are not learned.

Another way to look at it is that, if one component of the noun-adjective pair is contrastive and the other is not, the contrastive one (and thus the one that gets more emphasis) goes last. For example,

nayazdan su xasai do klazdak faldak
nayaz-dan su xasai do=klaz-dak fal-dak
 person-M.SG REL wear with=shirt-THING.SG white-THING.SG
 “the man in the white shirt” (not the man in the red shirt)

but

nayazdan su xasai do faldak klazdak
nayaz-dan su xasai do=fal-dak klaz-dak
 person-M.SG REL wear with=white-THING.SG shirt-THING.SG
 “the man in the white shirt” (not the man in the white hat)

4.4.2. Noun + Genitive

The terms “genitive” and “possessive” are used more or less interchangeably to refer to constructions in which a noun modifies another noun, or, more generally, an NP functions as a modifier within another NP. In such a construction, the modifying NP is referred to as the “possessor” and the modified NP as the “possessum”, even though the semantic relationship between them may or may not be one of “possession” in the usual sense of the word.

There are three genitive constructions in Tirazdak. In the first, and most generally applicable, the possessum is followed by the preposition *an*, which in turn is followed by the possessor:

karazdi 'n Yovan
karaz-ti an=Yovan
 spouse-F.SG GEN=John
 “John’s wife”

kextag an xaidan
kex-tak an=xai-dan
 house-THING.SG GEN=old-M.SG
 “the old man’s house”

This construction is used when the possessor is any stress-bearing, referential NP. A stress-bearing NP means any NP other than a proclitic pronoun: a noun (proper or common, with or without modifiers), an independent pronoun, a determiner, or a quantifier. A referential NP means one that is either definite or referential-indefinite – that is, one which refers to a specific, individual entity, whether that entity is identifiable from information already present in the discourse (definite) or not (referential-indefinite).

The second possessive construction is used when the possessor is non-referential (generic) – that is, when the possessor NP refers only to a class of entities, not to any particular member or

members of that class, whether identifiable or not. In this construction, the preposition used is *i* rather than *an*, and its object, the possessor, can only be a common noun. (It cannot be a proper name, a stressed pronoun, or a determiner, all of which are inherently definite, nor can it be a quantifier, which is inherently referential-indefinite.) Moreover, the possessor, unlike a common noun in almost any other context, cannot take a gender-number suffix; it is only the bare noun stem. The most common use of this construction is in forming compounds such as the following:

kextag i v'rach
kex-tak *i=varach*
 house-THING.SG GEN=god
 “temple” (lit. “god-house”)

kotranmad i kitav
kotran-mat *i=kitav*
 sell-PLACE.SG GEN=book
 “bookstore”

The third type of possessive construction is used when the possessor is a proclitic pronoun. The pronoun precedes the possessum and bears the same non-nominative case marking used for direct and indirect objects of verbs:

tia kitavdak
ti-a=kitav-dak
 3SG.F-NN=book-THING.SG
 “her book”

When the possessor is an emphatic (stress-bearing) pronoun, as opposed to a proclitic (unstressed) pronoun, it is treated the same as if it were a referential noun:

kitavdag an tí
kitav-dak *an=tí*
 book-THING.SG GEN=3SG.F.EMPH
 “her book” (not someone else’s)

4.4.3. Noun + Relative Clause

Relative clauses have already been discussed at some length in §4.3.2.3, so I will not discuss them further here.

4.4.4. Noun + Determiner

Determiners in Tirazdak are a subclass of nominals which could be thought of as intermediate between nouns and pronouns (see §3.2.3). A determiner can function either as a pronoun (standing in for a noun, forming a noun phrase in itself) or as an attributive adjective (modifying a noun). Tirazdak has five determiners, which can be subdivided into three groups: demonstrative, interrogative, and indefinite. In the following list, they are shown without gender-number suffixes, but any determiner can occur in any of the eight genders and three numbers.

Demonstrative determiners:

- *yé* “this” (near or pertaining to the speaker, corresponding to Latin *hic* or Japanese *kono*)
- *yó* “that” (near or pertaining to the listener, corresponding to Latin *iste* or Japanese *sono*)
- *yá* “that” (over there, yonder, corresponding to Latin *ille* or Japanese *ano*)

Interrogative determiner:

- *sú* “who, what”

Indefinite determiner:

- *suré* “some, any, whatever”

When a determiner is used adjectivally, to modify a noun, it can, like an adjective, either precede or follow the noun. However, determiners differ from adjectives in that the prenominal and postnominal positions require different constructions. When the determiner precedes the noun (the more frequently occurring order), the determiner behaves not like a prenominal attributive adjective but like the possessum in the non-referential genitive construction (see §4.4.2):

yédag i kex
yé-dak i=kex
this-THING.SG GEN=house
“this house” (lit. “this-thing of house”)

A postnominal determiner, on the other hand, behaves exactly like a postnominal attributive adjective. This order places contrastive emphasis on the determiner:

kextak yédak
kex-tak yé-dak
house-THING.SG this-THING.SG
“this house” (as opposed to some other house that is also relevant in the current context).

4.4.5. Noun + Quantifier

There are two kinds of quantifiers: cardinal numbers and non-numeric quantifiers. Cardinal numbers will be discussed in detail (along with ordinal numbers and units of measure) in §4.5; this section will deal primarily with non-numeric quantifiers.

Table 3.3, in §3.2.4, shows the non-numeric quantifiers and summarizes their functions; for convenience, it is repeated here as Table 4.1.

Table 4.1. Non-Numeric Quantifiers

	<u>with count nouns</u>	<u>with mass nouns</u>	<u>as adverb</u>
<i>jó</i>	many	much, a lot of	very
<i>joven</i>	more	more	more
<i>joverá</i>	most	most	most
<i>vis</i>	few, a few	a little	slightly, a little
<i>vizen</i>	fewer	less	less
<i>vizerá</i>	fewest	least	least
<i>vú</i>	some, several	some	somewhat, sort of
<i>swéla</i>	enough	enough	... enough, sufficiently ...
<i>kwelma</i>	too many	too much	too
<i>sújo</i>	how many?	how much?	how ...?, to what degree?
<i>yéjo</i>	this many	this much	this ...
<i>yójo</i>	that many	that much	that ...
<i>yájo</i>	that many	that much	that ...
<i>manjo</i>	as many as	as much as	as ... as
<i>terai</i>	all, all of	all, all of	completely, totally
<i>duvai</i>	some of	some of, part of	partially

As this table shows, a non-numeric quantifier can be used adnominally, to quantify either count nouns or mass nouns (uncountables), and can also be used adverbially, to modify another adjective or a stative verb.

When used adnominally, a quantifier (whether numeric or non-numeric) shows the same syntactic behavior as a pronominal determiner: it occurs only in the non-referential genitive construction with *i*. For example:

Sújodag i kitav zel kitavmat?
sújo-dak i=kitav zel=kitav-mat
 how.many-THING.SG of=book in=book-PLACE.SG
 “How many books are in the library?”

Ya jovendag i kitav zel kitavmat je zel wara kextak.
ya joven-dak i=kitav zel=kitav-mat je=zel=wa-ra=kex-tak
 EXIST more-THING.SG of=book in=book-PLACE.SG than=in=1SG-NN=house-THING.SG
 “There are more books in the library than in my house.”

Note that, as in other uses of the *i*-construction (see §4.4.4), the modified noun takes no gender-number marker. Note also that with quantifiers, unlike with determiners, the gender-number marker is always singular; the quantifier itself suffices to indicate plurality, as in the above examples.

When a quantifier is used adverbially, it is most often in a comparative expression such as the following:

Kextag an xí joven i zón je wáradak.
kex-tak an=xí joven=i=zón je=wá-ra-dak
 house-THING.SG GEN=1SG more=of=large than=1SG-NN-THING.SG
 “Your house is bigger than mine.”

Xi xelna kextak jovendag i zón je wá.
xi=xelna kex-tak joven-dak=i=zón je=wá
 2SG=live.in house-THING.SG more-THING.SG=of=large than=1SG
 “You live in a bigger house than I do.”

Nex xelna kextak joverádag i zón zel xelnahenmat.
nex=xelna kex-tak joverá-dak=i=zón zel=xelnahen-mat
 3COM.PL=live.in house-THING.SG most-THING.SG=of=large in=neighbor-PLACE.SG
 “They live in the biggest house in the neighborhood.”

In all these examples, the quantifier modifies (quantifies) *zón* “large”, a stative verb being used adjectivally. The difference, and the reason why the quantifier takes a gender-number suffix in the second and third examples but not in the first, is that in the first example, the quantified verb/adjective is being used as a predicate, and in the other two, as a modifier of a noun.

In either modifying usage (adjectival or adverbial), the quantifier must precede the word being

quantified. However, as the last two examples show, the quantified word need not be a noun, and therefore the quantifier need not be the first word in the noun phrase.

To say that two entities are equal in terms of some quantifiable state or property, one uses a slightly different type of comparative expression, making use of the particle *man* “same” (which in other contexts can be a copular predicate or a conjunction):

Kextag an Yovan man jó ni zón man tag am Marí.
kex-tak an=Yovan man=jó=ni=zón man=tag=an=Marí
 house-THING.SG GEN=John same=much=of=large same=THING.SG=GEN=Mary
 “John’s house is as big as Mary’s.”

4.4.6. Ordering and Co-occurrence Rules for Nominal Modifiers

If a noun has more than one modifier, their order relative to the noun and to each other is subject to certain constraints. Quantifiers and unstressed pronominal genitives must precede the noun; other genitives and relative clauses must follow it; determiners and adjectives can go either way. Moreover, both pronominal and postnominal modifiers must occur in a specific order. Thus, the syntactic “space” surrounding a noun can be regarded as being divided into a fixed number of slots, each reserved for a specific type of modifier. The order of these slots is as follows:

- determiner
- quantifier
- unstressed pronominal genitive
- adjective(s)
- noun
- adjective(s)
- determiner
- stressed genitive(s)
- relative clause(s)

Any of these slots may be empty, but their order cannot be varied. Thus, for example, an adjective can either precede or follow the noun, but nothing can come between it and the noun (except another adjective). Also, some of the slots are limited to one constituent (of the appropriate type) per slot, while others are not.

If a determiner and a quantifier both modify the same noun, they can both precede the noun – in which case the determiner must come first, as in

yádek jaideg i kitav
yá-dek jai-dek i=kitav
 that-THING.PL three-THING.PL GEN=book
 “those three books”

– or the determiner (but not the quantifier) can follow the noun, placing contrastive emphasis on the determiner, as in

jaidag i kitav yádak
jai-dak *i=kitav* *yá-dak*
three-THING.SG GEN=book that-THING.SG
“those three books”

There are two complications in this situation. One is that the determiner and the quantifier are subject to different and conflicting rules for gender and number marking: the determiner is supposed to agree in both gender and number with the modified noun (even though the noun itself has no overt gender or number marking, because of the generic genitive construction), but the quantifier is supposed to agree only in gender, with its number marking always being singular (see §4.4.5). This conflict is resolved by giving priority to whichever of the modifiers comes first. Thus, in the first example, where the determiner comes first, both the determiner and the modifier take the semantically appropriate number marking, while in the second example, where the quantifier comes first, they are both marked as singular – so that in both cases they agree with each other. The second complication is the generic genitive construction itself: how to apply it to both the determiner and the quantifier, in the case where they both precede the noun (as in the first example)? Here the solution is to use a “double-headed” generic genitive, with both the determiner and the quantifier sharing the role of “possessum”, as in the first of the two examples above (*yádek jaideg i kitav*), as opposed to something like **yádeg i jai ni kitav*, which attempts to nest one generic genitive within another. (Such nesting is, however, permitted in certain other contexts [see §3.3.1].)

When a proclitic pronominal possessor co-occurs with a prenominal determiner and/or a quantifier, it is proposed to the “possessor” in the generic genitive construction, as in the following examples:

yádag i xia kitav
yá-dak *i=xi-a=kitav*
that-THING.SG GEN=2SG-NN=book
“that book of yours”

vúdag i xia kitav
vú-dak *i=xi-a=kitav*
some-THING.SG GEN=2SG-NN=book
“some books of yours” or “some of your books”

yádek jaideg i wara kitav
yá-dek *jai-dek* *i=wa-ra=kitav*
that-THING.PL three-THING.PL GEN=1SG-NN=book
“those three books of mine”

In addition to these ordering constraints, there are co-occurrence constraints. One is that a noun cannot be simultaneously modified by more than one determiner (whether prenominal or postnominal), by more than one quantifier, or by more than one pronominal genitive (whether proclitic or stressed). Another is that a referential genitive and a relative clause cannot modify the same noun. For example, the phrase

seftan an nayazdi su xia karen te kitavdak
sef-tan an=nayaz-di su=xi-a=karen=te kitav-dak
 sibling-M.SG GEN=person-F.SG REL=2SG-NN=give=PFV.PAST book-THING.SG

can only mean “the brother of the woman who gave you the book”, not “the woman’s brother who gave you the book”. In other words, the relative clause *su xia karen te kitavdak* “who gave you the book” can only be understood as modifying *nayazdi* “woman”, not as modifying *seftan an nayazdi* “the woman’s brother”. Moreover, to say “the woman’s brother who gave you the book” (that is, to indicate that the relative clause modifies “brother” rather than “woman”), one cannot simply move either the genitive or the relative clause to the position before the noun, because of the ordering rules given above:

**an nayazdi seftan su xia karen te kitavdak*
**an=nayaz-di sef-tan su=xi-a=karen=te kitav-dak*
 *GEN=person-F.SG sibling-M.SG REL=2SG-NN=give=PFV.PAST book-THING.SG
 “the woman’s brother who gave you the book”

Instead, one must use one of two alternative strategies. One is to use a second NP, headed by a determiner co-referential to the head noun of the first NP, thus:

seftan an nayazdi, yadan su xia karen te kitavdak
sef-tan an=nayaz-di ya-dan su=xi-a=karen=te kitav-dak
 sibling-M.SG GEN=person-F.SG that-M.SG REL=2SG-NN=give=PFV.PAST book-THING.SG
 “the woman’s brother, the one who gave you the book”

The other is to use, instead of the genitive phrase (which must follow its head noun), a prepositional phrase which is not syntactically subordinate to the possessor NP, and which therefore may precede rather than follow it, reinforced by a proclitic pronominal genitive:

je nayazdi, tia seftan su xia karen te kitavdak
je=nayaz-di ti-a=sef-tan su=xi-a=karen=te kitav-dak
 about=person-F.SG 3SG.F-NN=sibling-M.SG REL=2SG-NN=give=PFV.PAST book-THING.SG
 “regarding the woman, her brother who gave you the book”

This co-occurrence constraint applies only to the referential genitive (in *an*), not to the generic genitive (in *i*) or to the proclitic pronominal genitive. In fact, the generic genitive is subject to the opposite constraint: a relative clause following a generic genitive can only be understood as

modifying the head noun of the genitive construction, not as modifying the generic “possessor”. For example, in the phrase

kextag i v'rach sua zai te Yovan
kex-tak i=varach su-a=zai=te Yovan
house-THING.SG GEN=god REL-NN=go=PFV.PAST John
“the temple that John went to”

the relative clause *sua zai te Yovan* “that John went to” (or, more pedantically, “to which John went”) unambiguously modifies *kextak* “house”, not *varach* “god”. This is the only interpretation that makes sense, because the “god” in *kextag i v'rach* “temple” (lit. “god-house”) does not refer to any particular god, but only to gods in general, and therefore could not meaningfully be modified by a relative clause. (Another way of looking at this is that the generic genitive is not so much a genitive construction as a nominal compounding device, and that *kextag i v'rach* is really only one noun, not a noun modified, or “possessed” in some abstract sense, by another noun.) Likewise, a proclitic pronominal genitive cannot be the head of a relative clause. Thus, in

xia tyendan su zai te kitavmat
xi-a tyen-dan su=zai=te kitav-mat
2SG-NN friend-M.SG REL=go=PFV.PAST book-PLACE.SG
“your friend who went to the library”

the relative clause can only be understood as modifying “friend”, not as modifying “you”.

4.5. Counting and Measuring

This section deals with cardinal numbers (a subclass of quantifiers), ordinal numbers (a subclass of stative verbs, most often used as attributive adjectives), and units of measure (a subclass of common nouns which, however, often behave more like gender-number suffixes). Because these three groups of words are closely related semantically (although syntactically they belong to different word classes), and because the rules governing their function in syntactic structures such as noun phrases are rather complex, it seems preferable to discuss all of them together, rather than to attempt to deal with each of them separately in the section concerned with the larger word class of which it is a subset.

4.5.1. Cardinal Numbers

The number system purportedly used in Old Atlantis was sexagisimal (base sixty). (Strictly speaking, it was not a pure sexagisimal system, which would have been rather unwieldy, but a mix of sexagisimal and decimal, using base ten for numbers under sixty and base sixty for larger

numbers, much like the system used by the ancient Sumerians and Babylonians.) Sixty is a very convenient number to use for a base, because of its large number of factors: it is evenly divisible by two, three, four, five, six, ten, twelve, fifteen, twenty, and thirty (compared to only two and five for base ten). However, when the Tirzadak language began to expand beyond its original, purely liturgical use and to be used in real-world situations (see §1.1), it quickly became obvious that the practical difficulties of converting to a new number system far outweighed its theoretical advantages. Therefore, the language was “decimalized” by introducing foreign (mostly Greek-derived) loan words for powers of ten and abandoning the old words for powers of sixty, while keeping the syntactic rules for expressing numbers unchanged. Today the new system is used for all everyday purposes, except that a fossilized remnant of the old system is found in the New Atlantean monetary system, whose basic unit of currency, the *phan*, is divided into sixty *zétu*.

In Old Tirzadak, numbers are formed from the following words:

khwal – zero, none (from *khwé val* “not one”)
val – one (also used as an indefinite article)
hin – two
jai – three
kyen – four
zaf – five
mel – six
lan – seven
yax – eight
genex – nine
kré – ten
hingre – twenty
jaigre – thirty
kyengre – forty
zafkre – fifty
zanak – sixty
zankai – 3,600 (sixty squared)
kalaf – 216,000 (sixty cubed)
kalvan – 12,960,000 (sixty to the fourth power)

To this list, the following new number words have been added by way of decimalization:

melgre – sixty (replacing *zanak*)
langre – seventy
yaxkre – eighty
genexkre – ninety
hekta – hundred
kilo – thousand
méga – million

gíga – billion
téra – trillion

The old words for powers of sixty (*zankai*, *kalaf*, *kalvan*) are no longer used to refer to specific numbers (except in some ritual or mythical contexts), but are still used colloquially to refer to unspecified large numbers, somewhat like the English expressions “a lot”, “umpteens”, “a zillion”, “a shitload”, etc.

When two number words are juxtaposed, if the number represented by the first word is larger, the two are added; if the first is smaller, they are multiplied. Thus, *kré lan* “ten seven” means “seventeen”, but *lan kré* “seven ten” (spelled and pronounced *langre*, as shown in the list above) means “seventy”. Such combinations can themselves be combined, theoretically without limit, in much the same way as in English, producing composite number words such as *yax kilo jai hekta hingre mel* “eight thousand three hundred twenty-seven”.

When numbers function as quantifiers modifying nouns (that is, numbers used to enumerate things, as opposed to abstract or “pure” numbers), the number precedes the noun, in the generic genitive construction with *i*. When the number consists of only a single number word, the construction is essentially the same as with a non-numeric quantifier (see §4.4.5); for example:

zaf tag i kitav
zaf-tak *i=kitav*
five-THING.SG GEN=book
“five books” (lit. “five-thing of book”)

However, when two or more number words are combined to form a numeric expression, the situation becomes more complicated. The basic rule here is that the largest number word (that is, the word representing the largest number) is the one that takes the gender-number suffix. The part of the numeric expression following that word may then follow immediately, preceding the prepositional phrase, or it may follow the noun, with the conjunction *ne* “and” optionally intervening. Thus, the following two expressions:

jai hektadak hingre zaf i kitav
jai *hekta-dak* *hin-kré* *zaf* *i=kitav*
three hundred-THING.SG two-ten five GEN=book
“three hundred twenty-five books” (lit. “three hundred-thing twenty-five of book”)

and

jai hektadag i kitav (ne) hingre zaf
jai *hekta-dak* *i=kitav* *(ne)* *hin-kré* *zaf*
three hundred-THING.SG GEN=book (and) two-ten five
“three hundred twenty-five books” (lit. “three hundred-thing of book (and) twenty-five”)

are both equally correct ways of saying the same thing. In general, however, the former form is preferred for numbers over one hundred.

4.5.2. Ordinal Numbers

Ordinal numbers are formed from cardinal numbers in two ways, one synthetic and one analytic. The synthetic form can only be used when the cardinal number is a single word. The analytic form is required when the cardinal number consists of more than one word, but can also optionally be used with single-word numbers.

In the synthetic form, the suffix *-ze* is attached to the cardinal number. If the ordinal is being used as an attributive adjective (as is the case more often than not), this suffix is followed by the appropriate gender-number suffix. Thus, from *kyen* “four” we get *kyenze* “fourth”, as in

kitavdak kyenedak
kitav-dak kyen-ze-dak
book-THING.SG four-ORD-THING.SG
“the fourth book” or “book four”.

If the cardinal number word ends in a voiceless consonant, the ordinalizing suffix becomes *-se*. Thus, “the fifth book” is *kitavdak zafsedak*.

If the noun being modified is of the neuter III gender (“time” class), whose gender-number suffix is *-zam*, the ordinalizing suffix becomes *-de* (or *-te* after a voiceless consonant), so that “the fourth day” becomes *xanzam kyendezam* (not **kyenzezam*).

In the analytic form, the particle *pen* (from *pendak* “number”) follows the modified noun, and is in turn followed by the cardinal number. For example:

xanzam pen zafkre lan
xan-zam pen zafkre lan
day-TIME.SG ORD fifty seven
“the fifty-seventh day”

The analytic form of ordinal must follow the modified noun. The synthetic form, being an attributive adjective, could, in theory, either precede or follow the noun, but in practice, it virtually always follows, since the use of an ordinal number is, by definition, contrastive (see §4.4.1); it is specifying which of an ordered set of items one is referring to.

4.5.3. Fractions

Fractions, like ordinal numbers, are derived from cardinal numbers in two ways, one synthetic and one analytic. The synthetic form can be used only when both the numerator and the denominator are single-word numbers; the analytic form can be used for any fraction.

The synthetic form consists of the numerator, followed by the denominator, with the suffix *-tu* (after a voiceless consonant) or *-du* (after a voiced consonant or a vowel) attached to the denominator, e.g., *jai zaftu* “three-fifths”:

jai zaftu
three five-FRAC

If the numerator is one, it is normally omitted; thus, “one-fifth” is expressed as *zaftu* rather than *?val zaftu*. As in most languages, one-half is treated differently than other fractions; it is expressed by its own root lexeme *nef* “half” rather than by **hindu*.

The analytic form consists of the numerator, followed by the particle *set*, followed by the denominator, e.g., *kré genex set hingre mel* “nineteen twenty-sixths” or “nineteen over twenty-six”:

kré genex set hingre mel
ten nine FRAC twenty six

In a number consisting of an integer plus a fraction, the integer part and the fractional part appear in that order, each expressed as if it were standing alone, with the conjunction *ne* “and” between them. For example:

jaigre lan ne hin jaidu
jai-gre lan ne hin jai-du
three-ten seven and two three-FRAC
“thirty-seven and two-thirds”

kré mel ne zaf set jaigre hin
kré mel ne zaf set jai-gre hin
ten six and five FRAC three-ten two
“sixteen and five thirty-seconds”

Old Tirazdak had no positional notation, and thus no way of expressing decimal fractions. To express such numbers in the modern language, an exact calque of the English form is used, with the decimal point expressed as *punktu* (an obvious borrowing from Latin, used to refer to either a period or a decimal point). For example, 3.14159 would be

jai punktu val kyen val zaf genex
 three point one four one five nine

4.5.4. Units of Measure

To specify a quantity of a substance, as opposed to a number of discrete objects, a unit of measure is used, either with or without a cardinal number. (When no number is present, “one” is understood.) The unit of measure does not take a gender-number suffix, but the noun being quantified does:

hin litra ilyóxu
hin litra ilyóxi-yu
 two liter water-STUFF
 “two liters of water”

kilo bambáyu
kilo bambá-yu
 kilogram bread-STUFF
 “a kilogram of bread”

If the substance being quantified is not of the “stuff” or “mass noun” gender (which has no singular or plural) – that is to say, it is not an undifferentiated mass, but consists of a number of discrete objects which, in theory, could be counted rather than measured – the plural of the appropriate gender is used:

nef kilo kaxúdek
nef kilo kaxú-dek
 half kilogram cashew-THING.PL
 “half a kilogram of cashews”

When the number used in this construction consists of more than one word, the unit of measure may follow the largest number word, rather than the whole number, like the gender-number suffix of a quantified noun (see §4.5.1), but this order is not mandatory. Thus, “two hundred fifty liters of water” can be expressed in either of the following ways:

hin hekta litra zafkre ilyóxu
 two hundred liter fifty water

hin hekta zafkre litra ilyóxu
 two hundred fifty liter water

One might think that some confusion could result from the fact that the word *kilo* is used both as

a quantifier (the cardinal number “one thousand”) and as a unit of measure (a common contraction for *kilogram*). In practice, however, it is almost always clear which meaning is intended, both from the context and from the fact that the two usages require different syntactic constructions:

zaf kilonaz ir encharim
zaf kilo-nas i encharim
five thousand-COM.SG GEN=student
“five thousand students” (lit. “five thousand person of student”)

versus

zaf kilo chombyu
zaf kilo chombi-yu
five kilogram wheat-STUFF
“five kilograms of wheat”

If the two are used together, *kilogram* is usually not abbreviated; for “five thousand kilograms of wheat”, one would normally say *zaf kilo kilogram chombyu* rather than *?zaf kilo kilo chombyu*, which, while grammatically correct and not really ambiguous, sounds decidedly awkward. (Or, more likely, one would sidestep the problem altogether by saying *zaf tón chombyu* “five (metric) tons of wheat” – a metric ton being equal to a thousand kilograms.)

As noted in §3.2.5, a noun denoting a container can be used either as a common noun – in which case it can be subclassified as to the type of substance it is intended to hold, using the generic genitive construction in *i* – or as a unit of measure, using the construction discussed above. Thus, from *xingadak* “glass” we can derive either of the following:

xingadag i silmai
xinga-dak i=silmai
glass-THING.SG GEN=wine
“wine-glass”

xinga silmáyu
xinga silmai-yu
glass wine-STUFF
“a glass of wine”

4.6. Word Order, Contrast, and Emphasis

Tirazdak, like many other languages (e.g., Russian), is what is often referred to as a “free word order” language. This term must be taken with two caveats:

1. What is really free is not word order *per se* but constituent order. (A constituent, of course, may or may not be a single word.)
2. “Free” in this context does not mean “random”. What is actually meant is that constituent order is determined pragmatically rather than syntactically. In a “fixed word order” language such as English, the positions of major constituents within a clause is determined primarily by their syntactic roles (such as subject and object), while in a “free word order” language such as Russian, their positions are determined primarily by their pragmatic roles (such as topic and focus).

A better term, therefore, would be “pragmatically determined constituent order”. However, the term “free word order” (and its putative opposite, “fixed word order”) are firmly entrenched and unlikely to be replaced any time soon.

“Free” and “fixed” are, of course, relative rather than absolute. Rather than a clear-cut division between “free word order” and “fixed word order”, there is a continuum. Constituent order in Tirazdak is considerably more free than in English, about the same as in Russian, and considerably less free than in, e.g., Warlpiri.⁷

The preferred constituent order in Tirazdak could be loosely described as “topic – verb – everything else – focus”. (Here I am using the term “verb” somewhat loosely, to mean not only an actual verb, but an entire “predicate complex” consisting of a lexical verb [or a non-verbal predicate such as a predicate nominal] plus a modal verb, if any, and any clitics attached to either of them.) Thus, in a clause that has an overt topic, the predicate complex is the second stress-bearing constituent, and in one that does not (or one whose topic has been reduced to a clitic pronoun), it is the first.

4.6.1. Topic and Focus

There is much more general agreement about the terminology of syntactic roles than about that of pragmatic roles. The terms “subject” and “object” are long-established, well-defined, and well-understood, and there is a broad consensus about what they mean (as long as one does not delve too deeply into the details of the differences among the various schools of syntactic theory). Unfortunately, this is not the case with “topic” and “focus”. Therefore, before embarking on a discussion that will necessarily make frequent use of these terms, it seems appropriate to explain what I mean by them. (The definitions I am using are not universally accepted, but neither are they mere personal and idiosyncratic coinages. As far as I can determine, they are essentially the same as those currently used by a majority of linguists.)

⁷Warlpiri is an indigenous language of Australia, known for (among other unusual features) its almost total freedom of ordering at both the clause and phrase levels. It does not even require the constituents of a noun phrase to be contiguous. Some linguists describe it and similar languages as “non-configurational”.

With reference to pragmatic (as opposed to syntactic) roles, a typical declarative sentence can be divided in either of two ways: topic-comment and focus-presupposition. The two divisions may or may not coincide. In the topic-comment division, the topic is what the sentence is about, and the comment is what is being said about the topic. In the focus-presupposition division, the focus is the new information that the speaker is trying to convey to the listener, and the presupposition is old information that the speaker assumes that the listener already knows, provided only to put the new information in context. In many sentences, the topic is the same as the presupposition and the comment is the same as the focus, but in many others, the topic is a subset of the presupposition and/or the focus is a subset of the comment, so that the information content of the sentence could be visually represented by something like the following:

|-----topic-----|-----comment-----|

|-----presupposition-----|-----focus-----|

One way of illustrating the concepts of topic and focus is by showing how the same English sentence takes on different pragmatic functions, with correspondingly different intonation contours, when it occurs as an answer to different questions. For example, the sentence “John went to the library”, taken out of context, has no obvious topic or focus. (The default interpretation, in the absence of any contextual or intonational clues to the contrary, tends to be that the subject is the topic and the entire comment is the focus.) But in the following pairs of sentences, in which each declarative sentence is given as an answer to a question, it is quite clear, for each declarative sentence, which constituent is the topic and which is the focus. (In these examples, I will put the topic of each declarative sentence in *italics* and the focus in **boldface**. I will not add unnecessary complexity at this stage by dealing with the topical and focal roles in questions.)

Where did John go?

John went to **the library**.

Who went to the library?

John went to *the library*.

In English, with its relatively rigid word order, these distinctions are often made only by context and intonation. But for situations where context and intonation are not felt to be sufficient, there are alternative syntactic constructions that can be used to single out a particular constituent as the topic or the focus, such as the “as for” construction for topic-marking and the cleft and pseudo-cleft constructions for focus marking. For example:

As for *John*, it was **the library** that he went to.

As for *the library*, it was **John** who went there.

In Tirazdak, such structures are seldom used, because the equivalent distinctions can be made simply by varying the word order. (Intonation also plays a role, but it basically only reinforces the effect of the word order, rather than overriding it as is often the case in English.)

Pragmatically-motivated variation in constituent order in Tirazdak operates on two syntactic levels: within the clause and within the phrase. These levels will be discussed separately below.

4.6.2. Clause-Level Variation

To illustrate the use of varying constituent orders within a clause, we will examine several variations of one sentence consisting of one clause. All these variations contain the same words, and all have the same truth value (that is, if one of them is true, they are all true, and vice versa). Starting with the default or least-marked order, we have:

Mari te karen na Yovan kitavdak.

Mari=te karen na=Yovan kitav-dak
Mary=PFV.PAST give DAT=John book-THING.SG
“Mary gave John the book.”

This can be understood as pragmatically neutral (that is, as having no constituent singled out for special emphasis), or, in a different context (and with a different intonation contour, if spoken aloud), it can be understood as:

“Mary gave John the **book** (not something else).”
or “It was the **book** that Mary gave to John.”

Other possible variations are:

Mari te karen kitavdak na Yovan.

Mari=te karen kitav-dak na=Yovan
Mary=PFV.PAST give book-THING.SG DAT=John
“Mary gave the book to **John** (not to someone else).”
or “It was **John** that Mary gave the book to.”

Na Yovan te karen kitavdak Mari.

na=Yovan=te karen kitav-dak Mari
DAT=John=PFV.PAST give book-THING.SG Mary
“**Mary** (not someone else) gave John the book.”
or “It was **Mary** who gave John the book.”

Mari te na Yovan kitavdak karen.

Mari=te na=Yovan kitav-dak karen
Mary=PFV.PAST DAT=John book-THING.SG give
“Mary **gave** John the book (as opposed to, say, lending it to him).”

Na Yovan te karen Mari kitavdak.

na=Yovan=te karen Mari kitav-dak
DAT-John-PFV.PAST give Mary book-THING.SG
“As for *John*, Mary gave him the book.”

Kitavdak te karen Mari na Yovan.

kitav-dak=te karen Mari na=Yovan
book=THING.SG give Mary DAT=John
“As for the *book*, Mary gave it to John.”

Note that, in all these examples, the topic (if any) is the first constituent, and the focus, if any, is the last.

4.6.3. Phrase-Level Variation

There is also some freedom to vary the constituent order at the phrase level, although less so than at the clause or sentence level. Within a noun phrase, when the head noun is modified by an attributive adjective (or rather, strictly speaking, by a stative verb being used attributively), that adjective can either precede or follow the noun, with no difference in truth-value meaning but with a difference in emphasis (the second element being more emphasized) and/or a difference in contrast (the second element being used contrastively). Determiners can also either precede or follow their head noun, with a similar difference in emphasis and/or contrastiveness, although this involves not merely a change of order but the use of a different construction, e.g., *yédan i nayaz* “this man” vs. *nayazdan yédan* “**this** man”. These distinctions are discussed more fully in §4.4.

4.6.4. Restrictions on Variation

The ability to reorder constituents for pragmatic purposes in Tirazdak, while far greater than in English, is not unlimited. Certain ordering rules cannot be violated, although there are ways of getting around some of these rules by using alternative constructions. For example:

A preposition must precede its object. Even in poetry, one cannot say **kextak zel* “the house in” instead of *zel kextak* “in the house”. (However, if one really wants to emphasize that something took place **inside** the house, one can say *na kextak zél* “at the house, inside”, using the stressed, adverbial form of *zel* “in, inside” rather than the unstressed, prepositional form.)

In possessive and quasi-possessive constructions, if the possessor is a full NP and not a pronoun, the possessum most precede the possessor. For example, for “John’s house”, one cannot say **an Yovan kextak* instead of *kextag an Yovan*. One can, however, say *je Yovan, tana kextak* (lit. “as for John, his house”).

The above restriction applies to the progressive construction (see §4.2.4.3), in which a transitive verb and its direct object are recast as a gerund “possessed” by the object, e.g., *charimdan na lechanyu’n kitavdak* “the student is reading the book” (lit. “the student is at the reading of the book”). However, if it is felt to be stylistically important to violate this restriction (say, to topicalize “the book” by fronting it, which would require taking it out of the possessive construction), the same workaround described in the previous paragraph is available: one can say *je kitavdak na taga lechanyu charimdan* (lit. “as for the book, at its reading the student” – or, in more idiomatic English, “as for the book, the student is reading it” or “the book is being read by the student”).

4.7. Summary of Clitic Slots

A clitic is a word which has no stress of its own, but is part of the stress domain of a preceding or following word. Thus, it is spelled as if it were an independent word, but pronounced as if it were an affix (a prefix or a suffix). (Syntactically and morphologically, there are various ways of distinguishing between clitics and affixes, but I will not go into them here.) A proclitic is a clitic that precedes the word to which it is attached, while an enclitic is one that follows it. Tirazdak has three kinds of clitics:

- proclitics that attach to a verb or other predicate;
- proclitics that attach to a noun;
- enclitics that attach to a constituent (usually the first stress-bearing constituent of the clause, but see §4.7.3) based on its position, regardless of its word class or syntactic role.

This section will summarize, in one place for convenient reference, the information already given elsewhere about the positions and ordering of all three of these.

4.7.1. Verbal Proclitics

Any proclitics attached to a verb (or to a non-verbal predicate, such as a predicate nominal) must occur in the following order, provided that the predicate is a single word (or a compound word comprising a single stress domain):

- pronominal subject
- *ni* (question particle)
- pronominal indirect object
- pronominal direct object

None of these are required; thus, any or all of these four clitic slots may be empty.

However, if the predicate consists of a modal or semi-modal predicate (see §4.3.2.1.2) governing another predicate (the lexical predicate), the two predicates constitute separate stress domains, with the clitic slots divided between them, so that the constituents of the predicate complex as a whole occur in the following order:

- pronominal subject
- *ni* (question particle)
- modal or semi-modal predicate
- pronominal indirect object
- pronominal direct object
- lexical predicate

Again, any or all of the clitic slots in the predicate complex may be empty.

4.7.2. Nominal Proclitics

Any proclitics attached to a noun phrase must occur in the following order:

- *ni* (question particle)
- preposition (including the genitive particles *an* or *i*)
- pronominal possessor

As with verbal proclitics, any or all of the clitic slots may be empty.

4.7.3. Enclitics

Enclitics occur only as markers of tense, mood, and aspect. By default, they are attached to the first stress-bearing constituent of a clause, whether it be the predicate complex, a noun phrase, a prepositional phrase, an adverb, or whatever. However, if the first stress-bearing constituent is sufficiently “heavy” (meaning, in general, that it either is or contains a full clause with its own predicate complex), it is followed by a pause or intonation break (orthographically represented by a comma), which restarts the count of stress-bearing constituents, so that any enclitics will now be attached to the first stress-bearing constituent **after** the pause.

Any enclitics attached to a given constituent, regardless of what kind of constituent it is, must occur in the following order (and here again, any or all of these clitic slots may be empty):

- first primary tense/aspect particle
- secondary aspect particle
- additional primary tense/aspect particle(s)
- mood particle
- relative tense particle (*ra*)

There is one exception to this ordering rule: the relative tense particle *ra* normally follows all other tense, aspect, and mood particles, but if the imperfective past tense particle *so/zo* (which is one of the primary tense/aspect particles) occurs twice in succession within the same enclitic group (indicating the combination of imperfective aspect and pluperfect tense), *ra* **must** be inserted between them, e.g., *tan charim zo ra zo* “he had known”; **tan charim zo zo* (without the interpolated *ra*) is ungrammatical.

As mentioned in §4.7.1 above, when a predicate complex consists of a modal or semi-modal predicate governing a lexical predicate, the two constitute separate stress domains, of which the (semi-)modal predicate always comes first. Thus, if the predicate complex includes any enclitics, they will follow the (semi-)modal predicate, not the predicate complex as a whole.

5. Formulaic Utterances

Like all natural human languages, Tirazdak has a repertoire of formulaic expressions that are used as social lubricants in various kinds of interpersonal interactions: expressions such as “hello,” “goodbye,” “please,” “thank you,” “excuse me,” etc. As in other languages, expressions of this type tend to be treated as interjections, learned and understood as single “chunks,” rather than broken down into separate words and subjected to morphological, syntactic, and semantic analysis. And as in many other languages, there are often several such expressions for the same type of interaction, with the choice among them depending at least in part on the perceived formality or informality of the situation and on the prior relationship (or lack thereof) between the participants.

5.1. Greetings and Partings

There are a variety of formulaic expressions for greeting and leave-taking. The most widely applicable of these, in descending order of formality, are:

Very formal:

Greeting or leave-taking:

xianá ve somáyu'n Varachti “may the peace of the Goddess be with you”

Response: *ne na xí* “and with you”

Somewhat formal:

Greeting: *plé kriyan* “merry meet”

Response: *plé kriyan*

Leave-taking: *plé navarak* “merry part”

Response: *ta plé kriyan taná* “and merry meet again”

Somewhat informal:

Greeting or leave-taking: *somáyu* “peace”

Response: *somáyu* or *ne na xí*

Very informal:

Greeting: *plé* “merry”

Response: *plé*

Leave-taking: *plé*

Response: *taná* “again”

5.2 Forms of Address

The forms used to address people by name (or to refer to them in the third person) are discussed

in §A.2 (on personal names and how they fit into the New Atlantean kinship structure). Here I will briefly introduce some forms used to address people whom the speaker does not know by name, or in situations where the level of formality is such that addressing the person by name would not be perceived as appropriate.

The approximate equivalent of “sir” or “ma’am” is *enyazdan* or *enyazdi*. These are contractions of forms consisting of the vocative particle *e* plus the noun *nayazdan* or *nayazdi*. These two nouns are relatively formal, polite words for “man” and “woman,” respectively, more or less equivalent to English “gentleman” and “lady,” and consisting of the nominal root *nayaz* “person, human being” plus either the masculine singular gender/number suffix *-dan* or its feminine singular counterpart *-di*. When addressing more than one person of the same sex, one uses the same form with the appropriate dual or plural suffix: *enyazdenin* (two men), *enyazdain* (three or more men), *enyazdrehin* (two women), or *enyazdre* (three or more women). When addressing two or more people of opposite sexes, one uses the common-gender dual or plural forms: *enyaznejin* or *enyaznex*. When addressing one person whose sex or gender identity is not immediately apparent, one uses the common-gender singular form: *enyaznas*.

A more deferential form is *evyendan* or *evyendi*. These are contractions of *e* plus *veyendan/veyendi*, a word which has no exact English translation, but whose connotations include “teacher,” “role model,” “respected elder,” and similar concepts. It bears a certain resemblance to the Japanese *sensei* and the Hebrew/Yiddish *reb*, both of which literally mean “teacher” but have a much wider range of applicability than the literal meaning would suggest. This form is used to address various kinds of authority figures, such as a priest or priestess, a judge (especially in the courtroom), or a teacher (especially in the classroom). It is also often used to address a significantly older person who is not one’s relative, such as a friend’s parent. (The superficial resemblance between *evyendi* and the Turkish *efendi*, also a deferential form of address, is pure coincidence.)

The maximally deferential form is *evreldan* or *evreldi*, a contraction of *e* plus *vreya* “our” (first person plural exclusive) plus *eldan* “lord” or *eldi* “lady.” This form is normally used only when addressing a god or goddess, the King, or the High Priestess. When used to address the Goddess or the God, it is capitalized: *Evreldan* or *Evreldi*. To address the Trickster, the gender-ambiguous deity who, for some sects, is co-equal with the Goddess and the God (see Appendix B on the New Atlantean religion), the capitalized common-gender form *Evrelnas* is used. (Note that these forms can be used **only** for direct address, and not for third-person reference. When one is not speaking **to** the God or the Goddess, but rather speaking to other humans **about** the God or the Goddess, the appropriate forms are *kor’Eldan* and *kor’Eldi*, which also translate as “our Lord” and “our Lady”, but which lack the vocative *e* and use the inclusive rather than the exclusive form of “our” – *kora* rather than *vreya*.)

At the opposite extreme are the ultra-informal, non-deferential forms *e tán* and *e tí*, consisting of the vocative particle plus the informal words for “man” and “woman,” respectively (which are identical to the stressed forms of the masculine and feminine third-person singular pronouns).

These are used mostly by young people, and could be considered roughly equivalent to something like “Yo, dude!” Like all the other forms of address, these have their dual and plural counterparts (masculine dual *e tenin*, masculine plural *e tain*, feminine dual *e trehin*, feminine plural *e tré*) and their common-gender counterparts (singular *e nás*, dual *e nejin*, plural *e naij*).

5.3. Polite Requests

This section discusses the formulas for making a polite request, for acknowledging the granting of such a request, and for acknowledging the acknowledgment: the equivalents of “please,” “thank you,” and “you’re welcome.”

There are many ways of making such a request, but one that is appropriate in almost all situations is the following:

Ni xia tumplé da, xi wara hasferan ze bambáyu?
ni=xi-a=tum-plé=da xi=wa-ra=hasferan=ze bambá-yu
 Q=2.SG-NN=CAUS-be.happy=INFER 2.SG=1.SG-NN=pass=HYP bread-STUFF
 “Would you please pass me the bread?”
 (lit. “Would it make you happy if you were to pass me the bread?”)

Syntactically, this request takes the form of an open conditional sentence (see §4.3.2.4.3), with the protasis and the apodosis marked by the hypothetical and inferential mood particles *ze* and *da*, respectively, but differing from a more typical open conditional sentence in two ways: (1) the apodosis comes before the protasis (the opposite order is much more common); (2) the apodosis is not a declarative sentence but a yes-no question, marked as such by the interrogative particle *ni*.

A simpler alternative, appropriate only in very informal situations, is to cast the request as a simple yes-no question:

Xi ni wara hasferan tu bambáyu?
xi=ni=wa-ra=hasferan=tu bambai-yu
 2.SG=Q=1.SG-NN=pass=PFV.FUT bread-STUFF
 “Will you pass me the bread?”

To politely acknowledge the granting of such a request, one would say one of the following (shown here in descending order of formality), all of which can be translated as “thank you”:

Xianá ve litúyu.
xi-a-ná=ve litú-yu
 2.SG-NN-to=OPT gratitude-STUFF
 (lit. “thanks be to you”)

Wa xia karen litúyu.

wa=xi-a=karen litú-yu

1.SG=2.SG-NN=give gratitude-STUFF

(lit. “I give you thanks”)

Wa xia litú.

wa=xi-a=litú

1.SG=2.SG-NN=grateful

(lit. “I am grateful to you”)

Litúyu.

litú-yu

gratitude-STUFF

(lit. “thanks”)

The person being thanked would then typically respond with

Wa xé te cha khwalyu.

wa=xé=te=cha khwal-yu

1.SG=do=PFV.PAST=PERF zero-STUFF

“I have done nothing.”

or, more briefly and informally,

Yu khwal.

yu=khwál

3.STUFF=zero

“It’s nothing.”

5.4. Apologies

There are two common types of apology, each with different versions for different degrees of formality. Essentially, one is personal (apologizing to a specific person or people) and the other is impersonal (not directed at anyone in particular). Forms of the personal apology include, in descending order of formality:

Wa xia kuzan aftimáyu.

wa=xi-a=kuzan aftimá-yu

1.SG=2.SG-NN=offer apology-STUFF

“I offer you (my) apologies.”

Wa xiar aftimai.

wa=xi-a=aftimai

1.SG=2.SG-NN=apologize.to

“I apologize to you.”

Note that one cannot say simply **wa aftimai*, because *aftimai* “apologize to” is a transitive verb and as such must take a direct object. Using this verb, one cannot simply apologize in general; one can only apologize **to** someone.

With the impersonal apology, on the other hand, one can only apologize in general, not to a particular person. The following are forms of the impersonal apology, again in descending order of formality:

Waraná ya jó mixkaréyu.

wa-ra-ná=ya jó mixkaré-yu

1.SG-NN-to-EXIST much embarrass-STUFF

“I am very ashamed/embarrassed.” (lit. “I have much shame/embarrassment.”)

Wa mixkaré.

wa mixkaré

1.SG be.embarrassed

“I am ashamed/embarrassed.”

An appropriate response to either kind of apology is

Ya khwalyu ni pharuk.

ya khwal-yu ni=pharuk

EXIST zero-STUFF PART=offense

“There is no offense.”

or, somewhat less formally,

Wa khwé pharuk.

wa khwé pharuk

1.SG NEG offended

“I am not offended.”

6. Sample Texts and Translations

This section includes the following texts in Tirazdak and English:

1. “*Na Wara Kyeldi*” (“To My Lover”), a short poem by an anonymous New Atlantean author, combining erotic and religious/mystical themes (a combination much more common in New Atlantean culture than in the West).
2. An excerpt from *Xunyevandag i Fach* (the Litany for the Dead), a ritual text which is recited by the congregation at a traditional New Atlantean funeral.
3. “*Chorémat Hayá*” (“The Circle Is Open”), a song by an anonymous American Neo-Pagan, intended to be sung at the closing of a religious ritual. (The Tirazdak version is a translation from the English rather than vice versa).

For each text, the following are given: the full text in Tirazdak; a morpheme-by-morpheme interlinear gloss into English (see §0.2 for a list of the abbreviations used in these glosses); and an idiomatic English version.

6.1. *Na Wara Kyeldi*

Tirazdak

Zel xí wa pharé na V'rachti.
Ven xia tuvyeldegín Ti war'ampharéna.
Do xia luvódak Ti wara jimú.
Do xia ferandegin Ti wara yuten suvaidak saphódak,
Na turelyu'n taga suváyu jovenyu.
Na kyelyu'n xí wa kyel na Tí,
Ne zel Tia sufanmat, su né na xí,
Wá do Santeráyu val.

Interlinear

zel=xí *wa=pharé na=varach-ti*
in=2.SG.EMPH 1.SG=see ACC=deity-F.SG

ven=xi-a=tuvyel-degin *ti=wa-ra=ampharéna*
through=2.SG-NN=eye-THING.DU 3.F.SG=1.SG-NN=look.at

do=xi-a=luvó-dak *ti=wa-ra=jimú*
with=2.SG-NN=mouth-THING.SG 3.F.SG=1.SG-NN=kiss

do=xi-a=feran-degin *ti=wa-ra=yuten* *suvai-dak* *saphó-dak*
with=2.SG-NN=hand-THING.DU 3.F.SG=1.SG-NN=touch aroused-THING.SG body-THING.SG

na=tarel-yu *an=tag-a=suvá-yu* *joven-yu*
at=nurture-STUFF GEN=3.THING-NN=arousal-STUFF greater-STUFF

na=kyel-yu *an=xí* *wa=kyel* *na=tí*
at=fuck-STUFF GEN=2.SG.EMPH 1.SG=fuck ACC=3.F.SG.EMPH

ne *zel=ti-a=sufan-mat,* *su=né* *na=xí*
and in=2.F.SG-NN=embrace-PLACE.SG REL=also DAT=2.SG.EMPH

wá *do=Santerai-yu* *val*
1.SG.EMPH with=universe-STUFF one

English

In you I see the Goddess.
Through your eyes She looks at me.
With your mouth She kisses me.
With your hands She touches my aroused body,
Nurturing its greater arousal.
Fucking you, I fuck Her,
And in Her embrace, which is also yours,
I and the Universe are one.

6.2. Excerpt from *Xunyevandag i Fach*

Tirazdak

Man daral saphódak zelat zentázaim i yelim, man daral xúdak zelat zentázaim i fyen. Vré, su xia zaidó zo zel yémad i zayá ni fyen, xia somai na n'varakyu. Daral do somáyu zel mimmad am Mádi Vaxti, kenna tongézam ana Ti xia tunzel ve taná nar aksimat, xasainas do saphóyu kuyemyu, falúnas ne imzerajnas pe zayámad an xia fyenzam zentázam.

Interlinear

man *daral* *saphó-dak* *zelat* *zentá-zaim=i=yelim*
same sleep body-THING.SG between successive-TIME.PL=GEN=day

man daral xú-dak zelat zentá-zaim=i=fyen
same sleep spirit-THING.SG between successive-TIME.PL=GEN=life

vré su=xi-a=zaidó=zo zel=yé-mad=i=zayá=ni=fyen
1PL.EXCL REL=2SG-NN=go.with=IPFV.PAST in=this-PLACE.SG=GEN=journey=GEN=life

xi-a=somai na=navarak-yu
2SG-NN=greet at=part-STUFF

daral do=somáyu zel=min-mad an=Má-di Vax-ti
sleep with=peace-STUFF in=child-PLACE.SG GEN=mother-F.SG great-F.SG

kenna tongé-zam ana ti=xi-a=tu-en-zel=ve taná na=aksi-mat
until ripen-TIME.SG for F.SG=2SG-NN=CAUS-INCH-in=OPT again to=world-PLACE.SG

xasai-nas do=saphó-yu kuyem-yu
clad-C.SG INSTR=body-STUFF new-STUFF

pe=zayá-mat an=xi-a=fyen-zam zentá-zam
for=journey-PLACE.SG GEN=2SG-NN=life-TIME.SG next-TIME.SG

English

As the body sleeps between one day and the next, so the soul sleeps between one life and the next. We who were your companions on this life's journey bid you farewell. Sleep peacefully in the womb of the Great Mother, until the time comes for her to bring you forth once more into the world, clad in new flesh, rested and refreshed for your next life's journey.

6.3. Chorémat Hayá

Tirazdak

Chorémat hayá no khwé tatsarak.
Somáyu'n Varachti ve tále xianá.
Plé kriyan ta plé navarak
Ta plé kriyan taná.

Interlinear

choré-mat hayá no khwé tatsarak
circle-PLACE.SG open but NEG broken

somá-yu *an=varach-ti=ve* *tále* *xi-a-na*
peace-STUFF GEN=deity-F.SG=OPT always 2.SG-NN-DAT

plé *kriyan ta* *plé* *navarak*
happy meet and.then happy part

ta *plé* *kriyan taná*
and.then happy meet again

English

The circle is open, yet unbroken.
May the peace of the Goddess be ever in your heart.
Merry meet and merry part
And merry meet again.

7. Tirazdak-English Glossary

The following is an alphabetical listing of an admittedly very limited and arbitrary subset of the Tirazdak lexicon. It includes all words and affixes that appear in this paper (including the sample texts and the appendices) and an essentially random selection of other words. To the extent that the selection has any rationale at all, it reflects my own idiosyncratic personal interests rather than any attempt to choose words for their usefulness to tourists, translators, linguists, or any other potential audience. I hope to include a greatly expanded and much more practically useful glossary in a future revision of this paper.

For each entry, the lexical category (word class or “part of speech”) is given in square brackets at the beginning of the definition. For some classes, essential subcategories are also given: for verbs, the subclass (active, stative or modal) and the valency (intransitive, transitive or ditransitive); for conjunctions, the subclass (coordinating or subordinating); and for pronouns, the stress type (emphatic or proclitic). For these classifications, the following abbreviations are used:

adv. adverb	pron. pronoun
conj. conjunction	emph. emphatic
co. coordinating	procl. proclitic
sub. subordinating	quant. quantifier
det. determiner	v. verb
interj. interjection	a. active (dynamic)
n. common noun	s. stative
p.n. proper name	m. modal
f. feminine	sm. semi-modal
m. masculine	l. locative
part. particle	i. intransitive
prep. preposition	t. transitive (monotransitive)
	d. ditransitive
	u.m. unit of measure

For affixes, the type of affix (prefix, suffix, infix, circumfix) are likewise shown. Common nouns are shown with the appropriate singular gender-number suffixes.¹ (These suffixes are not taken into account in the alphabetical ordering of this listing.) Any noun listed with the common-gender suffix *-nas* can equally well be used with the masculine or feminine suffix (*-tan/-dan* or *-ti/-di*, respectively) if the sex of the referent is known. For proper names, which have no gender-number suffixes, gender is shown along with the word class. Irregular forms are

¹These suffixes are discussed in detail in §3.2.1, but for convenience I will recapitulate the singular forms here: masculine *-tan/-dan* “man”, feminine *-ti/-di* “woman”, common *-nas* “person”, collective *-nal* “group”, neuter I *-tak/-dak* “thing”, neuter II *-mat* “place”, neuter III *-sam/-zam* “time”, neuter IV *-yu* “stuff”.

also shown. In the spellings of affixes and clitics, uppercase N and T represent archiphonemes (nasal and voiceless stop, respectively) which assimilate in point of articulation to the adjacent consonant of the stem. For some words, formulaic or idiomatic expressions in which they occur are shown in parenthesis after the definition.

For certain Tirzadak words for which no reasonably clear and concise English translation is possible, I will resort to using an English word or expression which is only approximately equivalent, warning the reader of the inadequacy of the translation by putting it in double quote marks.

aftimai [v.a.t.] apologize to; **aftimáyu** [n.] apology

ai [interj.] oy veh!

aksimat [n.] the world; *mundus*, the physical universe of space, time, matter and energy (cf. *avramat*)

Alin [p.n., f.] the twelfth month of the Tirzadak year

álu [adv.] then (“at that time”, not conj. “then”)

Alyex [p.n., f.] the sea (personified as a goddess)

ana [conj. sub.] for (following a noun of the “time” class, introducing a subordinate clause in the optative mood, e.g., *na tongézam ana xi zai ve* “when it’s time for you to go”) (from *an ha*)

aN [prep.] genitive marker used with specific possessors (cf. *i*)

aN...-Na [circumfix] adds an element of volitionality to what would otherwise be a simple verb of perception, e.g., *ampharéna* “look at” < *pharé* “see”, *ankulanna* “listen to” < *kulan* “hear”

anéya [prep.] besides, in addition to

Ansú [p.n., f.] the first month of the Tirzadak year

aran [v.s.i.] be lower; **enran** [v.a.i.] become lower, descend; **tunran** [v.a.t.] lower; **naran** [prep.] below

aré [v.s.i.] be higher; **enré** [v.a.i.] become higher, ascend, rise; **tunré** [v.a.t.] raise; **naré** [prep.] above

Ariyal [p.n., f.] the second month of the Tirzadak year

Asterai [p.n., f.] the third month of the Tirzadak year

aT- [prefix] passive voice marker

au [interj.] ouch!

autodak [n.] car, automobile

avramat [n.] the “other world”, the non-physical universe of entities that are understood as existing outside of space and time, somewhat like the Australian Aboriginal concept of the Dreamtime (cf. *aksimat*)²

Ayénu [p.n., m.] Mercury (the god or the planet)

ayó [interj.] OK, roger, will do

²The root *avra* may be etymologically related to a hypothetical Proto-Tirzadak root **vara* “numinous, otherworldly, supernatural”, which may also occur in *varachnas* “god(dess), divine being”, and perhaps also in *varan* “definitive, authoritative”.

babádan or **babá** [n. or p.n.] mother's *karazdan*, who may or may not be one's biological father
babúdan or **babú** [n. or p.n.] quasi-grandfather: *babádan* of one's *mamádi*, *babádan*, or *tatádi*
bai [v.m.] can (ability)
bakat [v.s.t.] write; **bakatnas** [n.] writer
bakran [v.a.i.] fall; **membakran** [v.a.t.] let fall, drop; **tumbakran** [v.a.t.] cause to fall, knock down, cut down, fell
bambáyu [n. (root **bambai**)] bread
bazyemaldak [n.] tree
bax [conj.co.] rather than, instead of, in preference to
bé [p.n., thing-class] (music) the major second of the Tirazdak metascale; **beran** [p.n., thing-class] *bé* lowered by a syntonic comma (from *bé aran* "lower *bé*")
bechat [v.s.i.] be truncated, be cut short; **tumbechat** [v.a.t.] truncate, cut short
benannas [n.] non-matrilineal aunt/uncle, demi-sibling of one's mother or either womb-sibling or demi-sibling of any other member of one's mother's *karaznal*, cf. *memennas*
bí [p.n., thing-class] (music) the augmented second of the Tirazdak metascale
bó [p.n., thing-class] (music) the minor second of the Tirazdak metascale
bostak [n.] bus (orig. *autobostak*)
bulik [v.a.i.] run
cha [part.] perfect aspect marker
chá [v.s.i.] stand; **enchá** [v.a.i.] take up a position (physically or metaphorically), take a stand; **tunchá** [v.a.t.] put, place, position (put something or someone in a place)
chal [v.s.i.] be sacred, be dedicated to the gods or to a specific god(dess); **chalnas** [n.] sacred person, priest(ess); **chalmat** [n.] shrine, holy place; **chalzam** or **xanchalzam** [n.] religious festival, holy day
charim [v.s.t.] know (in the sense of having factual knowledge or expertise, comparable to French *savoir*, cf. *ximaz*, *zaní*); **charimnas** [n.] learned person, expert, savant; **encharim** [v.a.t.] learn; **encharimnas** [n.] student; **tuncharim** [v.a.d.] teach; **tuncharimnas** [n.] teacher
chatam [v.s.i.] be old (used of inanimate objects; "old" as opposed to "new", not as opposed to "young", cf. *xai*)
chavlis [v.s.t.] work for, be employed by; **chavliznas**, **chavlistan**, **chavlisti** [n.] worker, employee; **chavliznal** [n.] work force; **chavlizmat** [n.] workplace; **chavlissam** [n.] work time, workday, working hours; **khwéchavlissam** [n.] vacation, time off; **chavlíxu** [n.] employment; **enchavlis** [v.a.t.] be hired by, go to work for; **tunchavlis** [v.a.t.] hire
cho [prep.] below, under, underneath; **chómat** [n.] the space below something; (of a building) basement
chomaz [v.sm.] intend
chombyu [n. (root **chombi**)] wheat
chorémat [n.] circle
da [part.] inferential mood marker
daral [v.s.i.] sleep, be asleep; **endaral** [v.a.i.] go to sleep, fall asleep; **tundaral** [v.a.t.] put to sleep, anesthetize
dessi [quant.] tenth (fraction, not ordinal), one-tenth
do [prep.] with (in both the comitative and instrumental senses)

dó [adv.] together; along (as in “come along”); **endó** [v.a.t.] meet, get together with (implies an intentional, prearranged meeting, not a chance encounter, cf. *kriyan*)

doká [adv.] alone (< *do* “with” + *ká* “self”)

-du/-tu [suffix] derives a fraction from a cardinal number, e.g., *kyendu* “quarter” < *kyen* “four” (exception: *nef* “half”)

duvai [quant.] (with count noun) some of; (with mass noun) some of, part of; [adv.] partly, partially

e [part.] vocative marker

é? [interj. (rising intonation)] (informal) acknowledgment of a vocative, an indication that one is listening, that the interlocutor has one’s attention

eldan [n.] lord; **eldi** [n.] lady; **elnas** [n.] venerable or highly respected person; special vocative forms **evreldan**, **evreldi** “our lord, our lady” (from *e vreya eldan*, *e vreya eldi*) are used to address gods and goddesses (capitalized for the God and the Goddess), or their representatives on Earth, the King and the High Priestess; **kor’Eldi**, **kor’Eldan** [n.] “our Lord”, “our Lady” (from *kora Eldi*, *kora Eldan*) terms of third-person reference (but not of direct address) for the Goddess and the God, respectively (*vreya* and *kora* being first-person plural exclusive and inclusive, respectively)

eldi ni surá [n.] (lit. “pleasure-lady”) courtesan, hetaera, escort, upscale prostitute (a highly trained and respected professional, often a priestess); **eldan i surá** [n.] male equivalent of the foregoing, catering to women and/or to gay men; **eldi ni toklasurá** [n.] (lit. “pain-pleasure-lady”) professional dominatrix, courtesan specializing in BDSM; **eldan i toklasurá** [n.] male professional BDSM top

eN- [prefix] inchoative marker, e.g., *emfach* “die” < *fach* “be dead”

-end- [infix] directional, indicating that the action of a verb is directed toward the speaker or topic, e.g., *zendai* “come” < *zai* “go”; also used with some stative verbs to indicate that the state is reflexive or inward-directed, e.g., *yaskendal* “reflect, introspect” < *yaskal* “think”

fach [v.s.i.] be dead; **emfach** [v.a.i.] die; **tumfach** [v.a.t.] kill

fal [v.s.i.] be white

falú [v.s.i.] be rested; **emfalú** [v.a.i.] rest, relax, take it easy

fareldak [n.] table

fen [v.s.t.] be kin to, be related to; **fennas** [n.] kins(wo)man, relative; **fenyu** [n.] kinship; **fenyu-ni-kai** [n.] clan-kinship; **fenyu-ni-kex** [n.] house-kinship (see Appendix A)

fenal [v.a.t.] eat

ferandak [n.] hand; **hasferan** [v.a.d.] hand (something to someone), hand over, pass from hand to hand, hand down, bequeath; **nafran** [adv. & prep.] nearby, close at hand

fló [v.m.] might, might be, maybe, perhaps, potentially (indicating possibility or potentiality, but with no implication as to probability or improbability; often used informally as a general “softener” to avoid sounding overly assertive)

flúyu [n.] influenza; **flúyudak** [n.] a specific strain of influenza, e.g., *flúyudag i H1N1* (pronounced [ˈflujuda:giha:va:ˈlenval])

fongeral [v.s.i.] be prosperous, enjoy a comfortable standard of living

forech [v.s.i.] be proud

fyen [v.s.i.] be alive; **fyenyu** [n.] life; **fyenzam** [n.] lifetime

gachyu [n.] excrement; **gach** [interj.] shit!
Galtu [p.n., m.] Jupiter (the god or the planet)
gamech [v.s.i.] be whole, complete, unbroken
gé [p.n., thing-class] (music) the major seventh of the Tirazdak metascale
genex [quant.] nine; **genexkre** [quant.] ninety
gesan [v.s.i.] be necessary; **gesanyu** [n.] need, necessity
gíga [quant.] billion (American usage, i.e., thousand million), one billion
go [part.] conditional mood marker
gó [p.n., thing-class] (music) the minor seventh of the Tirazdak metascale; **goran** [p.n., thing-class] *gó* lowered by a syntonic comma (from *gó aran* “lower *gó*”)
gram [u.m.] gram
gwen [v.s.t.] hope that (with noun clause), hope for (with noun); **gwenyu** [n.] hope
gwende [adv.] hopefully (in the modern, prescriptively “incorrect” sense of “one hopes that”)
 (note: **-de** is not a productive suffix for deriving adverbs from stative verbs)
gyembénas [n.] non-matrilineal niece/nephew: house-child of womb-sibling, or any child of demi-sibling, cf. *mimbénas*
gyendúnas [n.] non-matrilineal grandchild: house-child of one’s womb-child, or womb-child or house-child of one’s house-child, cf. *mindúnas*
gyennas [n.] house-child, biological child of one’s *karazdi*, cf. *minnas*
ha [part.] complementizer used to introduce indirect statements
halyam [v.s.t.] love (a broad term covering erotic, maternal, filial, and many other kinds of love)
has- [prefix] attached to noun X to form verb meaning “to do something (semantically vague) with X”, e.g., *hasferan* < *feran*
hayá [v.s.i.] be open
hé [interj.] hail! (a formal greeting, considered archaic and generally used only in ceremonial or ritual contexts, especially when addressing a god(dess), the King, the High Priestess, or (in a courtroom setting only) a judge; comparable to Latin *ave*; perhaps etymologically related to the vocative particle *e* and/or the illocutionary interjection *é*)
hekta [quant.] hundred, one hundred
hendak [n.] side; **nahen** [prep.] beside; **nahenna** [conj.sub.] while, at the same time as (from *nahen ha*)
hi [part.] semelfactive aspect marker
hin [quant.] two; **hingre** [quant.] twenty
hix [adv.] yet, already
hóya [adv.] surprisingly, unexpectedly
i [prep.] genitive marker used with generic (non-referential) possessors (cf. *an*)
íle [adv.] now
ilyóxu [n. (root *ilyóxi*)] water
imzerax [v.s.i.] be refreshed; **kara tunimzerax** [v.a.i.] refresh oneself
iN-...-si [circumfix] diminutive, adding a sense of “small, minor, unimportant”
Inai [p.n., f.] the sixth month of the Tirazdak year
Itan [p.n., thing-class] (music) the half-scale consisting of a minor second, minor third, and perfect fourth

itixnas [n.] baby, infant; **itíxu** [n.] infancy
Ixta [p.n., f.] Venus (the goddess or the planet)
ja [part.] atelic aspect marker
jai [quant.] three; **jaigre** [quant.] thirty
je [prep.] about, concerning, regarding, with regard to
jetí [v.s.i.] be fast
jimú [v.a.t.] kiss
jó [quant.] (with count noun) many; (with mass noun) much, a lot of; [adv.] very
joven [quant.] more
joverá [quant.] most
(ka,) **kara** [pron. procl. (nominative not used)], **ká** [pron. emph.] reflexive pronoun
kádak [n.] self, ego, the component of the soul which is believed to die with the body, cf. *xúdak*
kainal [n.] matrilineal clan
kal [prep.] because of; **kalla** [conj.sub.] because (from *kal ha*) **kaldak** [n.] cause, reason; **kalyu**
[n.] causation, causality
kalaf [quant. (archaic)] 216,000 (sixty cubed)
kalvan [quant. (archaic)] 12,960,000 (sixty to the fourth power)
kandez [v.s.i.] be elaborate, ornamented, decorative (cf. *xem*)
karaz [v.s.t.] be “married” to; **karaznas** [n.] spouse; **karazyu** [n.] “marriage”; **karaznal** [n.]
group of adults, all of whom are “married” to each other
karen [v.a.d.] give
kaxúdak [n.] cashew (nut)
kazat [v.a.t.] finish (object = gerund)
kazyéma [adv.] long ago, in the far past, “once upon a time”
kekajdak [n.] building, esp. public or official building (from *kextak* via augmentative process
including reduplication, backing of stressed front vowel, voicing of final unvoiced consonant)
(kel,) **kela** [pron. procl. (nominative not used)], **kail** [pron. emph.] reciprocal pronoun
ken [prep.] up to, as far as (but no farther); **kenna** [conj. sub.] until (from *ken ha*)
ket [prep.] on (attached to a vertical surface, or to the underside of a horizontal surface, held in
place against gravity; cf. *sal*)
kextak [n.] house; **kexmat** [n.] home; **kextag i v’rach** [n.] temple (lit. “god-house”); **kex** [prep.]
(informal) at or to the house of (*wa kex Mari* “I’m at Mary’s house”; *kwen zai ve kex Mari*
“let’s go to Mary’s house”; *kex xí xa wá?* “your place or mine?”); **kexnal** [n.] “household”
(kinship group consisting of all members of a *karaznal* and their children)
khat [v.a.i.] stop; **tukhat** [v.a.t.] stop
khwal [quant.] zero, none, not any (from *khwé val* “not one”); **khwalnas** [n.] no one, nobody;
khwaldak [n.] nothing; **khwalmat** [n.] nowhere; **khwalzam** [n.] never
khwé [v.m.] not do, not be, etc.; [adv.] not
khwédo [prep.] without
khwex [adv.] not yet
khwezme [adv.] never
kí [p.n., thing-class] (music) the major third of the Tirazdak metascale
kílo [quant.] thousand, one thousand

kílogram [u.m.] kilogram (often shortened to **kílo** or **kí**)
kilometra [u.m.] kilometer (often abbreviated as **klik** or **ké**)
kirex [v.s.i., alt. stem **kirej-**] be well, be healthy; **enkirex** [v.a.i.] get well, recuperate, become healthy; **tunkirex** [v.a.t.] make healthy, heal; **tunkirejnas** [n.] healer, physician;
tunkirejmat [n.] hospital, clinic (“healing-place”)
kithádak [n.] (music) a plucked stringed instrument somewhat like a banjo, with four melody strings and three drone strings
kitavdak [n.] book; **kitavmat** [n.] library; **kitavnas** [n.] scholar, intellectual
klazdak [n.] shirt
klik [u.m.] kilometer (coll.)
klomba [v.s.i.] be heavy
ko, kora [pron. procl.], **kó** [pron. procl.] first person plural inclusive personal pronoun
kolmadak [n.] base; (geometry) base of a triangle or pyramid; (music) lowest note of a half-scale
kon [u.m.] (music) large semitone, a frequency ratio of 16/15
konzon [u.m.] (music) extra-large semitone, a frequency ratio of 27/25 (from *kon zon* “large *kon*”)
kotran [v.a.d.] sell; **kotranmat** [n.] store, shop; **kotrannas** [n.] seller, vendor, merchant
kré [quant.] ten
kriyan [v.a.i. (with *do*)] meet, encounter, run into (implies a chance encounter, not an intentional, prearranged meeting, cf. *endó*, except in the formulaic greeting *plé kriyan* “merry meet”, which is applicable to both kinds of meeting)
kroch [v.s.i.] be sick, be ill; **enkroch** [v.a.i.] become ill, contract a disease; with either, disease is optional oblique with *do*
krol [prep.] below, under
kú [p.n., thing-class] (music) the minor third of the Tirazdak metascale
ku- [prefix] express, e.g., *kuliran* “request” (express a desire for) < *liran* “wish, desire”
kulan [v.a.t. or v.s.t.] hear; **ankulanna** [v.a.t.] listen to; **ankulannamat** [n.] auditorium (lit. “listening place”)
kuliran [v.a.t./d.] request, ask for
kunzí [v.a.t./d.] ask, inquire; **kunzerí** [v.a.t.] investigate, conduct an inquiry into; **kunzerínas** [n.] investigator
kuyem [v.s.i.] be new, renewed, reborn, cf. *xezin*
kuzan [v.a.d.] offer
kwelma [quant.] (with count noun) too many; (with mass noun) too much; [adv.] too ...
kwen, kwena [pron. procl.], **koin** [pron. emph.] first person dual inclusive personal pronoun
kyandak [n.] sword; **do kyandak** (lit. “with the sword”) by force or violence (actual or threatened)
kyaré [v.s.t.] believe (based on trust or faith, independent of evidence, cf. *nachalim, yachtin*), trust, take on faith; **kyaréyu** [n.] trust, faith
kyel [v.a.i. (with *do*) or v.a.t.] have consensual sex with, fuck (but without the latter English word’s negative connotations; informal but not vulgar); **kyelnas** [n.] sexual partner, lover, girlfriend/boyfriend; **kyelnaz i kex** [n.] sexual partner with whom one lives (but generally not a *karaznas*); **kyelnaz i k’raz** [n.] sexual partner who is one’s *karaznas*; **kyelnaz i xan** [n.]

short-term or casual sexual partner (lit. “lover of the day, lover *du jour*); **kyeldan i tan** [n.] gay man; **kyeldan i tí** [n.] straight man; **kyeldan i nas** [n.] bisexual man; **kyeldi ni tan** [n.] straight woman; **kyeldi ni tí** [n.] lesbian; **kyeldi ni nas** [n.] bisexual woman; **kyelnaz i tan** [n.] lover of men, androphile (either a gay man or a straight woman); **kyelnaz i tí** [n.] lover of women, gynephile (either a straight man or a lesbian); **kyelnaz i nas** [n.] bisexual person

kyemba [u.m.] (music) an interval of 1/53 of an octave, approximately 22.64 cents

kyen [quant.] four; **kyengre** [quant.] forty

kyenduzam [n.] quarter-month, week (contraction of *kyenduzam i Nín* “quarter-moon-time”)

kyerin [v.a.i.] shrink, wane, decrease, diminish

kyóyu [n.] (music) pitch, melody (in general); **kyóyudak** [n.] a specific melody; **kyódak** [n.] note, degree of a scale; **kyomendak** [n.] melodic mode; **kyonaldak** [n.] scale; **nefkyonaldak** [n.] half-scale (tetrachord or trichord); **kyotháyu** [n.] music (= melody + rhythm, from *kyó* + *thá* “rhythm”); **kyothádak** [n.] musical instrument; **kyothánas** [n.] musician; **kyotháyudak** [n.] a specific musical work; **kyothá** [v.s.i./t.] sing or play (work being performed is optional direct object; voice or instrument is optional oblique with *do*)

kyúdak [n.] wing; **sukyúna** [v.s.i.] be winged, have wings

lan [quant.] seven; **langre** [quant.] seventy

le [part.] experiential aspect marker

Lenya [p.n., f.] the fifth month of the Tirazdak year

levattak [n.] way, means, method, manner (of doing something)

lí [p.n., thing-class] (music) the major sixth of the Tirazdak metascale; **liré** [p.n., thing-class] *lí* raised by a syntonic comma (from *lí aré* “higher *lí*”)

liran [v.sm.] want, wish, desire; **baxliran** [v.sm.] prefer; **liran X bax Y** prefer X over Y

Lisen [p.n., f.] the eleventh month of the Tirazdak year

litra [u.m.] liter

litú [v.s.t.] be grateful to; **litúyu** [n.] gratitude, thanks

liyen [v.a.t.] drink

lo [prep.] from

lú [p.n., thing-class] (music) the minor sixth of the Tirazdak metascale

Lumen [p.n., thing-class] (music) the half-scale consisting of an omitted second, major third, and perfect fourth

lumyel [v.s.i.] dynamic, changing, polymorphic; **lumyelyu** [n.] (chemistry) liquid or gas; **lumyelnas** [n.] shape-shifter, e.g., werewolf

luvódak [n.] mouth

machal [v.m.] should, ought to (weak obligation)

mádi or **mamádi** or **mamá** [n. or p.n.] mother; **Mádi Vaxti** [p.n.] the Great Mother (a frequently -used name for the Goddess)

makan [v.s.i.] be static, unchanging, monomorphic; **makanyu** [n.] (chemistry) solid

maksí [v.a.t.] buy (seller is optional oblique with *lo*)

mamúdi or **mamú** [n. or p.n.] maternal grandmother, mother’s mother

man [part.] copula used with referential predicate nominals

mán [v.s.t.] to be the same as, be identical to (not identical as in “similar to the limits of detectability” but as in “the same person/thing”)

man...man... [conj.] (with clauses) as..., so...; **manjo** [quant.] (with count nouns) as many; (with mass nouns) as much; (with adj. or adv.) as ...; (standard of comparison, if any, follows quantifier phrase and is introduced by *man*, e.g., *Yovan manjo xai man David* “John is as old as David”)

manmat [n.] the same place; **na manmat** in the same place, together; **manmatyu** [n.] togetherness, community, fellow-feeling, sense of identification with a group

manzam [n.] the same time; **na manzam** at the same time, simultaneous; **manzamyu** [n.] simultaneity

mandé [v.m.] must (inevitability; physical or logical necessity, as opposed to moral or legal obligation [cf. *zach*]); **mandéyu** [n.] necessity, inevitability, fate, destiny

manyestak [n.] story, tale (may be fiction, non-fiction, or myth)

Marun [p.n., thing-class] (music) the half-scale consisting of a minor second, major third, and perfect fourth

mat, mada, pl. **met, meda**, du. **din, dina** [pron. procl.], **mát**, pl. **maid**, du. **medin** [pron. emph.] third person neuter II (“place” class) personal pronoun

-mat, pl. **-met**, du. **-medin** [suffix] neuter II (“place” class) gender/number marker

mat [conj.sub.] where

Máta [p.n., f.] the earth (personified as a goddess)

matyé [v.s.i.] be safe; **tummatyé** [v.a.t.] protect, make safe

matyu [n.] space; **matsamyu** [n.] space-time

méga [quant.] million, one million

mek- [prefix] derivational prefix of limited productivity, forming active intransitive verbs from nouns; *mek-X* means to share or exchange X (e.g., *meksurá* “have sex”, lit. “share/exchange pleasure”)

mel [quant.] six; **melgre** [quant.] sixty

memennas [n.] matrilineal aunt/uncle, one’s mother’s womb-sibling, cf. *benannas*

metra [u.m.] meter

mextazam [n.] time of year, season

mikro [quant.] millionth (fraction, not ordinal), one-millionth

mik [v.s.i.] be short (in time or horizontal distance, not in height, cf. *ulech*)

milli [quant.] thousandth (fraction, not ordinal), one-thousandth

mimmat [n.] womb (from *minmat* “child-place”)

mindúnas [n.] matrilineal grandchild, womb-child of one’s own womb-daughter, cf. *gyendúnas*

minnas [n.] womb-child, a woman’s own biological child, cf. *gyennas*

mimbénas [n.] matrilineal niece/nephew, womb-sister’s womb-child, cf. *gyembénas*

míre [adv.] soon, in the near future

mixkaré [v.s.t.] be ashamed, be embarrassed; **mixkaréyu** [n.] shame, embarrassment

mochun [v.s.i.] be dark; **mochunyu** [n.] darkness; **mochummat** [n.] (with irregular stem alteration) shadow (lit. “dark place”); **mochunzam** [n.] night; **Mochunzam Jov’ra Miksam** [p.n.] the Shortest Night, the Summer Solstice festival; **Mochunzam Jov’ra Zalzam** [p.n.] the Longest Night, the Winter Solstice festival

na [prep.] to, at; dative/allative/locative marker (also accusative with animate, referential direct objects)

nachalim [v.s.t.] believe (based on evidence and/or reason, cf. *kyaré*, *yachtin*), be convinced of, regard as proven beyond a reasonable doubt

Nachtayal [p.n., thing-class] (music) the half-scale consisting of a major second, minor third, and perfect fourth

nahen [prep.] beside, next to

nal, nala, pl. **nel, nela**, du. **lin, lina** [pron. procl.], **nál**, pl. **nail**, du. **nelin** [pron. emph.] third person collective animate personal pronoun

-nal, pl. **-nel**, du. **-nelin** [suffix] collective animate gender/number marker

náno [quant.] billionth (fraction, not ordinal), one-billionth

Naris [p.n., f.] the seventh month of the Tirazdak year

Narun [p.n., f.] the eighth month of the Tirazdak year

nas, naza, pl. **nex, neja**, du. **jin, jina** [pron. procl.], **nás**, pl. **naij**, du. **nejin** [pron. emph.] third person common-gender animate personal pronoun

-nas, pl. **-nex**, du. **-nejin** [suffix] common animate gender/number marker

nau [v.m.] may (permission)

navarak [v.a.t.] part from, take leave of

nayaznas [n.] person (a polite and somewhat formal term); **nayazdi** [n.] woman, lady; **nayazdan** [n.] man, gentleman; vocative forms **enyaznas, enyazdi, enyazdan; nayazdecha** [v.s.i.] be human, of or pertaining to mortals, imperfect, approximate, practical, cf. *varachtecha*

nazránas [n.] full adult; **nazráyu** [n.] full adulthood

ne [conj.co.] and (separating two simultaneous events or states, two NPs, etc.; cf. *ta*)

né [p.n., thing-class] (music) the augmented fourth of the Tirazdak metascale

nef [quant.] half

nefsam [n.] half-month (contraction of *nefsam i Nín* “half-moon-time”)

Netai [p.n., thing-class] (music) the half-scale consisting of an omitted second, minor third, and perfect fourth

ni [part.] interrogative particle; also complementizer used to introduce indirect questions

Nín [p.n., f.] the moon (personified as a goddess)

ninzam [n.] lunar month (lit. “moon-time”)

Nisan [p.n., thing-class] (music) the half-scale consisting of a minor second, omitted third, and perfect fourth

nixemnas [n.] provisional adult; **nixemyu** [n.] provisional adulthood

no [conj.co.] but

nó [p.n., thing-class] (music) the perfect fourth of the Tirazdak metascale

nu [part.] imperfective future tense/aspect marker

núzam [n.] the future

Ové [p.n., thing-class] (music) the half-scale consisting of a major second, major third, and perfect fourth

pa [conj.co.] or (inclusive; cf. *xa*)

pakyú [v.a.i.] fight in a morally neutral context, neither *tanyal* nor *patach*, e.g., in training or sport; **pakyúyu** [n.] martial arts; **pakyúnas** [n.] martial-arts instructor or practitioner

param [v.a.t.] charge (as in “I charge you”), exhort; **Paramyudag am Varachtí** [n.] the Charge of the Goddess, a liturgical text adopted from Wicca

patach [v.a.i.] fight dishonorably (e.g., for personal gain), cf. *tanyal*, *pakyú*; **patachnas** [n.] person who fights dishonorably, violent criminal, thug; **patachyu** [n.] violent crime; **impatachsiyu** [n.] unlawful violence that does not result in death or serious injury; rowdyism, hooliganism; **impatachsinas** [n.] young tough, hooligan; **xuchennaz ir impatachsi** [n.] juvenile delinquent

pe [prep.] for, for the benefit of, for the purpose of

pendak [n.] number; **pen** [part.] ordinal number marker, e.g. *kextak pen hingre jai* “house number 23, the twenty-third house” (a construction usable with any number, but used mainly with numbers above 10, cf. *-ze/-de*)

peya [conj.sub.] in order that, so that (introducing clauses of purpose (with optative) or result (with indicative); cf. Latin *ut*) (from *pe ha*)

phak [v.a.t.] hit, strike

phan [u.m.] the primary unit of New Atlantean currency

pharé [v.a.t. or v.s.t.] see; **empharé** [v.a.t.] spot, catch sight of, notice; **tumpharé** [v.a.d.] show, display; **tumpharédak** [n.] picture, depiction; **ampharéna** [v.a.t.] look at; **bayappharé** [v.s.i.] be visible (from *bai* “can” + *appharé* “be seen”); **pharénas** [n.] seer, visionary, prophet

pharuk [v.s.i.] be offended, be insulted; **pharukyu** [n.] offense, insult; **empharuk** [v.a.i.] take offense; **tumpharuk** [v.a.t.] offend, insult, give offense to; **pharuknas** [n.] the offended party (in a quarrel), the plaintiff (in a lawsuit); **empharuknas** [n.] oversensitive or irritable person, one who takes offense too readily; **tumpharuknas** [n.] offensive or obnoxious person, one who habitually gives offense

phendak [n.] horn (of an animal); **suphenna** [v.s.i.] be horned, have horns

píko [quant.] trillionth (fraction, not ordinal), one-trillionth

plarat [v.a.t.] find

plé [v.s.i.] be happy; **tumplé** [v.a.t.] please, make happy

ponkyá [v.s.t.] precede, go before, take precedence over, have a higher priority than, trump

punktudak [n.] decimal point or period (used without gender-number suffix in numeric expressions, e.g., *melgre jai punktu zaf* “sixty-three point five”)

ra [part.] relative tense marker, used only in subordinate clauses

Rán [p.n., m.] Mars (the god or the planet)

sa, sara [pron. procl.], **sá** [pron. emph.] logophoric pronoun

sá [p.n., thing-class] (music) the tonic of the Tirazdak metascale

sak [v.a.i.] act, take action; **saknas** [n.] agent; **sakyu** [n.] action; **sakyudak** [n.] act, action, deed; **do sakyu'n** [prep.] by, at the hands of

sal [prep.] on (resting on a horizontal surface, held in place by gravity; cf. *ket*)

san- [prefix] augmentative

Santeráyu [n.] the universe; the whole of reality, both physical and spiritual, comprising both *aksimat* and *avramat*

saphódak [n.] body (physical, organic body of a person or other biological organism, living or dead); **saphóyu** [n.] flesh

sekol [v.s.i.] be the lower of two, or the lowest of three or more, discrete objects, cf. *sil*

sembénas [n.] non-matrilineal first cousin: house-child of mother’s womb-sibling, or any child

of mother's demi-sibling, or any child of any sibling of any other member of mother's *karaznal*, cf. *seppénas*

sennas [n.] demi-sibling, biological child of mother's *karazdi*, thus genetically either half-sibling or unrelated, cf. *sevnas*

sentí [quant.] hundredth (fraction, not ordinal), one-hundredth

sentimetra [u.m.] centimeter

seppénas [n.] matrilineal first cousin, womb-child of mother's womb-sister, cf. *sembénas*

set [prep. & part.] of, in, out of, per, to, divided by; used between the numerator and the denominator of a fraction or ratio

sevnas [n. (alt. stem **sef-**, root **sef**)] womb-sibling, biological child of same mother, thus genetically either full sibling or half-sibling, cf. *sennas*; **sevyu ni n'yaz** [n.] womb-siblinghood of humanity, the metaphor that all people are womb-children of the Goddess and therefore womb-siblings of each other; **seftan** [n.] womb-brother; **sefti** [n.] womb-sister

sil [v.s.i.] be the higher of two, or the highest of three or more, discrete objects, cf. *sekol*

silennas [n.] star (personified as a god, goddess, or other supernatural being)

silmáyu [n. (root **silmai**)] wine

simáre [v.s.t.] be interested in; **atsimáre (na X)** [v.s.i.] be interesting, be of interest (to X)

sísí [u.m.] cubic centimeter (from "c.c.")

sissam [n.] year (from *sísuzam*, lit. "sun-time")

Sísu [p.n., m.] the sun (personified as a god)

slemba [v.s.i.] be light

so [see **zo**]

somá [v.s.i.] be at peace; **somáyu** [n.] peace (*xianá ve somáyu'n Varachti* – formulaic greeting, "may the peace of the Goddess be with you")

somai [v.a.t.] greet (from *xunai "somáyu" na*, lit. "say 'peace' to"); **somai na kriyanyu** [v.a.t.] greet (lit. "greet at meeting"); **somai na n'varakyu** [v.a.t.] bid farewell to (lit. "greet at parting")

su, sua [pron. procl.] relative pronoun

sú- [det.] interrogative: **súnas, súdan, súdi** who; **súdak, súyu** what; [det., adv., conj. sub.] **súmat** where; **súzam** when; [adv. & conj. sub.] **súkal** why; **súlevat** how; **sújo** [quant.] (with count noun) how many?, (with mass noun) how much?; [adv.] how ...?, to what degree?

su-...-na [circumfix] from a nominal root X, derives a stative intransitive verb meaning "to have X", "to be characterized by X", e.g., *sukyúna* "winged", *suphenna* "horned"

sufan [v.a.t.] embrace, hug; **sufanmat** [n.] embrace (note the metaphorical use of *-mat* rather than the expected *-yu*)

sufé [v.s.i.] be soft, flexible, pliable

sufnú [v.s.i.] worry, be concerned, be anxious; **ensufnú** [v.a.i.] become worried, become concerned; **tunsufnú** [v.a.t.] cause to worry, be a source of concern or anxiety to

surá [v.s.i.] experience pleasure, especially physical/sensual pleasure (including but not limited to sexual pleasure); **suráyu** [n.] pleasure; **meksurá** [v.a.i. (with *do*)] (lit. "share or exchange pleasure") have sex, make love (somewhat more formal than *kyel*, although the latter is not perceived as impolite or vulgar)

suré- [det.] indefinite: **surénas, surédan, surédi** someone, anyone; **surédak, suréyu** something,

anything; **surémat** somewhere, anywhere; **surézam** sometime, any time; [adv. & conj. sub.] **surékal** for some/any reason; **surélevat** somehow, in some/any way; **suréjo** [quant.] (with count noun) some/any number of; (with mass noun) some/any amount of; [adv.] to some/any degree

sussurá [v.a.i.] have an orgasm

suvachtak [n.] wall

suvai [v.s.i.] be sexually aroused; (of genitalia or nipples) be erect, be engorged; (of animals) be in heat; **suváyu** [n.] sexual arousal, desire, lust

suvyá [v.s.t.] to be sexually attracted to, feel sexual desire for

swéla [quant.] enough; [adv.] ... enough, sufficiently ...

ta [conj.co.] and, and then (separating two sequential events or states; cf. *ne*)

tá [p.n., thing-class] (music) the perfect fifth of the Tirazdak metascale

tak, **taga**, pl. **tek**, **tega**, du. **gin**, **gina** [pron. procl.], **ták**, pl. **taig**, du. **tegin** [pron. emph.] third person neuter I (“thing” class) personal pronoun

-tak/-dak, pl. **-tek/-dek**, du. **-tegin/-degin** [suffix] neuter I (“thing” class) gender/number marker

tále [adv.] always, forever; **táleyu** or **talyu** [n.] eternity

tan, **tana**, pl. **ten**, **tena**, du. **nin**, **nina** [pron. procl.], **tán**, pl. **tain**, du. **tenin** [pron. emph.] third person masculine personal pronoun

-tan/-dan, pl. **-tain/-dain**, du. **-tenin/-denin** [suffix] masculine gender/number marker

tandan [n.] man (used only in very informal contexts, comparable to “guy”, “dude”, “chap”, “bloke”, etc.); vocative form **e tán**

taná [adv.] again

tanyal [v.a.i.] fight honorably (in a just cause, subject to legitimate authority, with due regard for the rights of noncombatants, etc.), cf. *patach*, *pakyú*; **tanyalnas** [n.] person who fights honorably, warrior, soldier

Tarach [p.n., thing-class] (music) the half-scale consisting of a major second, omitted third, and perfect fourth

tarak [v.s.i.] be hard, rigid, inflexible

tatádi or **tatá** [n. or p.n.] mother’s *karazdi*

tatúdi or **tatú** [n. or p.n.] non-matrilineal quasi-grandmother: *tatádi* of one’s *mamádi*, or either *mamádi* or *tatádi* of one’s *babádan* or *tatádi*

tatsarak [v.s.i.] be broken, be damaged (of an inanimate object, natural or artificial); be injured (of a person or other living organism); **entatsarak** [v.a.i.] break, break down, fail;

tuntatsarak [v.a.t.] break, damage, injure

te [part.] perfective past tense/aspect marker

-techa/-decha [suffix] *X-techa* means “of or pertaining to X”; has irregular stress (unstressed when word-final, but stressed on last syllable before a nominal suffix, e.g., *varachtecha* “be divine” (with stress on last syllable of root), but *varachtechádak* “divine thing” (with stress on last syllable of suffix))

tel [v.s.i.] be free; **tuntel** [v.a.t.] free, liberate

téra [quant.] trillion (American usage, i.e., million million), one trillion

terai [quant.] (with count noun) all, every, each; (with mass noun) all, all of; [adv.] completely, totally, entirely; **terainas** [n.] everyone; **teraidak** [n.] everything; **santeráyu** [n.] the

universe; **teraikyonaldak** [n.] (music) the metascale, the set of thirteen notes of which every scale in the system is a five-, six-, or seven-note subset

tháyu [n.] (music) rhythm, meter; **tháðak** [n.] beat; **thamendak** [n.] rhythmic mode; **thanaldak** [n.] one cycle of a rhythmic mode, analogous to a measure (in simple modes) or to a group of measures with varying meter signatures (in complex modes)

thaldan [n.] king; **thaldi** [n.] queen (referring only to other countries; the King of New Atlantis, being the personal representative on earth of the Horned God, must be male, just as the High Priestess, as the personal representative of the Goddess, must be female)

thuch [v.a.t.] harm, injure

tí, tia, pl. **tre, treya**, du. **trin, trina** [pron. procl.], **tí**, pl. **tré**, du. **trehin** [pron. emph.] third person feminine personal pronoun

-ti/-di, pl. **-tre/-dre**, du. **-trehin/-drehin** [suffix] feminine gender/number marker

tídi [n.] woman (used only in very informal contexts, comparable to “girl”, “gal”, “chick”, etc., but with no derogatory connotations); vocative form **e tí**

Tiraz [p.n., place-class] Atlantis; **Tiraz Kuyemmat** New Atlantis; **Tirazdak** [p.n.] the Atlantean language; **Tiraznas** [n.] Atlantean (or New Atlantean) person

tixelnas [n.] child (as opposed to “adult”); **tixelyu** [n.] childhood

toklá [v.s.i.] be in pain; **tokláyu** [n.] pain

toklasurá [v.s.i.] (lit. “pain-pleasure”) to experience mingled pain and pleasure, esp. in a sexual context; **mektoklasurá** [v.a.i.] engage in consensual BDSM activity

tón [u.m.] metric ton, tonne

tongé [v.a.i.] ripen, come to fruition, be fulfilled; **na tongézam** when the time is ripe

tu [part.] perfective future tense/aspect marker

tu- [prefix] causative marker, e.g., *tumfach* “kill” < *emfach* “die

tumprezandak [n.] calendar (from *tumpharédag i zam* “depiction of time”)

turel [v.a.t.] nurture, care for

tuvyeldak [n.] eye

tyennas [n.] friend; **tyenyu** [n.] friendship; **tyennaz i saphó** [n.] friend with whom one has sex, “fuck-buddy”, “friend with benefits” (lit. “body-friend”); **tyennaz i xú** [n.] friend with whom one does not have sex, Platonic friend (lit. “spirit-friend”); **tyennaz i kex** [n.] friend with whom one lives, roommate or housemate (lit. “house-friend”)

ulan [v.s.i.] be tall

ulech [v.s.i.] be short (in height, not in length or in time, cf. *mik*)

Uvai [p.n., f.] the tenth month of the Tirazdak year

va [conj.sub.] like, as; (with contrafactual mood) as if

vá [v.s.t.] resemble, be similar to, cf. *mán*

val [quant.] one (used as both cardinal number and indefinite article); **val, vala** [pron. procl.] impersonal pronoun, cf. English “one”, French *on*, German *man*

vanderai [v.a.t.] administer, oversee, manage; **vanderainas** [n.] executive, administrator, manager

varachnas [n.] deity, divine being; **varachti** [n.] goddess; **varachtan** [n.] god; **varachtecha** [v.s.i.] be divine, of or pertaining to the gods, perfect, precise, theoretical, cf. *nayazdecha*;

Varachtan Suphennadan [p.n.] the Horned God; **Varachtan Attumfachedan ne Fyendan**

[p.n.] the Slain and Living God
varan [v.s.i.] be authoritative, be definitive
vaxtak [n. (alt. stem **vaj-**)] head; **vajnas** [n.] chief, head (of an organization); **Chaldi Vaxti**
 High Priestess; **Vanderainas Vajnas** Prime Minister
ve [part.] optative mood marker
vechtak [n.] face, front; **navech** [adv. & prep.] in front of, before, ahead of (in space or time);
navechha [conj.sub.] before (from *navech ha*); **zai navech** go before, precede, lead;
zainavechnas [n.] leader; **vechná** [v.s.t.] confront, oppose, face off against
vek [prep.] through, by way of (perlative, not instrumental, cf. *do*)
vekterai [prep.] throughout, through all of
vel [prep.] above, over; [v.s.i.] be above; be extra, additional, surplus
veN- [prefix] when added to an active verb, adds a sense of returning to or restoring a previous
 state (somewhat like English “back” as in “go back”, “put back”, “take back”, etc.)
venkaren [v.a.d.] return, give back, put back
venzai [v.a.t.] return to, go back to
veyennas [n.] teacher, respected elder, role model (somewhat comparable to Japanese *sensei*)
 (vocative forms **evyennas**, **evyendi**, **evyendan**)
Vilya [p.n., f.] the fourth month of the Tirazdak year
Viman [p.n., m.] the sky (personified as a god)
vis [quant.] (with count noun) a few; (with mass noun) a little; [adv.] slightly, a little
vizen [quant.] (with count noun) fewer; (with mass noun) less; [adv.] less
vizerá [quant.] (with count noun) fewest; (with mass noun) least; [adv.] least
vo [part.] contrafactual mood marker
vre, **vreya** [pron. procl.], **vré** [pron. emph.] first person plural exclusive personal pronoun
vrin, **vrina** [pron. procl.], **vrehin** [pron. emph.] first person dual exclusive personal pronoun
vróxe [adv.] unfortunately
vú [quant.] (with count noun) some, several; (with mass noun) some; [adv.] somewhat, sort of
wa, **wara** [pron. procl.], **wá** [pron. emph.] first person singular personal pronoun
wahé [interj.] great!, super!
xa [conj.co.] or (exclusive; cf. *pa*)
xai [v.s.i.] be old (of a living organism; “old” as opposed to “young”, not as opposed to “new”,
 cf. *chatam*); **xainas** [n.] old person, elder
xaldak [n.] back, rear; **naxal** [adv. & prep.] behind, after (in space or time); **naxalla** [conj.sub.]
 after (from *naxal ha*); **zai naxal** go behind, go after, follow; **zainaxalnas** [n.] follower,
 supporter, fan
xanchalzam [n.] religious festival, holy day, holiday (from *xan* “day” + *chal* “holy, sacred”)
xanzam [n.] day (as a unit of time, not “day” as opposed to “night”, cf. *yelinzam*); **xanzam i**
tumprezan [n.] date (lit. “calendar day”); **xanzam i zeral** [n.] anniversary (lit. “day of
 remembering”)
xasai [v.s.i.] be dressed, be clad; **xasai do X** wear X, be dressed in X; **enxasai** [v.a.i.] dress
 oneself; **tunxasai** [v.a.t.] dress (someone else)
xé [v.a.t.] do, make; carry out (a plan); implement (an idea); act on (a desire or intention)
xel [v.s.i.] live, dwell; **xelna** [v.s.t.] inhabit, live in; **xelnahen** [v.s.t.] live near, be a neighbor of

(from *xel* + *nahen* “beside”); **xelnahennas** [n.] neighbor; **xelnahenmat** [n.] neighborhood
xem [v.s.i.] be plain, simple, unadorned (cf. *kandez*)
xezin [v.s.i.] be new, original, inventive, cf. *kuyem*; **xezinyu** [n.] novelty, originality
xi, xia [pron. procl.], **xí** [pron. emph.] second person singular personal pronoun
ximaz [v.s.i.] be wise; **ximaznas** [n.] wise person; **ximazyu** [n.] wisdom, understanding, enlightenment
xin [u.m.] (music) small semitone, a frequency ratio of 25/24
xingadak [n.] glass (utensil); **xingayu** [n.] glass (material); **xinga** [u.m.] glass (of some liquid)
xo [part.] focus-marking proclitic
xó [v.m.] do, be (emphatic affirmative); [adv.] definitely, indeed
xozí [conj. sub.] (with indicative) although, even though, despite the fact that; (with hypothetical or contrafactual) even if; [adv.] even so, nevertheless
xúdak [n.] spirit, consciousness, mind (of an individual), the component of the soul which is believed to be immortal, the divine spark within each person, cf. *kádak*; **xúyu** [n.] spirit, consciousness, mind (in general)
xuchen [v.s.i.] be young; **xuchennas** [n.] young person, youth, adolescent; **xuchenyu** [n.] adolescence
xuliádak [n.] an wooden endblown flute somewhat like a recorder or a *shakuhachi*
xuman [v.s.i.] be perfect, unblemished, well-formed, ideally suited for a particular function
xunai [v.a.i.] talk, speak; [v.a.t.] speak to, address; [v.a.t.] say; [v.a.d.] tell, say to; **xunáyu** [n.] speech, language; **xunáyudak** [n.] a specific language, e.g., English, Tirazdak
xunyerai [v.a.i.] discuss, debate, deliberate, confer, consult; **xunyerainal** [n.] council, parliamentary body
xunyevan [v.a.t.] recite, speak (a formulaic or liturgical text in a ritual context); **xunyevandak** [n.] litany, recitation, e.g., *Xunyevandag i Fach* the Litany for the Dead
Xuvan [p.n., f.] the ninth month of the Tirazdak year
xwe, xweya [pron. procl.], **xwé** [pron. emph.] second person plural personal pronoun
xwin, xwina [pron. procl.], **xwehin** [pron. emph.] second person dual personal pronoun
ya [part.] existential particle (“there is/are”), proclitic in most contexts, but enclitic after a proclitic pronoun with *na*, e.g., *xianá ya*
yá [v.l.] be there (far from or unrelated to both speaker and addressee, cf. *yó*); **yá-** [det.] that; **yájo** [quant.] (with count noun) that many; (with mass noun) that much; [adv.] that ...
yachtin [v.s.t.] believe tentatively, regard as probable but unproven, accept as the best hypothesis given the available evidence (cf. *kyaré, nachalim*)
yaskal [v.a.i.] think
yaskendal [v.a.i.] reflect, introspect (from *yaskal* + infix *-end-*)
yax [quant.] eight; **yaxkre** [quant.] eighty
yé [v.l.] be here; **yé-** [det.] this; **yéjo** [quant.] (with count noun) this many; (with mass noun) this much; [adv.] this ...
yelim [v.a.i.] shine, emit light; **yelimyü** [n.] light; **yelinzam** [n.] day (as opposed to “night”, not the 24-hour time period, cf. *xanzam*) (note the irregular substitution of <n> for <m> before the time-class gender-number suffix)
-(y)er- [infix] intensifier, adding an element of *gravitas* to an otherwise ordinary word, e.g.

xunyerai “confer, deliberate, discuss” < *xunai* “talk”

yézam [n.] the present

yilmadak [n.] peak, summit, apex; (geometry) apex of a triangle or pyramid; (music) highest note of a half-scale

yó [v.i.] be there (near or pertaining to addressee, cf. *yá*); **yó-** [det.] that (of yours), that (near you); **yójo** [quant.] (with count noun) that many; (with mass noun) that much; [adv.] that ...

yu, yua [pron. procl.], **yú** [pron. emph.] third person neuter IV (“stuff” class) personal pronoun

-yu [suffix] neuter IV (“stuff” class) gender/number marker

yuten [v.a.t.] touch

zach [v.m.] must, have to (strong obligation); **zachyu** [n.] duty, obligation

zaf [quant.] five; **zafkre** [quant.] fifty

zai [v.a.t.] go to

zaidó [v.a.t.] accompany, escort (lit. “go with”); **zaidónal** [n.] entourage; **zaidónas** [n.] companion, escort (in the old-fashioned sense, with no sexual connotations)

zaimat [n.] road, path, route

zal [v.s.i.] be long (in time or in horizontal distance, not in vertical distance, cf. *ulan* “tall”)

zaldin [v.s.i.] be hidden; **enzaldin** [v.a.i.] hide oneself; **tunzaldin** [v.a.t.] hide, conceal

zam, zama, pl. **zem, zema**, du. **min, mina** [pron. procl.], **zám**, pl. **zaim**, du. **zemin** [pron. emph.] third person neuter III (“time” class) personal pronoun

-zam/-sam, pl. **-zaim/-saim**, du. **-zemin/-semin** [suffix] neuter III (“time” class) gender/number marker

zam [conj.sub.] when

zamyu [n.] time

zanak [quant. (archaic)] sixty

Zandu [p.n., m.] Saturn (the god or the planet)

zaní [v.s.t.] know (in the sense of being familiar with or acquainted with, comparable to French *connaitre*, cf. *charim, ximaz*)

zankai [quant. (archaic)] 3,600 (sixty squared)

zanzadak [n.] (music) mechanical bowed zither resembling a large, non-portable hurdy-gurdy, with keyboard and pedal-driven circular bow mechanism

zat [v.s.i.] be balanced, be in a state of equilibrium

zayá [v.a.i.] travel, go on a journey; **zayánas** [n.] traveler, voyager, wanderer; **zayámat** [n.] journey, voyage

zayun [v.a.i.] grow, wax, increase

ze [part.] hypothetical mood marker

-ze/-se [suffix (**-de/-te** before **-z**)] derives an ordinal number from a cardinal number, e.g., *hinze* “second” < *hin* “two” (used only with numbers from 1 to 10, cf. *pen*)

zel [prep.] in, into

zél [adv.] inside; **enzel** [v.a.t.] enter, go into (*enzel santeráyu* be born (lit. “enter the world”), *enzelyu ni santerai* birth (lit. “world-entry”, “entry into the world”)); **tunzel** [v.a.d.] put into, insert (*tunzel X na santeráyu* give birth to X (lit. “put X into the world”))

zelat [prep.] between

zeldo [prep.] among (lit. “in with”)

zelmat [n.] interior
zelnas [n.] insider, member of the inner circle
zen [u.m.]) (music) medium semitone, a frequency ratio of 135/128
zendai [v.a.i.] come (from *zai* “go” + infix *-end-*)
zentá [v.a.i.] come next, be next, be in order, be successive, be sequential; [v.a.t.] succeed, follow
zenyastak [n.] charter, constitution, founding or defining document, e.g., *Zenyastak Varandak* the Great Charter, the constitution of New Atlantis
zeral [v.s.t.] remember; **enzeral** [v.a.t.] memorize, commit to memory; **venzeral** [v.a.t.] remember (something previously forgotten), recall to mind, recover a memory of; **zeralyu** [n.] memory; **zeralyu ni fach** [n.] memorial, remembrance of the dead
zéro [quant.] zero (used only in technical contexts, cf. *khwal*)
zétu [u.m.] secondary unit of New Atlantean currency, equal to 1/60 of a *phan*
zich [v.s.i.] be stretched, be expanded; **enzich** [v.a.i.] stretch, expand (oneself); **tunzich** [v.a.t.] stretch, expand (something else)
zo/so [part.] imperfective past tense/aspect marker
zóli [v.a.i., gerund **zolyu**] walk
zón [v.s.i.] be large
zózam [n.] the past

Appendix A. The New Atlantean Kinship Structure

A.1. Overview

The kinship system of New Atlantis is matrilineal and polyamorous. There are actually two parallel kinship structures: *fenyu-ni-kai* (“clan-kinship”), based on matrilineal descent, and *fenyu-ni-kex* (“house-kinship”), based on voluntary association.

Patrilineal descent has no role in the system because it is assumed to be unknown. Since monogamy is the exception rather than the rule, for both women and men, the system is designed around the assumption that no one knows who their own or anyone else’s father is. Indeed, the language has no word for “father”; the closest equivalent is *babádan*, which really only means “mother’s husband” – a man who may or may not be one’s biological father.¹

The basic unit of clan-kinship is the *kainal* (matrilineal clan), which consists of all the direct matrilineal descendents of one female ancestor. Every citizen is a member of one and only one clan. It is a closed system, with no provision for the creation of new clans; the only way an immigrant can become a citizen is to be adopted into one of the existing clans.²

The basic unit of house-kinship is the *kexnal*, a term perhaps best translated as “household”, although it does not necessarily consist of all or only the people living in one physical house. The *kexnal* is the closest thing in New Atlantean society to the Western nuclear family. It consists of a *karaznal* – that is, a group of adults who are all “married” to each other – plus the children of any women in that group. The institution of *karazyu* differs from the institution of marriage in Western society in several ways:

- It is not limited to two people.
- It can include any combination of genders and sexual orientations. Thus, any two members of the group may or may not be sexual partners of each other, although the presumption is that every member of the group is a sexual partner of at least one other member of the group. In general, the sexual dynamics within the group are not readily apparent to people outside the group.
- It is not sexually exclusive; any member of the group is perfectly free to have sex with people outside as well as within the group. The *karaznal* is more an economic and social unit than a sexual one; its members own property in common, but they don’t presume to own each other. Indeed, it is not unusual or inappropriate for a member of a *karaznal* to

¹Today, of course, paternity can be determined by DNA testing, but such testing is almost never done in New Atlantis unless there are compelling medical reasons, and even then the results are kept confidential.

²Or to already *be* a member of one of the existing clans. This is perfectly possible; since presumably all of the original settlers left relatives behind when they emigrated, there is no reason why a foreigner could not be descended, in the direct female line, from the ancestress of one of the clans (who need not herself have been one of the settlers, and, for that matter, need not have even been alive when the original emigration took place).

have a long-term, emotionally as well as sexually intimate relationship with someone outside the *karaznal* (who might or might not be a member of another *karaznal*), but those two people do not have the same legal, social and economic obligations to each other, and to each other's kin, that they would if they were *karaz* to each other.

There is no theoretical upper limit on the size of a *karaznal*, but in practice, groups larger than about eight are unusual. Typical sizes range from two to six. (A *karaznal* of two bears a certain resemblance to a Western married couple, but, for the reasons noted above, the resemblance is only superficial.) Group membership is open-ended; a typical *karaznal* starts with two people and grows gradually, adding new members one or two at a time. It is not unusual for two *karaznelin* to merge. Conversely, a *karaznal* may lose members, either by one person leaving or by the group splitting into two (or occasionally more) groups. Typically, when a *karaznal* splits, children go with their mother, but this is not invariable. Like divorces in Western society, such splits run the gamut from totally amicable to highly contentious. If the parties are unable to reach agreement on such issues as custody of children or division of property, they may have recourse to the courts, but much more often, such disputes are resolved by an arbitration service provided by the Temple.

A.2. Names

Every New Atlantean adult has four names: two personal names, a household name, and a clan name. One of the personal names is a child-name, given to one at birth by one's mother; the other is an adult name, chosen by oneself and announced to the world at one's initiation rite. In addition to these four, in formal contexts, one uses a metronym (mother's name), and, for even greater formality, a metrometronym (maternal grandmother's name). Thus, a hypothetical man might be referred to in a very formal context as *Yovan David an kexnal Savak, mindan am Mari mindi'n Suzan an kainai Naris* (John David of house Savak, son of Mary daughter of Susan of clan Naris). (When both personal names are used, the adult name precedes the child-name; in this example, John is the adult name and David the child-name. The metronym and metrometronym are the mother's and grandmother's adult names.)

Descending the scale of levels of formality, one drops first the metrometronym, then the metronym, then the child-name, leaving only the adult name, the house name, and the clan name: *Yovan an kexnal Savak ne'n kainai Naris* (John of house Savak and of clan Naris), which would usually be contracted to *Yovan kex Savak kai Naris*. This is the minimal form suitable for introducing oneself to a stranger under informal conditions.

In informal conversation among people who are already acquainted, one would use the adult name alone. The child-name is normally used only by relatives or childhood friends (people who actually knew you by your child-name when you were a child). In general, for anyone else to either address you or refer to you by your child-name is considered extremely rude, but child-names are sometimes used between *karaznejin* or other long-term sexual partners as a way of

expressing intimacy.

In moderately formal contexts, one can use either a house name or a clan name alone, with the appropriate gender/number suffix added: *Savaktan* or *Naristan* (literally “the Savak man” or “the Naris man”). This is roughly equivalent to the use of “Mr.” or “Ms.” with a surname in English, except that one never refers to oneself in this way, but only to the addressee or to a third party. Whether to use the house name or the clan name in this form depends at least partly on the topic of conversation, and apparently on other contextual factors as well; further research is needed to clarify this.

A.3. Kinship Terms

The vocabulary of kinship in Tirzadk makes a basic distinction between matrilineal and non-matrilineal kinship (that is, between *fenyu-ni-kai* and *fenyu-ni-kex*, or, to put it another way, between, on the one hand, all those relatives who, by virtue of their relationship to oneself, must by definition be members of one’s own *kainal* and, on the other hand, all other relatives). Every kin term is unambiguous as to which side of this divide the referent falls on.

The key difference between the kinship system of New Atlantis and those of most other cultures – even those that are also matrilineal, such as the Iroquois – begins with the fact that a typical child, instead of having two kinds of parent (mother and father), has three: her mother, one or more women who are not her mother, and one or more men, any of whom may or may not be her father. She also has two kinds of siblings: “womb-siblings” (children of the same mother, who may or may not have the same father, and who thus are genetically either full siblings or half-siblings) and “demi-siblings” (children of one of her “non-mother female parents” (mother’s wives), who likewise may or may not have the same father, and who thus are genetically either half-siblings or unrelated). Likewise, a woman may have either or both of two kinds of children: those who are her biological children (“womb-children”) and those who are not (“house-children”, the womb-children of her wife or wives); a man can have only house-children, of whom he may or may not be the biological father.

Thus, Tirzadk has the following kinship terms, listed here with all applicable singular gender-number suffixes (feminine *-ti/-di*, masculine *-tan/-dan*, common *-nas*):

karazdi, karazdan, karaznas – spouse

mamá (mamádi) – mother

babá (babádan) – mother’s *karazdan* (male spouse)

tatá (tatádi) – mother’s *karazdi* (female spouse)

sefti, seftan, sevnas – womb-sibling, child of same mother

sendi, sendan, sennas – demi-sibling, child of one’s *tatádi*

mindí, mindan, minnas – womb-child, a woman’s own biological child

gyendi, gyendan, gyennas – house-child, the womb-child of one’s *karazdi*

memendi, memendan, memennas – matrilineal aunt/uncle, mother’s womb-sibling
benandi, benandan, benannas – non-matrilineal aunt/uncle: mother’s demi-sibling, or any other parent’s womb-sibling or demi-sibling
seppédi, seppédan, seppénas – matrilineal first cousin, womb-child of mother’s womb-sister
sembédi, sembédan, sembénas – non-matrilineal first cousin: house-child of mother’s womb-sibling, or any child of mother’s demi-sibling, or any child of any sibling of any other parent
mimbédi, mimbédan, mimbénas – matrilineal niece/nephew, womb-sister’s womb-child
gyembédi, gyembédan, gyembénas – non-matrilineal niece/nephew: house-child of womb-sibling, or any child of demi-sibling
mamú (mamúdi) – maternal grandmother, mother’s mother
babú (babúdan) – quasi-grandfather: *babádan* of one’s *mamádi, babádan, or tatádi*
tatú (tatúdi) – non-matrilineal quasi-grandmother: *tatádi* of one’s *mamádi*, or either *mamádi* or *tatádi* of one’s *babádan* or *tatádi*
mindúdi, mindúdan, mindúnas – matrilineal grandchild, womb-child of one’s own womb-daughter
gyendúdi, gyendúdan, gyendúnas – non-matrilineal grandchild: house-child of one’s womb-child, or womb-child or house-child of one’s house-child

Six of these terms – the three “parent” terms *mamá, babá, and tatá* and the three “grandparent” terms *mamú, babú, and tatú* – are often treated as proper names and thus used without gender-number suffixes. The general rule is that this is done in informal contexts, and especially when speaking to or about one’s own parents or grandparents, but not in formal contexts, and especially not when referring to other people’s parents or grandparents. To distinguish between two or more of the same kind of parent, the parent’s adult personal name is combined with the appropriate kin term; in addressing or referring to one’s own parent, one generally abbreviates the kin term by dropping the unstressed initial syllable. Thus, if Susan is your *tatádi*, you would address her as *tatá* or *tá Suzan*, but a friend speaking to you about her would say *xia tatádi* or *xia tatádi Suzan*.

Table A.1 shows all these kin terms grouped by their nearest English equivalents and by the matrilineal-vs.-non-matrilineal distinction. For simplicity, the table gives only the predicative forms (the bare stems, without any gender-number suffixes).

Terms for more distant kin relationships (great-grandparents, great aunts/uncles, second cousins, etc.) are derived from the terms shown here by a complicated but fairly regular set of affixes. These are beyond the scope of this paper, but may be covered in a future revision. To reiterate an important point: every kin term, even the most distant, is explicit as to the distinction between matrilineal and non-matrilineal kinship, and this distinction is always made lexically, not morphologically; in other words, any given matrilineal kin term and its non-matrilineal counterpart(s) are always represented by different lexical stems, not merely by different affixes attached to the same stem.

Table A.1. Lexical Stems of Kinship Terms

	Matrilineal	Non-Matrilineal
Spouses	-----	karaz
Parents	mamá	babá, tatá
Siblings	sef	sen
Children	min	gyen
Aunts/Uncles	memen	benan
First Cousins	seppé	sembé
Nieces/Nephews	mimbé	gyembé
Grandparents	mamú	babú, tatú
Grandchildren	mindú	gyendú

A.4. The Incest Taboo

Every known human society has some sort of incest taboo (a set of rules defining certain relatives as sexually off-limits), although the specifics of who is taboo to whom vary considerably from one culture to another. In New Atlantis, the incest taboo covers all primary relatives (*mamá, babá, tatá, sef, sen, min, gyen*) plus matrilineal secondary relatives (*memen, seppé, mimbé, mamú, mindú*, but not *benan, sembé, gyembé, babú, tatú, gyendú*).

The *kainel* (matrilineal clans) are exogamous, but this rule, unlike the incest taboo, applies only to *karazyu* (“marriage”), not to sex *per se*. In other words, two members of the same clan are permitted to have sex with each other (provided that their kin relationship is not one of those covered by the incest taboo), but they are not permitted to be members of the same *karaznal*.

Appendix B. The New Atlantean Religion

B.1. Theology

The dominant religion of New Atlantis could be described as polytheistic, bitheistic, or pantheistic, depending on what level of abstraction one is operating at. New Atlanteans worship a great variety of gods and goddesses, each associated with a particular aspect of “life, the universe, and everything”, but regard them all as manifestations of one God and one Goddess, both of whom in turn are regarded as manifestations of one underlying Ultimate Reality.

There is considerable variation as to whether the deities are regarded as “real” or merely as metaphors for a reality that is not amenable to a more concrete and literal description. There is ample room for such variation, because there is no official creed or doctrine. The idea, common to the Western monotheistic religions, that there is only one Truth, and that all other beliefs must therefore be false, is notably absent. Indeed, this religion is probably best described not as a set of beliefs but as a set of myths and rituals, and its adherents are more accurately characterized as “practitioners” than as “believers”. The rituals are practiced by most people (with varying degrees of consistency and assiduousness), but probably only taken seriously by a minority – and within that minority, there is nothing even remotely approaching unanimity as to what the rituals and the stories behind them “really mean”. For the majority, as for the majority of churchgoers in modern America or Western Europe, the rituals probably serve more of a social purpose than a spiritual one.

The Goddess is regarded as the ultimate Creator, the Great Mother whose womb is the source of all life. Unlike the Judeo-Christian-Islamic Father-God, who exists apart from the universe and created it by an act of divine will, the Goddess *is* the universe: the living Cosmos continually giving birth to itself. She is also the supreme personification of Love in all its forms: Eros, Agape, and Philia. Among Her many manifestations are goddesses associated with specific varieties of love (goddesses of sexual love, of fertility and motherhood, of compassion, etc.) as well as with Her other attributes, such as wisdom, creativity, and healing.

While the Goddess is seen as timeless, eternal and unchanging, the God (who is often depicted with horns or antlers, like the Horned God of ancient Celtic mythology and of modern Neo-Paganism) goes through a yearly cycle of birth, death, and resurrection. He is born of the Goddess at the Winter Solstice; in the waning days of winter He is slain, dismembered, and eaten; he descends into the nether world, where he confronts the Dark Lord, the King of the Dead, and defeats him in single combat; and finally, at the Vernal Equinox, He returns in triumph from the Land of the Dead and has sex with the Goddess, thus begetting Himself so that He can be born again nine months later at the next Winter Solstice.

The death, resurrection, and re-conception of the God are celebrated as a set of major religious holidays that constitute the high point of the liturgical year. Seven days before the Vernal

Equinox, a sacrificial animal (preferably a large male animal with horns, such as a stag, a bull, or a ram) is ritually slaughtered and its meat shared by the congregation in a communal feast. This feast is followed by a seven-day symbolic fast, during which the people abstain from meat, alcoholic beverages, and sex. At sunrise on the day of the Vernal Equinox, the King and the High Priestess consummate the divine marriage of the Goddess and the God (which is also the marriage of Temple and Palace, or, in modern Western terms, “church and state” [see Appendix C]), after which the fast is broken with a celebration involving (depending on one’s sect) food, alcohol, other psychoactive drugs, ritual sex, or some combination thereof.

Other major religious holidays include the Winter Solstice (celebrating the birth of the God and the beginning of the return of the sun), the Summer Solstice, and the Autumnal Equinox. The full and new moons are minor religious holidays, corresponding roughly to the Sabbath in the Judeo-Christian-Islamic tradition. (See Appendix D.)

In addition to the Goddess and the God, some sects posit a third primary deity, the Trickster, turning the divine dyad into a trinity. The Trickster is of indeterminate gender, manifesting as male, female, neither (asexual), or both (hermaphroditic) according to whim, and is associated with randomness and unpredictability, acting in the world through such phenomena as quantum mechanics and genetic mutation. It is the Trickster’s function to surprise us, to disorient us, to challenge our habits and prejudices and make us see things from new and unfamiliar perspectives; thus (S)he is the source of creative inspiration. (S)he is often depicted as determining the length of our lives, not by cutting thread like the Fates of Greco-Roman mythology, but by rolling dice.

There is a general belief in reincarnation,¹ but this means different things to different people. Some take it literally, believing that the individual soul survives the death of the body and will eventually be reborn in a new body, after a suitable interval for rest, recuperation, and assimilation of the lessons learned in the previous life. In this view (which is essentially the “orthodox” view espoused by the founders of New Atlantis, and reflected in the Litany for the Dead quoted in Chapter 6), all souls are at various stages of a process of spiritual growth, with the time, place, and other circumstances of each new incarnation being chosen to teach whatever the particular soul most needs to learn at that point in its development, and with the ultimate goal being the attainment of such a high degree of enlightenment that no further physical incarnations are needed. (This idea, essentially the Hindu/Buddhist concept of *karma* couched in somewhat different terms, may appear to contradict the idea that the physical universe is sacred, a manifestation of the Goddess, and not an illusion to be escaped from, but religions are not required to be logically consistent.) Others regard reincarnation as merely a metaphor for a generalized, universal “life-force” or “cosmic consciousness” continually re-manifesting itself in new physical forms. The latter view is reflected in the custom of cremating the dead and scattering their ashes in the ocean or in a garden or wooded area, so that some of the atoms that

¹Indeed, as noted in the Introduction, the religion as a whole (in fact, the New Atlantean society as a whole) is purportedly founded on Lord Geoffrey St. Clair’s recovered memories of his former life in Old Atlantis.

were once part of the deceased person's body will eventually find their way into other living things.

There is also the concept of a distinction between *aksimat* (the physical universe of space, time, matter, and energy) and *avramat* (the “other world” of non-physical, spiritual entities, including the spirits of dead humans awaiting their next reincarnation) – the two together comprising *Santeráyu* “the Universe” – and of interactions between the two being mediated by “magic” or divine intervention. The most widespread (though far from unanimous) view is that *avramat* is eternal, existing outside of space and time, while *aksimat* began at a specific time in the remote past and will end at a specific time in the remote future, to be replaced by a new *aksimat* – in short, that the physical universe is subject to a cycle of birth, death, and reincarnation, just as humans are. However, this distinction does not carry the same connotations that it does in many other traditions, both Western and Eastern; there is no sense that the spiritual world is morally superior to the physical one, or that the latter is flawed or “fallen” (as in Christianity), or an imperfect copy of the former (as in Platonism). Instead, the two are seen as different and complementary, “separate but equal”, each necessary to the other, like Yin and Yang.

B.2. The Clergy and Its Role in Society

There is a large, well-organized, professional clergy, a hierarchy headed by the High Priestess. Priests and priestesses do far more than officiate at public rituals and worship services. New Atlantis is a nominal theocracy, in which the Temple is the primary provider of medical, educational, and social services. Most schools, hospitals, and other public-service institutions are run by the Temple, and the vast majority of people in the “helping professions” (physicians, nurses, psychotherapists, social workers, teachers, etc.) are members of the clergy. However, the Temple does not require the recipients of any of its services to profess any belief or take part in any rituals, nor does it attach any religious indoctrination to the delivery of these services. (New Atlantis has total freedom of religion even though it has no “separation of church and state” – a situation that seems self-contradictory from the viewpoint of modern Western constitutional democracy, and which is probably made possible only by the fact the the New Atlantean concept of “religion” is very different from that of Western monotheism.)

Among the many functions of the clergy is one which might be looked at askance by many adherents of other religions: sex education. This is far more comprehensive than what passes for “sex education” in most other societies. Its intent is not only to teach students how the human reproductive system works and how to avoid sexually-transmitted diseases and unwanted pregnancy, but also to empower them to explore and understand their own sexuality, and to prepare them to *enjoy* sex and to help their partners enjoy it – in short, to teach them to be competent, considerate, and responsible lovers.

From the foregoing, the reader will have deduced that the clergy of this religion are not celibate. In fact, most of them live totally normal lives in most respects (normal, that is, by the standards

of their society). The percentage of them who are are “married” (that is, members of *karaznel* [see Appendix A]) is roughly the same as for the general population. In this respect, they are more like Protestant ministers or Jewish rabbis than like Roman Catholic priests. (In another sense, however, they are more like Roman Catholic priests, in that they explicitly practice ritual magic, rather than merely being “teachers”.)

The Temple is a large bureaucracy whose organizational structure is hierarchical but not highly authoritarian. It is certainly not a democracy; it could perhaps be described as a delicate balance between dictatorship and anarchy. In theory, decisions are made by the High Priestess, under the guidance of the Goddess. In practice, important decisions (including the selection of the next High Priestess) are made by a complex process of consensus-building, involving extensive consultation up, down, and across the hierarchy. This process does not lend itself to rapid decision-making, but then, the kinds of issues that the Temple is faced with (unlike those faced by the secular government) typically do not require quick decisions. If a quick decision must be made in an emergency, the High Priestess decides, but if her decisions in such cases are too controversial, she probably will not remain in office very long. Thus, while she does not have the kind of absolute, top-down authority that the Pope has in the Roman Catholic Church, neither is she a powerless figurehead like the Emperor of Japan (who, like her, is regarded as the personal representative of the Goddess on Earth). Her role is perhaps more nearly analogous to that of the CEO of a large Japanese corporation. As one might expect of an institution of this sort, the Temple tends to be very conservative, and thus (for better or for worse) a strongly stabilizing influence on the society as a whole.

Appendix C. Government and Law in New Atlantis

C.1. The Political System

The government of New Atlantis, as defined by its Great Charter (*Zenyastak Varandak*), is a constitutional monarchy. The King (*Thaldan*) is the titular head of state, but his powers are very limited and his duties mostly ceremonial. Arguably his most important duty is to have ritual sex with the High Priestess (*Chaldi Vaxti*) once a year in the Great Rite of the Vernal Equinox. The King and the High Priestess are the personal representatives of the God and the Goddess, respectively.¹ They are also the heads of the secular and religious arms of societal authority: in medieval European terms, “the lords temporal and the lords spiritual”, or, in more modern terms, the state and the church. Their sexual union thus serves several symbolic functions: consummation of the divine marriage between the God and the Goddess, which is also the marriage of the state and the church; reenactment of the sexual act whereby the newly resurrected God begets Himself, setting in motion His next annual cycle of birth, death, and resurrection (see Appendix B); a fertility rite that mirrors the life-enabling action of the sun and the rain (manifestations of the God) on the earth (a manifestation of the Goddess), insuring the fertility of the land and the prosperity of its people.²

The Kingship is hereditary, but, in keeping with the matrilineal nature of the kinship system (see Appendix A), it is not the King’s eldest son who inherits the throne³ but the eldest *mindan* (womb-son) of the King’s eldest *sefti* (womb-sister, i.e., mother’s eldest womb-daughter). If the King has no *sefti*, or if he does but she does not have a *mindan*, there is a complicated formula for determining who is next in line of succession, which is beyond the scope of this paper.

Actual political power is vested in the Council of Elders (*Xunyerainal an Xainex*), a parliamentary body consisting of the Council of Clans (*Xunyerainal an Kainel*) and the Council of Households (*Xunyerainal an Kexnel*). (Note that the bicameral structure of the Council of Elders mirrors the dual kinship structure of the overall society, with its complementary systems of clan-kinship and house-kinship.) The Council of Clans consists of two representatives, one male and one female, from each *kainal* (matrilineal clan). (In theory, each clan is represented by its senior male and senior female members, or by their handpicked substitutes. In practice, each clan has its own method of choosing its representatives, ranging from straight seniority to

¹In keeping with these symbolic roles, the offices of King and High Priestess are gender-specific. All other public offices are equally open to men and women, but the King must be a man and the High Priestess must be a woman.

²If either the King or the High Priestess is unable to fulfill his or her role in this rite, he or she can either appoint a temporary surrogate or abdicate in favor of his or her successor.

³Strictly speaking, within the terms of the system, the King (like any other man) has no children, because paternity is presumed to be unknown.

democratic election to selection by lot.) The Council of Households is directly elected by the general population, with each member representing not a geographical district but a network of allied *kexnel* (households), and elected by a majority within that network using a version of the Single-Transferable-Vote system (also known as “Australian Ballot” or “instant runoff”). The head of government is the Prime Minister (*Vanderainas Vajnas*), who is appointed by the King subject to the approval of the Council of Elders, which in practice means that he or she is the leader of whatever party or coalition of parties is able to form a working majority in the Council of Households.

As has already been mentioned, New Atlantis is nominally a theocracy, with the Temple, headed by the High Priestess, playing a role roughly analogous to that of the Church of England in the United Kingdom (that is, an established church which is intertwined with the secular government through the institution of the monarchy, but which, despite its privileged position, has no power to require anyone to profess belief in its tenets or to participate in its rites). (The political and social role of the Temple is discussed further in Appendix B.)

C.2. The Legal System

The Great Charter contains unusually strong guarantees of individual rights and personal freedom. These include the right of all full adults (*nazránex*)⁴ to do whatever they choose, provided that their actions do not harm others or place others at imminent risk of harm – a generalized freedom which includes, but is not limited to, the more specific freedoms typically guaranteed by democratic constitutions (freedom of speech, freedom of religion, etc.). (People who have not attained *nazráyu* have somewhat less freedom; their actions may be subject to some restrictions for their own protection as well as for the protection of others.)

In its structure and procedures, the legal system bears a strong resemblance to English common law (not surprisingly, in view of the nation’s largely British origins, and in view of the fact that

⁴A citizen of New Atlantis passes through seven “stages of life”, with religious rites of passage marking the transitions between them. The first three stages are *itixu* (infancy), *tixelyu* (childhood), and *xuchenyu* (adolescence); the transition from infancy to childhood takes place when the child begins to acquire language, and from childhood to adolescence at puberty. The fourth is *nixemyu*, a transitional stage which could perhaps be called “post-adolescence” or “provisional adulthood”, in which a person is considered sufficiently mature and responsible to have sex, drive a motor vehicle, drink alcohol or smoke marijuana, but not to vote, hold political office, serve on juries, sign contracts, have children, or enter into *karazyu* (“marriage”); this begins at about the age of 16. (The exact age varies; the criterion is not calendar age but personal development as assessed by one’s parents, teachers, and clergy.) The transition to the fifth stage, *nazráyu* (full adulthood), normally takes place at about the age of 21. (One has to have been *nixem* for at least five years in order to become *nazrá*, and even then it is not automatic. Criminal or otherwise grossly irresponsible behavior during *nixemyu* may result in the transition to *nazráyu* being postponed – in extreme cases, indefinitely.) The transition to the sixth stage, *xáyu* “elderhood”, takes place for women at menopause, and for men at an essentially arbitrary time of one’s own choosing. The last transition is death; the seventh stage is *zelatsam i fyen* (“the time between lives”), the period of sleeping in the womb of the Goddess, awaiting one’s next incarnation.

there were several lawyers among the original settlers). (The founders originally intended to reconstruct the legal system of Old Atlantis, but Lord Geoffrey's "recovered memories" on this subject proved insufficiently clear and detailed, and it was decided that, in such a critical area, it was best to stick to a known, well-understood system that had stood the test of time.)

Anyone accused of a crime is entitled to a trial by jury, with all the usual procedural safeguards: presumption of innocence until proven guilty beyond a reasonable doubt; the right to counsel; the right to subpoena witnesses and to cross-examine opposing witnesses; the right not to incriminate oneself; etc. Such trials occur only infrequently, since the crime rate is low by European standards, and even lower by American standards.⁵ When someone is convicted of a crime, the punishment tends to focus on rehabilitation and restitution rather than retribution. Punishment usually includes, but is not limited to, forfeiture of some or all of the rights of *nazráyu*, either for some fixed period of time or, in the case of the most serious crimes, for life. Imprisonment is resorted to only for those whose crimes were violent and who are judged likely to reoffend; the purpose of imprisonment is not so much to punish the criminal as to protect the rest of the community. There is no capital punishment. (At one time, it was proposed that convicted murderers might legitimately be sacrificed to the gods – with their own consent, as an alternative to life imprisonment – but this idea was rejected, on theological rather than moral or legal grounds.)

Civil suits are also tried by juries if either party requests it. However, the great majority of civil cases never reach the courts at all; they are settled by the Temple's arbitration service.

Judges are appointed by the King from a list submitted by the Committee on Judicial Appointments (which is composed of senior sitting judges, retired judges, and representatives of the Temple, the Ministry of Justice, and both houses of the Council of Elders). In practice, the number of names on the list is usually equal to the number of positions to be filled, and the Committee makes its choices based on a civil-service-like merit system. As in English common law, the role of judges in jury trials (civil or criminal) is limited to interpretation of the law; findings of fact are made solely by the jury.

There are two levels of appellate courts: the Court of First Appeal and the Court of Final Appeal. Both are composed of judges appointed by the same procedure as judges of the lower courts, with the additional proviso that, to be eligible for appointment to the Court of First Appeal, one must have served as a judge in the lower courts for at least five years, and that to be eligible for appointment to the Court of Final Appeal, one must have served as a judge on the Court of First Appeal for at least five years.

⁵One reason for the lower crime rate is that far fewer activities are classified as crimes; for example, there are no laws against prostitution, gambling, or the possession, use, or sale of recreational drugs, because these activities do no harm except (arguably) to the perpetrators and/or their willing accomplices. Another is that the prevailing non-possessive attitude toward sex has largely (though not entirely) eliminated sexual jealousy as a motive for violence.

There are laws explicitly prohibiting abuses of the government’s police power, such as torture, secret detention, detention without due process, warrantless searches or wiretaps, etc. Violations of these laws are extremely rare, but when they do occur, they are zealously investigated and prosecuted, even if (indeed, *especially* if) the alleged offender is a high-ranking government official. (The general rule for such crimes, and indeed for all crimes of malfeasance in public office, is that the higher the office, the more severe the punishment, other things being equal.)

C.3. Individual Freedom and the Law: Some Test Cases

The Great Charter places the following restriction on the power of the state to regulate the behavior of individuals:

No law shall set any limits on the freedom of action of any full adult, except for the purpose of, and to the extent necessary for, the protection of others; nor shall any act of any full adult be deemed unlawful unless it cause actual harm to others or place others at imminent risk of harm.⁶

This rule is strikingly reminiscent of two otherwise very different antecedents: the utilitarianism of John Stewart Mill⁷ and the primary ethical principle of Neo-Paganism, the so-called Wiccan Rede⁸ (“do what thou wilt, an it harm none”) – both of which were undoubtedly familiar to the founders of New Atlantis.

The Charter does not say that actions that harm or endanger others *must* be prohibited, only that they *may* be prohibited. The task of deciding what actions are sufficiently harmful or dangerous to warrant prohibition – that is, to justify both the infringement on individual freedom entailed by

⁶The original text of the Great Charter is in English, since at the time of its adoption there were as yet no native speakers of Tirzadak.

⁷In his famous essay “On Liberty”, published in 1859 (just 18 years before the founding of New Atlantis), Mill wrote: “... the sole end for which mankind are warranted, individually or collectively in interfering with the liberty of action of any of their number, is self-protection. The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant. He cannot rightfully be compelled to do or forbear because it will be better for him to do so, because it will make him happier, because, in the opinions of others, to do so would be wise, or even right. These are good reasons for remonstrating with him, or reasoning with him, or persuading him, or entreating him, but not for compelling him, or visiting him with any evil, in case he do otherwise. To justify that, the conduct from which it is desired to deter him must be calculated to produce evil to someone else. The only part of the conduct of anyone, for which he is amenable to society, is that which concerns others. In the part which merely concerns himself, his independence is, of right, absolute. Over himself, over his own body and mind, the individual is sovereign.”

⁸Although this rule, in this and many similar formulations, was undoubtedly extant long before the founding of New Atlantis, it cannot have been called by this name until much later, because the specific variety of Neo-Paganism known as Wicca did not yet exist.

prohibiting the action and the costs to society of enforcing the prohibition – is left to the legislative process. However, this legislative prerogative is limited by a process of judicial review, similar to that of the United States, whereby the courts are empowered to decide whether or not a given law is compatible with the Great Charter. Many such decisions involve a claim that the law in question violates the above-quoted guarantee of individual freedom. In answering such questions, the courts must often decide what, exactly, constitutes “harm” or “imminent risk” in a given context. On occasion, they must also decide what constitutes “others” – and on this question have hinged some of the most interesting legal controversies in the short history of New Atlantis.

One such controversy concerns whether the “others” in question are limited to other human beings or whether they can also include non-human animals. In a landmark decision in 1926, the Court of Final Appeal upheld the constitutionality of New Atlantis’ cruelty-to-animals law against two challenges: one from a small (and now defunct) sect which, for obscure theological reasons, felt that certain animal sacrifices should be conducted in a particularly gruesome and painful manner, and one from a group of sportsmen who sought to revive the traditional upper-class British practice of fox-hunting. The two cases were consolidated, although they involved different provisions of the law, because both challenges hinged on the same argument: that the “others” referred to in the Great Charter meant only other human beings. In rejecting this argument, the Court held that at least some non-human animals are entitled to at least some degree of legal protection (without specifying exactly what animals and what degree of protection, leaving this to the legislative process). The current law (which is essentially the same as the law that was upheld by that decision) provides certain protections for non-human vertebrates:⁹ they may be killed for “legitimate” purposes, such as for food,¹⁰ for scientific research (which is defined broadly enough to include dissection in biology classes), or as sacrifices in religious rituals, but not for mere amusement (hence the prohibition on hunting for sport); moreover, such killing must be done in a way that does not cause unnecessary pain, and such animals must be treated humanely while in captivity.

More recently, the Court addressed the question of whether or not the “others” must be uniquely identifiable individuals, and answered the question in the negative. In several related decisions in the 1970's involving constitutional challenges to laws regulating pollution control and hazardous waste disposal, the Court established the principle that the government may legitimately restrict individual freedom of action to protect the community as a whole, or substantial portions of it, from harmful actions, regardless of whether the harm can be clearly identified as accruing to specific individuals. To put it another way, a very small risk to any

⁹These legal protections were recently extended beyond vertebrates to cover certain cephalopods (squid and octopus), on the grounds that they, like vertebrates, have central nervous systems sufficiently complex to enable them to feel pain.

¹⁰The majority of New Atlanteans are not vegetarians. It is, however, customary, before a meal which includes meat, to say a brief prayer thanking the animal whose flesh is about to be consumed and wishing it a happy reincarnation.

given individual, multiplied by a large number of individuals (in these cases, the entire population of the country), may add up to an overall risk sufficient to justify legal restrictions on individual freedom of action.

Appendix D. The New Atlantean Calendar

D.1. Description

New Atlantis uses a lunisolar calendar – that is, one which takes into account both the lunar month and the solar year (like the Chinese and Hebrew calendars), as opposed to either a pure lunar calendar (like the Islamic calendar), which ignores the solar year, or a pure solar calendar (like the Gregorian calendar, the one in general use, at least for secular purposes, in most of the world today), which ignores the lunar month.¹

The New Atlantean calendar is based on three fundamental rules:

- the day starts at midnight;
- the month starts at the midnight nearest to the new moon;
- the year starts on the first month boundary after the winter solstice.

These rules result in a calendar in which a month can have either 29 or 30 days and a year can have either 12 or 13 months. A common year (12 months) has between 353 and 355 days, and a leap year (13 months) has between 383 and 385 days. Slightly more than half of all months have 30 days, and approximately seven out of every nineteen years are leap years.

The founders of New Atlantis felt that, despite its complexities, a lunisolar calendar was theologically necessary, because in the Atlantean religion which they were attempting to revive (or to invent, depending on whether or not one accepts the authenticity of Lord Geoffrey St. Clair’s “recovered memories” of his former life in Atlantis), the sun is a manifestation of the God and the moon is a manifestation of the Goddess, so to follow the path of least resistance and simply continue to use the Gregorian calendar, a pure solar calendar, would be disrespectful to the Goddess, while adopting a pure lunar calendar would be disrespectful to the God. The universe, they felt, is the visible manifestation of an ongoing interaction, metastable and dynamically balanced – a dance, as it were – between the Goddess and the God, and the calendar, which is a sort of miniature abstract model of the universe (or at least of the parts of it that are most important to humans), should reflect that.

The following are the names of the New Atlantean calendar months:

- | | | | |
|------------|----------|----------|-----------|
| 1. Ansú | 4. Vilya | 7. Naris | 10. Uvai |
| 2. Ariyal | 5. Lenya | 8. Narun | 11. Lisen |
| 3. Asterai | 6. Inai | 9. Xuvan | 12. Alin |

These are proper names and therefore do not take gender-number suffixes, but they are all

¹The mean solar day is exactly 24 hours; the mean lunar month is about 29.5306 mean solar days; and the mean solar year is about 365.2422 mean solar days, or about 12.3683 mean lunar months. The fundamental problem of calendar design is that none of these three quantities is evenly divisible by either of the others.

grammatically feminine (they are, in fact, the names of goddesses).

Because this is an astronomical calendar and not an arithmetic one,² it is “irregular” in various ways. For example, there is no fixed mapping between the month names and the number of days in each month; thus any month can have either 29 or 30 days. Likewise, there is no simple algorithm for determining whether a given year is a common year or a leap year, even though, on the average, almost exactly 7 out of every 19 years are leap years, and two successive leap years are always separated by either one or two common years.

The months are defined so that the vernal equinox always takes place in Asterai, the summer solstice in Inai, the autumnal equinox in Xuvan, and the winter solstice in Alin. But the time between an equinox and the following solstice, or vice versa, is somewhat longer than three lunar months, so about 7 times in every 19 years, an extra month must be inserted to keep each equinox and solstice in its proper month. This is done by doubling the month *before* the one containing the relevant equinox or solstice (Ariyal, Lenya, Narun, or Lisen). For example, if in a given year the vernal equinox falls late enough in Asterai so that, if no adjustment were made, the summer solstice would fall in Naris instead of in Inai, then Lenya (the month before Inai) is doubled, so that instead of just Lenya, we have First Lenya and Second Lenya (usually written as Lenya I and Lenya II).

For setting month boundaries, and for determining what month an equinox or solstice falls within, new moons are rounded off to the nearest midnight, while equinoxes and solstices are rounded off to the nearest noon. This “tie-breaking rule” avoids the possibility of a new moon and an equinox or solstice being effectively simultaneous (or so close together that it would be impractical to determine which comes first).

A New Atlantean date is specified by a day number, a month name, and a year number, in that order: for example, 17 Ariyal 134 is the 17th day of Ariyal in the year 134. (The year 1 is the year of the arrival of the first settlers in New Atlantis, which took place in the spring of 1877 CE by the Gregorian calendar. Thus, the New Atlantean year 134 begins on January 15, 2010 CE.)

The month (*ninzam*, literally “moon-time”), which begins and ends with the new moon, is divided by the full moon into two approximately equal parts, the *nefsam zayunzam* “waxing half-month” and the *nefsam kyerinzam* “waning half-month”. The new and full moons are “sabbaths” of sorts, marked by communal religious rituals roughly comparable to Sunday church services (except that for most sects, they take place in the evening or at midnight rather than in the

²An astronomical calendar is based on the *actual* times of astronomical events such as equinoxes, solstices, and new and full moons; an arithmetic calendar is based on the *mean* time periods between such events. The actual and average times differ because of various complicating factors such as the eccentricity (deviation from perfect circularity) of both the moon’s orbit around the earth and the earth’s orbit around the sun. The distinction between astronomical and arithmetic calendars is independent of the distinction among lunar, solar, and lunisolar calendars; the Chinese lunisolar calendar is astronomical, while the Hebrew lunisolar calendar, the Islamic lunar calendar, and the Gregorian solar calendar are all arithmetic.

morning).³ If the full moon were rounded to the nearest midnight, as the new moon is, each half-month could be as short as 14 days or as long as 16, but for convenience, it is always rounded to the midnight between the 15th and 16th days of the month, whether the month has 29 or 30 days. This means that the “observed” or “deemed” full moon may vary by a day or more from the actual, astronomical full moon, but this is considered an acceptable tradeoff for the convenience of having the full-moon ritual observed on the same day every month. However, certain “ultra-orthodox” sects regard this compromise as unacceptable and insist on astronomical accuracy in the scheduling of their own full-moon rituals.

There is no seven-day week, but the month is divided in a way that serves much the same function. There are four “weekends” in each month: the three-day period around the full moon (the 14th through the 16th), the two- or three-day period around the new moon (the 29th of one month through the 1st of the next), and the two-day periods around the first quarter (the 7th and 8th) and the third quarter (the 22nd and 23rd). These periods are quasi-holidays, while the five-day periods between them (days 2-6, 9-13, 17-21, and 24-28) are ordinary working days. Because the same day numbers have the same function in every month, there is no need for special names for the days. When one has grown up with this system, one simply knows, for example, that the 7th day of the month is the first day of a two-day “weekend”, or that the 20th is the fourth of five consecutive working days. The only thing that varies from one month to another is the presence or absence of the 30th day (and thus whether the new-moon “weekend” is two or three days); for this, one must consult a calendar, since, as noted above, there is no simple rule for determining which months are of which type.

One must also consult a calendar for the dates of the four major holidays based on the solar year: the two equinoxes and the two solstices. (For example, the vernal equinox is always in Asterai, but it can be any day of that month.) These holidays are marked both by special religious observances and by elaborate festivals reminiscent of the Carnival of Rio de Janeiro or the Mardi Gras of New Orleans. (As noted in Appendix B, New Atlantean society makes no real distinction between “sacred” and “secular” spheres of activity.) There are also various minor holidays distributed more or less randomly throughout the year, each devoted to a specific god or goddess, somewhat like the saints’ days of traditional Roman Catholicism.

D.2. Sample Calendars

To illustrate this system, Table D.1 gives the essential calendrical data for the twenty New Atlantean years 130-149 (roughly 2006-2025 CE). These tables show all that one needs to know if one is using the New Atlantean calendar as a self-contained system and does not need to be able to conveniently convert between New Atlantean and Gregorian dates: the number of days in

³There is no particular social pressure to participate in these rituals, and attendance is highly variable. The percentage of New Atlanteans who attend the bi-monthly Temple services on a regular basis is roughly comparable to the percentage of self-identified Christians in the United State who are regular churchgoers.

each month (either 29 or 30) and, if the month is Asterai, Inai, Xuvan, or Alin, the day of the equinox or solstice. (Graphical representations of the Gregorian calendar are more complex because they must show the mapping of weekday names to the days of the month.) [Note: this data is adjusted for Eastern Standard Time (Universal Time minus 5 hours), so it represents the New Atlantean calendar as it would be applied on the east coast of North America, rather than as it is applied in New Atlantis itself (which is located in the eleventh time zone west of Greenwich, so New Atlantean time is UT minus 11 hours, or Pacific Standard Time minus 3 hours). (New Atlantis does not use Daylight Saving Time, preferring to remain on Standard Time throughout the year.) One of the disadvantages of a strictly astronomical calendar is that it has a different realization for each time zone, because moving between time zones can change the date of an astronomical event, such as an equinox or a new moon, thus potentially changing a month boundary or a year boundary by a day, or (rarely) a year boundary by a month.]

Table D.1. Calendars for New Atlantean Years 130-144

130

384 days

31 Dec 2005 - 18 Jan 2007 CE

Ansú	29		Vilya	30		Naris	30		Uvai	30	
Ariyal	30		Lenya	29		Narun I	30		Lisen	29	
Asterai	29	21	Inai	29	26	Narun II	29		Alin	30	2
						Xuvan	30	1			

131

354 days

19 Jan 2007 - 7 Jan 2008 CE

Ansú	29		Vilya	30		Naris	30		Uvai	30	
Ariyal	30		Lenya	29		Narun	29		Lisen	30	
Asterai	29	2	Inai	29	7	Xuvan	30	13	Alin	29	13

132

354 days

8 Jan 2008 - 26 Dec 2008 CE

Ansú	30		Vilya	29		Naris	29		Uvai	30	
Ariyal	30		Lenya	30		Narun	30		Lisen	29	
Asterai	29	13	Inai	29	17	Xuvan	29	23	Alin	30	25

133

384 days

27 Dec 2008 - 14 Jan 2010 CE

Ansú	30		Vilya	30		Naris	29		Uvai	30	
Ariyal	30		Lenya	29		Narun I	29		Lisen	29	
Asterai	29	24	Inai	30	29	Narun II	30		Alin	30	6
						Xuvan	29	4			

134

354 days

15 Jan 2010 - 3 Jan 2011 CE

Ansú	30		Vilya	30		Naris	29		Uvai	29	
Ariyal	30		Lenya	29		Narun	29		Lisen	30	
Asterai	29	5	Inai	30	10	Xuvan	30	15	Alin	29	16

135

355 days

4 Jan 2011 - 24 Dec 2011 CE

Ansú	30		Vilya	30		Naris	30		Uvai	30	
Ariyal	30		Lenya	30		Narun	29		Lisen	29	
Asterai	29	16	Inai	29	20	Xuvan	29	26	Alin	30	28

136

384 days

25 Dec 2011 - 11 Jan 2013 CE

Ansú	29		Vilya	30		Naris	29		Uvai	30	
Ariyal	30		Lenya I	30		Narun	30		Lisen	29	
Asterai	29	28	Lenya II	29		Xuvan	29	7	Alin	30	9
			Inai	30	2						

137

354 days

12 Jan 2013 - 31 Dec 2013 CE

Ansú	29		Vilya	30		Naris	30		Uvai	29	
Ariyal	30		Lenya	29		Narun	29		Lisen	30	
Asterai	29	9	Inai	30	14	Xuvan	30	18	Alin	29	19

138

355 days

1 Jan 2014 - 21 Dec 2014

Ansú	30		Vilya	29		Naris	30		Uvai	30	
Ariyal	29		Lenya	30		Narun	29		Lisen	29	
Asterai	30	20	Inai	29	24	Xuvan	30	29	Alin	30	30

139

384 days

22 Dec 2014 - 9 Jan 2016

Ansú	29		Vilya	29		Naris	29		Uvai	30	
Ariyal I	30		Lenya	29		Narun	30		Lisen	29	
Ariyal II	29		Inai	30	6	Xuvan	30	11	Alin	30	11
Asterai	30	1									

140

354 days

10 Jan 2016 - 28 Dec 2016

Ansú	29		Vilya	30		Naris	30		Uvai	30	
Ariyal	30		Lenya	29		Narun	29		Lisen	29	
Asterai	29	11	Inai	29	16	Xuvan	30	22	Alin	30	23

141

384 days

29 Dec 2016 - 16 Jan 2018 CE

Ansú	30		Vilya	29		Naris	29		Uvai	29	
Ariyal	29		Lenya	30		Narun I	30		Lisen	30	
Asterai	30	23	Inai	29	26	Narun II	29		Alin	30	4
						Xuvan	30	3			

142

354 days

17 Jan 2018 - 5 Jan 2019

Ansú	30		Vilya	29		Naris	29		Uvai	29	
Ariyal	29		Lenya	30		Narun	30		Lisen	30	
Asterai	30	4	Inai	29	8	Xuvan	29	13	Alin	30	15

143

354 days

6 Jan 2019 - 25 Dec 2019

Ansú	30		Vilya	29		Naris	29		Uvai	29	
Ariyal	29		Lenya	30		Narun	29		Lisen	29	
Asterai	30	15	Inai	30	19	Xuvan	30	25	Alin	30	26

144

384 days

26 Dec 2019 - 12 Jan 2021 CE

Ansú	30		Vilya	30		Naris	30		Uvai	29	
Ariyal	29		Lenya	30		Narun I	29		Lisen	29	
Asterai	30	26	Inai	29	29	Narun II	29		Alin	30	8
						Xuvan	30	6			

145

355 days

13 Jan 2021 - 2 Jan 2022 CE

Ansú	30		Vilya	30		Naris	29		Uvai	30	
Ariyal	29		Lenya	29		Narun	30		Lisen	29	
Asterai	30	8	Inai	30	11	Xuvan	29	16	Alin	30	18

146

354 days

3 Jan 2022 - 22 Dec 2022 CE

Ansú	29		Vilya	30		Naris	30		Uvai	29	
Ariyal	30		Lenya	29		Narun	29		Lisen	30	
Asterai	29	18	Inai	30	23	Xuvan	30	27	Alin	29	28

147

384 days

23 Dec 2022 - 10 Jan 2024 CE

Ansú	30		Vilya	29		Naris	29		Uvai	29	
Ariyal	29		Lenya I	29		Narun	30		Lisen	30	
Asterai	30	29	Lenya II	30		Xuvan	30	9	Alin	29	9
			Inai	30	4						

148

355 days

11 Jan 2024 - 30 Dec 2024 CE

Ansú	30		Vilya	29		Naris	29		Uvai	29	
Ariyal	29		Lenya	29		Narun	30		Lisen	30	
Asterai	30	10	Inai	30	15	Xuvan	30	20	Alin	30	21

149

384 days

31 Dec 2024 - 18 Jan 2026 CE

Ansú	29		Vilya	30		Naris	30		Uvai	30	
Ariyal	30		Lenya	29		Narun I	29		Lisen	30	
Asterai	29	21	Inai	29	25	Narun II	30		Alin	30	2
						Xuvan	29	1			

Appendix E. The New Atlantean Economy

New Atlantis has a small but very prosperous economy, with virtually all of its people enjoying a standard of living roughly comparable¹ to that of middle-class Americans or Western Europeans.

The economic system could be described as a scaled-down version of the “mixed economies” of the Western European social democracies: a mix of capitalism and socialism, using the strengths of each to compensate for the other’s weaknesses. (This could be summarized as: capitalism for productivity, flexibility, and innovation; socialism for security.²) A number of essential services are provided free to all citizens, including education, health care, and public utilities (electricity, telecommunications,³ etc.). In this, there is a division of labor between the Temple and the secular government, with the former providing education, health care, and other social services, while the latter provides public utilities (as well as the “normal” services that are provided by virtually all governments, such as national defense, police and fire departments, courts, etc.).

The country is essentially self-sufficient in agriculture, with more than enough water and fertile soil to feed its own population without either importing food (other than a few luxury items) or resorting to chemical fertilizers and pesticides. It is also self-sufficient in energy; the island is volcanic and has ample sources of geothermal energy, as well as wind and hydroelectric power. There is some light manufacturing, mostly for local consumption. However, anything whose production requires a large-scale industrial infrastructure must be imported, and for this, hard currency is needed (dollars, pounds, euros, yen, etc.). New Atlantis has nothing that it could sell abroad for hard currency on a sufficiently large scale – no oil, natural gas, gold, diamonds, or anything else valuable enough to support its economy. (If the island did have any such resources, the British government would not have been so quick to sell it – and if it had somehow become independent anyway, it would probably have been snapped up by another of the imperial powers.) Fortunately, it has another source of wealth. Lord Geoffrey St. Clair and several of the other original settlers were very rich men, and they put all their wealth (all, that is, that was left over after buying the island) into a trust fund whose sole purpose was to provide for the long-term economic needs of their new nation. This fund, large to begin with, has grown over the decades at a rate more than sufficient to keep up both with inflation and with the island’s

¹By “roughly comparable”, I mean “about the same overall, but differing significantly in some details, with the differences tending to cancel each other out.” For example, on the one hand, city dwellers, who constitute a majority of the population (the nation essentially consists of one small city and its surrounding hinterlands), generally do not own cars, but on the other hand, they live in a geographically compact, pedestrian- and bicycle-friendly city with an extensive and well-designed mass-transit system; the net result is that, overall, they have about as much mobility as their American or European counterparts (plus cleaner air and more exercise).

²The security referred to here is both individual (protecting people from being plunged into poverty by circumstances beyond their control, such as a serious illness or a market downturn) and collective (protecting the community as a whole from pollution, depletion of non-renewable resources, etc.).

³The telecommunications utility provides not only telephone service but also broadband Internet access via satellite links.

growing population, thanks to careful, talented management and clever investing (for example, buying a large amount of Microsoft stock in the late 1970's). Essentially, New Atlantis lives off its investments.

What this means is that New Atlantis has, in effect, two economies, one internal and one external, with a central bank to manage the interface between them. The internal economy has its own currency, whose basic monetary unit is the *phan*.⁴ Anyone who works in New Atlantis, whether for the government, the Temple, or a private employer, is paid in *phan*, which can be used to pay for any goods or services produced within the country, but are non-convertible, worthless outside the country (like chips in a casino, or like company scrip which can only be spent at a company store). To buy any imported goods, you have two choices: you can go to any branch of the Bank of New Atlantis and exchange some of your *phan* for dollars, euros, or whatever (at an exchange rate set by the Bank), which you can then use to, say, buy a book from Amazon.com or a mail-order computer from Dell; or you can go to a local importer/reseller, who does essentially the same thing on a larger scale (exchanging *phan* for hard currency, using the hard currency to buy foreign goods in bulk at wholesale prices, selling the foreign goods for *phan* at retail prices, making a profit in *phan*). The second option is usually cheaper, because of economies of scale, but obviously it only works if there are enough people who want the same thing; people with more specialized needs must resort to mail-order catalogs and (in recent years) online shopping via the Internet. By far the largest buyers of imported goods are the government and the Temple, which have to buy things like large steam turbines for electric power plants and MRI machines for hospitals.

All citizens own equal shares in the trust fund. If you choose to emigrate (unusual but not unheard-of), you can cash in your entire share of the fund for its current value in the foreign currency of your choice. Conversely, if you wish to immigrate (also unusual, but becoming less so over time), you must “buy in” by paying, in hard currency, the current value of one share. (Exemptions are made for political or religious refugees. There are also “installment-plan” options available whereby the payment can be spread out over a period of years.)

⁴There are sixty *zétu* in a *phan* – the sole concession to the Old Atlantean sexagesimal number system in an otherwise thoroughly decimalized and metricized society. The currency symbol for the *phan* is an upper-case “P” with a small lower-case “h” superimposed on it, so that the two appear to share a single vertical stroke. Where this glyph is unavailable (for example, if one is limited to the ASCII character set, or to some internationally-standardized superset of ASCII such as ISO Latin-1), it is simply replaced by an upper-case “P” followed by a lower-case “h”. In either case, *phan* and *zétu* are separated by a colon. Thus, for example, “Ph9:37” means “nine *phan* and thirty-seven *zétu*”.

Appendix F. Music in New Atlantis

F.1. Overview

The dominant religion of New Atlantis has a very elaborate liturgy, much of which is intended to be sung rather than spoken. The music for this sung liturgy is purportedly based on the music used for the same purpose in Old Atlantis.

In its most basic form, this music is monophonic and non-metrical – rather like Gregorian plainchant, but with a much greater variety of melodic modes. (The modal system is discussed below in some detail.) It may be sung by a soloist; by a choir, either in unison or in parallel octaves, depending on what voices are available; by the entire congregation, likewise in unison or in parallel octaves; or, with responsory texts, by a soloist alternating with a choir and/or with the congregation. It may be *a cappella* or accompanied by instruments (which may provide a drone on the tonic and the fifth, and/or double the melodic line heterophonically). It may go even further beyond pure monophony by being sung and/or played in parallel fourths or fifths, or in simple polyphonic arrangements somewhat reminiscent of Medieval European *organum*.

In addition to such melodic elaboration, it may also be elaborated rhythmically, using a system of rhythmic modes which has been likened to a cross between the *tala* of classical Indian music and the *modus*, *tempus*, and *prolatio* of 15th-century European mensural notation. This system will not be discussed here, but may be included in a future revision.

Although this music is fundamentally liturgical in origin, many New Atlantean musicians have adapted it to secular, popular musical forms (which coexist with a thriving Western-derived popular-music culture that includes rock, folk, jazz, etc., as well as with some very competent performers in the Western classical tradition, including a symphony orchestra and a number of chamber ensembles). It should be noted, however, that there is no clear-cut dividing line between “sacred” and “secular” music. Indeed, much of this “native” popular music is simultaneously erotic and religious, with lyrics referring to the object of one’s sexual desire as a manifestation of the God(dess) and to sexual acts as acts of worship.

The New Atlantean liturgical music is primarily vocal, with instruments being used mainly in the role of accompaniment. However, as the music has expanded into secular cultural niches, the importance of instrumental music has likewise expanded. Many pre-existing instruments, both Western and from other music cultures, have been adapted to New Atlantean music, with varying degrees of success. (The Indian *sitar* and *sarod* and the Middle Eastern *ūd* have proven particularly well-suited to this music.) At the same time, there has been an ongoing and, on the whole, quite successful attempt to “revive” some of the instruments thought to have been used in Old Atlantis. Musicians and instrument makers, combining their own creativity with the rather vague and impressionistic descriptions taken from Lord Geoffrey’s “recovered memories”, have succeeded in developing functional “consensus designs” for several “indigenous Atlantean”

instruments. Among the more successful of these reconstructions (or inventions, depending on one's viewpoint) are the *kithádak*, a long-necked plucked lute with four melody strings and three drone strings, which has been described as a cross between a banjo and a theorbo, and the *xuliádak*, an endblown flute somewhat similar to the recorder or to the Japanese *shakuhachi*, which comes in several sizes for playing in different keys and ranges.

Before embarking on a discussion of the New Atlantean system of melodic modes, a brief note on intervals and tuning is in order. The tuning system used in this music is not the familiar system of equal temperament that is, to all intents and purposes, the only system currently used in Western music. However, it is similar enough to that system that much of the same terminology can be used in discussing both. For example, the interval referred to in the discussion below as a “major third” is close enough to the interval referred to by the same name in equal temperament that it would easily be recognized as the “same” interval, even though one or the other of them (depending on which system one was accustomed to) would sound noticeably out of tune. Therefore, in the interest of avoiding long digressions, it will be most convenient to first describe the modal system in a “tuning-system-neutral” way, sticking as far as possible to the familiar terminology of Western music theory, and then, in a separate section, to discuss the tuning system and how it affects the realization of the modal system.

F.2. The System of Melodic Modes

F.2.1. Modes, Scales, and Half-Scales

Melodic modes (*kyomendek*) are composed of scales (*kyonaldek*), which in turn are composed of half-scales (*nefkyonaldek*). A mode consists of two scales, one ascending and one descending, which may or may not be the same. A scale consists of two half-scales, one upper and one lower, which likewise may or may not be the same. A half-scale consists of either three or four notes. In an upper half-scale (*nefkyonaldak sildak*), the interval between the lowest note (*kolmadak* “base”) and the highest note (*yilmadak* “apex”) must be exactly a perfect fourth; in a lower half-scale (*nefkyonaldak sekoldak*), that interval must be at least a minor third and at most an augmented fourth. Two half-scales are combined to form a scale by placing them so that the base of the upper is a perfect fifth above the base of the lower; thus the base of the lower and the apex of the upper are exactly an octave apart.

Every half-scale is classified as either *xuman* “perfect” or *khwéxuman* “imperfect”. A perfect half-scale (*nefkyonaldak xumandak*) is one whose apex is exactly a perfect fourth above its base; an imperfect half-scale (*nefkyonaldak khwéxumandak*) is one in which the interval between the base and the apex is larger or smaller than a perfect fourth. Thus, for any scale, the upper half-scale must be perfect, but the lower half-scale may be either perfect or imperfect.

Every half-scale, whether perfect or imperfect, is also classified as either *gamech* “whole, complete” or *khwégamech* “partial, incomplete”. A complete half-scale contains four notes (a

tetrachord); an incomplete half-scale contains three notes (a trichord). A heptatonic scale (*kyonaldag i zaf*) consists of two complete half-scales; a pentatonic scale (*kyonaldag i fran*) consists of two incomplete half-scales; and a hexatonic scale (*kyonaldag i mel*) consists of one complete and one incomplete half-scale. Heptatonic and pentatonic scales are referred to as “balanced” (*zat*), and hexatonic scales as “unbalanced” (*khwézat*). A hexatonic scale whose upper half-scale is complete and whose lower half-scale is incomplete is called “top-heavy” (*klomba ni sil*), and one for which the reverse is true is called “bottom-heavy” (*klomba ni sekol*).

Half-scales are defined only in terms of relative pitch, with no reference to absolute pitch. Thus, strictly speaking, they are not sequences of notes but sequences of intervals. Only five intervals are permitted between any two consecutive notes of any half-scale: a minor second (that is, a diatonic semitone), a major second, an augmented second, a minor third, or a major third. (Note that the augmented second and the minor third are different intervals, not merely different ways of referring to the same interval as in equal-tempered tuning.) Moreover, within a half-scale there cannot be two consecutive minor seconds. Combining these two rules with the definitions given above yields a total of twenty-one possible half-scales: eight perfect and thirteen imperfect; nine complete and twelve incomplete. Each half-scale is identified by a name. These names have mythological and religious referents that are obscure even to most New Atlanteans; I will not attempt to explain them here, but will simply list them in their traditional order.

Nefkyonaldek xumandek gamechtek (complete perfect half-scales):

- *Ové* – major second, major third, perfect fourth
- *Nachtayal* – major second, minor third, perfect fourth
- *Itan* – minor second, minor third, perfect fourth
- *Marun* – minor second, major third, perfect fourth

Nefkyonaldek xumandek khwégamechtek (incomplete perfect half-scales):

- *Tarach* – major second, omitted third, perfect fourth
- *Netai* – omitted second, minor third, perfect fourth
- *Lumen* – omitted second, major third, perfect fourth
- *Nisan* – minor second, omitted third, perfect fourth

Nefkyonaldek khwéxumandek gamechtek (complete imperfect half-scales):

- *Ové-Zich* – major second, major third, augmented fourth
- *(Ové-)Tiskal* – augmented second, major third, augmented fourth
- *Nachtayal-Zich* – major second, minor third, augmented fourth
- *Itan-Zich* – minor second, minor third, augmented fourth
- *Marun-Zich* – minor second, major third, augmented fourth

Nefkyonaldek khwéxumandek khwégamechtek (incomplete imperfect half-scales):

- *Ové-Bechat* – major second, major third, omitted fourth
- *(Ové-)Tiskal-Bechat* – augmented second, major third, omitted fourth
- *Nachtayal-Bechat* – major second, minor third, omitted fourth

- *Itan-Bechat* – minor second, minor third, omitted fourth
- *Marun-Bechat* – minor second, major third, omitted fourth
- *Tarach-Zich* – major second, omitted third, augmented fourth
- *Netai-Zich* – omitted second, minor third, augmented fourth
- *Lumen-Zich* – omitted second, major third, augmented fourth

As can be seen from these names, the eight perfect half-scales are regarded as basic, and the thirteen imperfect ones as being derived from them by various modifications. The two main modifications are *Zich* “stretched”, in which the perfect fourth is replaced by an augmented fourth, and *Bechat* “cut off, truncated”, in which the fourth is removed altogether (the latter being obviously inapplicable to half-scales that are already incomplete). A third modification, *Tiskal* “seasoned, spiced” is applicable only to *Ové*; it consists of the *Zich* modification plus replacement of the major second by an augmented second. *Ové-Tiskal* can be further altered by adding the *Bechat* modification. (Augmenting the second in any half-scale other than *Ové-Zich* or *Ové-Bechat* would result either in a non-permitted interval or in a violation of the prohibition against two successive semitones. Because of this limitation, the half-scale name *Ové* in *Ové-Tiskal* and *Ové-Tiskal-Bechat* is redundant and is generally omitted, hence its appearance in parenthesis in the above list.) Another limitation is that the *Zich* modification is not applicable to *Nisan*, because the resulting half-scale would contain an augmented third, which is not one of the permitted intervals.

Grammatically, half-scale names are proper names, but inanimate, belonging to the Neuter I gender (the “thing” class). This also applies to scale and mode names, which are combinations of half-scale names (see below).

Since a scale can have any of the twenty-one half-scales as its lower half, and any of the eight perfect half-scales as its upper half, the number of possible scales is $21 \times 8 = 168$. In a heptatonic scale, the upper half-scale is complete and perfect, and the lower half-scale is complete and either perfect or imperfect; therefore the number of heptatonic scales is the number of complete perfect half-scales times the combined number of complete perfect and complete imperfect half-scales: $4 \times (4 + 5) = 36$. In a pentatonic scale, the upper half-scale is incomplete and perfect, and the lower half-scale is incomplete and either perfect or imperfect; therefore the number of pentatonic scales is the number of incomplete perfect half-scales times the combined number of incomplete perfect and incomplete imperfect half-scales: $4 \times (4 + 8) = 48$. In a top-heavy hexatonic scale, the upper half-scale is complete and perfect, and the lower half-scale is incomplete and either perfect or imperfect; therefore the number of top-heavy hexatonic scales is the number of complete perfect half-scales times the combined number of incomplete perfect and incomplete imperfect half-scales: $4 \times (4 + 8) = 48$. In a bottom-heavy hexatonic scale, the upper half-scale is incomplete and perfect, and the lower half-scale is complete and either perfect or imperfect; therefore the number of bottom-heavy hexatonic scales is the number of incomplete perfect half-scales times the combined number of complete perfect and complete imperfect half-scales: $4 \times (4 + 5) = 36$. Thus, the total number of balanced scales (heptatonic plus pentatonic) is $36 + 48 = 84$, and the total number of unbalanced scales (hexatonic) is likewise $36 + 48 = 84$;

therefore the total number of all scales is $2 \times 84 = 168$, the same number we arrived at previously by a different route.

Each scale has a name consisting of the names of its lower and upper half-scales, in that order, separated by a hyphen, e.g., *Ové-Nachtayal* (which is equivalent to the Mixolydian scale in the modern Western modal system). If both half-scales are the same, the name need not be repeated; for example, the scale equivalent to the modern Western standard major scale is simply *Ové*, not **Ové-Ové*. If the lower half-scale is a modified version of the upper – that is, an imperfect half-scale whose perfect counterpart is the upper half-scale – it is only necessary to specify the lower; for example, *Ové-Zich* implies *Ové-Zich-Ové*.

The following is a list, in no particular order, of some of the more frequently used scales, with their equivalents (if any) in the Western or other musical traditions.

Heptatonic scales:

- *Ové* – Ionian (major)
- *Ové-Zich* – Lydian
- *Ové-Nachtayal* – Mixolydian
- *Nachtayal* – Dorian
- *Nachtayal-Itan* – Aeolian (minor)
- *Itan* – Phrygian
- *Nachtayal-Marun* – harmonic minor (minor with raised seventh)
- *Nachtayal-Zich-Marun* – “Gypsy scale” (minor with raised fourth and seventh)
- *Marun-Itan* – Phrygian with raised third, used in some Klezmer and Sephardic music
- *Marun* – Phrygian with raised third and seventh
- *Tiskal* – Lydian with raised second
- *Marun-Zich-Nachtayal* – Karnatic (South Indian) *mela Ramapriya*

Pentatonic scales:

- *Ové-Bechat-Tarach* – <do-re-mi-sol-la-do>, perhaps the most common and basic pentatonic scale
- *Tarach* – <do-re-fa-sol-la-do>
- *Tarach-Netai* – <la-ti-re-mi-sol-la>
- *Netai* – <la-do-re-mi-sol-la>, “Blues scale”
- *Nisan-Netai* – <mi-fa-la-ti-re-mi>, the Japanese *insen* scale, used in some *koto* music

Hexatonic scales:

- *Marun-Netai* – Phrygian with raised third and omitted sixth
- *Tarach-Nachtayal* – Dorian with omitted third, used in some English folk songs (e.g., “The Cutty Wren”)
- *Tiskal-Lumen* – Lydian with raised second and omitted sixth

Note: *Tiskal* is generally used only in the ascending scales of dynamic modes (see §F.2.3).

F.2.2. The Metascale

The twenty-one half-scales, taken together, implicitly define an “abstract scale” or “metascale” (*teraikyonaldak*) of seven degrees, two of which (the tonic and the fifth) are fixed, while the other five (the second, third, fourth, sixth, and seventh) are variable. An actual scale (*kyonaldak*) is generated by assigning a specific value to each of the five variables. The possible values of each variable are as follows:

- The second may be minor, major, augmented, or omitted.
- The third may be minor, major, or omitted.
- The fourth may be perfect, augmented, or omitted.
- The sixth may be minor, major, or omitted.
- The seventh may be minor, major, or omitted.

The rules defining the permitted combinations of these values, which, like the metascale itself, are implicit in the half-scales, can be stated as follows:

- There may be zero, one, or two omitted tones (thus permitting heptatonic, hexatonic, and pentatonic scales).
- If two tones are omitted, one of them must be above the fifth and the other below the fifth. If only one tone is omitted, it may be any of the five variable tones.
- If the second is augmented, the third must be major and the fourth must be either augmented or omitted.
- If the second is minor and the fourth is augmented, the third cannot be omitted. (In other words, the interval between two successive tones cannot be larger than a major third.)

Combining all possible values of all seven degrees of the metascale gives a total of thirteen tones, which are assigned arbitrary names according to a system somewhat similar to the Western system of *sofêge*. As in the “movable-*do*” version of the *sofêge* system, these names refer only to relative pitch, not to absolute pitch. However, this system differs from *sofêge* in that its note names, while movable in relation to absolute pitch, are fixed in relation to the tonic. Thus, one cannot change modes by reassigning the tonic to a different note name, as one can in the modern version of the Western modal system (where, for example, *do* is the tonic in a major scale but *la* is the tonic in a minor scale). These note names are the following:

- *sá* – tonic
- *bó* – minor second
- *bé* – major second
- *bí* – augmented second
- *kú* – minor third
- *kí* – major third
- *nó* – perfect fourth
- *né* – augmented fourth
- *tá* – perfect fifth
- *lú* – minor sixth

- *li* – major sixth
- *gó* – minor seventh
- *gé* – major seventh

F.2.3. Static and Dynamic Modes

A mode in which the ascending and descending scales are the same is called *makan* (“static, unchanging, monomorphic”); one in which the two scales are different is called *lumyel* (“dynamic, changing, polymorphic”).¹ A static mode (*kyomendak makandak*) is identified simply by naming its one scale. A dynamic mode (*kyomendak lumyeldak*) may be identified by naming its ascending and descending scales, in that order, separated by the preposition *nahen* “beside” (often contracted to *n’en*). However, if (as is the case in the great majority of widely-used dynamic modes) the two scales differ only in either the lower or the upper half-scale, but not in both, the mode name thus formed is abbreviated to avoid redundancy, according to the following formula:

- if the lower half-scales differ, the two lower half-scale names are given (ascending first), separated by *nahen* or *n’en*, followed by the preposition *naran* “under, below”, followed by the upper half-scale name;
- if the upper half-scales differ, the two upper half-scale names are given (ascending first), separated by *nahen* or *n’en*, followed by the preposition *naré* “over, above”, followed by the lower half-scale name.

The following are some examples of dynamic mode names:

- *Tiskal n’en Ové-Zich naran Nachtayal* has *Tiskal* as its ascending lower half-scale, *Ové-Zich* as its descending lower half-scale, and *Nachtayal* as its upper half-scale.
- *Ové n’en Itan naré Nachtayal* has *Ové* as its ascending upper half-scale, *Itan* as its descending upper half-scale, and *Nachtayal* as its lower half-scale.
- *Marun-Zich-Nachtayal n’en Marun-Itan* has *Marun-Zich* as its ascending lower half-scale, *Nachtayal* as its ascending upper half-scale, *Marun* as its descending lower half-scale, and *Itan* as its descending upper half-scale.

Obviously the number of possible static modes is the same as the number of scales: 168. If any arbitrary pair of scales could be combined to form a dynamic mode, the number of possible dynamic modes would be 168 squared, or 28,224. In fact, there are rules that severely limit what pairings of scales are permitted. Although there are disagreements on exactly what those rules are, no version of the system permits more than a few thousand modes, even in theory. In practice, the great majority of the theoretically permitted modes are never actually used, except perhaps in exercises for students of music theory. The number of modes, including both static and dynamic, that are heard in actual performance on any sort of regular basis is probably less than a hundred (still a very large number compared to the eight modes of Gregorian chant).

¹When referring to material substances, *makan* and *lumyel* mean “solid” and “liquid”, respectively. In mythology, *lumyel* is used to refer to shape-shifting creatures such as werewolves.

Although the two scales of a dynamic mode are referred to as “ascending” and “descending”, this distinction is not always followed without exception. To occasionally use a note of the ascending scale in a descending context, or vice versa, is generally regarded as an acceptable technique for adding color and tension, but one that should not be overused.

F.3. The Tuning System

F.3.1. Pitches and Intervals

The tuning system used in “native” New Atlantean music is based on the system known in Western music theory as Just Intonation. In this system, as in the modern Western system of Equal Temperament, the octave is divided into twelve semitones. However, unlike the semitones of Equal Temperament, these twelve semitones are not all equal; instead, they are adjusted so that every interval can be expressed as an exact ratio of two integers,² and, moreover, that all of these ratios can be derived either directly or indirectly from the natural harmonic series.

[Note: In order to understand the discussion that follows, the reader must understand: (a) that musical pitch corresponds to the frequency of sound waves; (b) that the human perception of pitch is logarithmic rather than arithmetic, so that the interval between two pitches corresponds to the **ratio** between two frequencies rather than to the **difference** between them (for example, the interval of an octave corresponds to a frequency ratio of two to one; that is, two pitches are an octave apart if the frequency of one is twice that of the other); and (c) that in Western music (and perhaps universally across human music cultures), an interval corresponding to a simple ratio (e.g., 3:2, the perfect fifth) is perceived as more consonant (or less dissonant) than one corresponding to a more complex ratio (e.g., 45:32, the tritone or augmented fourth).]

In the New Atlantean tuning system, there are four different semitones:

- *xin*: the small semitone (a ratio of 25/24, or about 71 cents³)
- *zen*: the medium semitone (a ratio of 135/128, or about 92 cents)
- *kon*: the large semitone (a ratio of 16/15, or about 112 cents)
- *konzon*: the extra-large semitone (a ratio of 27/25, or about 133 cents)

These four units are the basic building blocks of the system, combining in various ways to form larger intervals, much as atoms combine to form molecules; for example, two *kon*, one *zen*, and one *xin* add up to a major third. The octave consists of seven *kon*, three *zen*, and two *xin*, or, alternatively, of six *kon*, one *konzon*, two *zen*, and three *xin*. All chromatic semitones are either

²In order to divide the octave into any number of exactly equal intervals, the frequency ratios of all intervals (other than the octave and its multiples) must be irrational numbers – that is, numbers that cannot be expressed as ratios of integers.

³The *cent* is the unit most commonly used in Western music theory for measuring small differences of pitch. It is defined as 1/100 of an equal-tempered semitone, thus 1/1200 of an octave.

xin or *zen*, while all diatonic semitones are either *kon* or *konzon*.

In addition to having four semitones, the system has two whole tones (major seconds):

- *sabé*: the large whole tone (a ratio of $9/8$, or about 204 cents, equal to one *kon* plus one *zen*, or one *konzon* plus one *xin*)
- *bekí*: the small whole tone (a ratio of $10/9$, or about 182 cents, equal to one *kon* plus one *xin*)

The thirteen tones of the metascale (see F.2.2) have the following pitches relative to the tonic:

- *sá* (unison) = $1/1 = 0$ cents
- *bó* (minor second) = $16/15 \sim 112$ cents
- *bé* (major second) = $9/8 \sim 204$ cents
- *bí* (augmented second) = $75/64 \sim 275$ cents
- *kú* (minor third) = $6/5 \sim 316$ cents
- *kí* (major third) = $5/4 \sim 386$ cents
- *nó* (perfect fourth) = $4/3 \sim 498$ cents
- *né* (augmented fourth) = $45/32 \sim 590$ cents
- *tá* (perfect fifth) = $3/2 \sim 702$ cents
- *lú* (minor sixth) = $8/5 \sim 814$ cents
- *lí* (major sixth) = $5/3 \sim 884$ cents
- *gó* (minor seventh) = $9/5 \sim 1018$ cents
- *gé* (major seventh) = $15/8 \sim 1088$ cents
- *sá* (octave) = $2/1 = 1200$ cents

Note that there is one enharmonic pair: the augmented second and the minor third, which differ by the difference between *kon* and *xin*, about 41 cents, or slightly less than an equal-tempered quarter-tone (in contrast to their counterparts in Equal Temperament, which differ only in name and not in pitch). This is why there are thirteen note names when there are only twelve semitones in an octave.

A complication in this system is that the interval between *lí* and *gó* (the major sixth and minor seventh) is the extra-large semitone, *konzon*, an interval which is anomalous because it occurs nowhere else in the system, and which, moreover, is perceived by many as rather ugly, making for a perceptual jolt in what would otherwise be a smooth melodic line. In some schools of performance practice, in scales where *lí* and *gó* co-occur (that is, any scale whose upper half-scale is *Nachtayal*), either *gó* is adjusted downward by a syntonic comma⁴ (from $9/5$ to $16/9$) or *lí* is adjusted upward by the same amount (from $5/3$ to $27/16$), turning the interval between them into an ordinary diatonic semitone, *kon*. Other schools disagree, pointing out that when the melody is played or sung against a drone on the tonic and the fifth (as is the case more often than not), either of these adjustments replaces a very consonant interval (the Just minor third, $6/5$)

⁴The syntonic comma, $81/80$, or about 21.506 cents, is the difference between a Pythagorean major third ($81/64$, four successive perfect fifths minus two octaves) and a just (acoustically pure) major third ($5/4 = 80/64$). It is also, in terms of New Atlantean music, the difference between *xin* and *zen*, or between *kon* and *konzon*.

with a much more dissonant interval (the Pythagorean minor third, $32/27$), either between *gó* and the fifth or between *lí* and the tonic. The issue is essentially one of whether melodic considerations should take precedence over harmonic ones or vice versa. There appear to be no strong theoretical arguments favoring one position over the other, so it ultimately comes down to a matter of subjective individual taste. The adjusted notes have their own names: the raised *lí* and the lowered *gó* are *liré* and *goran*, respectively (formed by combining the note names with *aré* “higher” and *aran* “lower”). (There is also a lowered major second, *beran*, which is never used in any actual scale, but which sometimes occurs as an intermediate step in the tuning of stringed instruments.)

Another complication is that the intervals comprising a half-scale may differ depending on whether it is being used as a lower or an upper half-scale. For example, *Ové* is defined as, in ascending order, two successive major seconds (one large, $9/8$, and the other small, $10/9$) followed by a minor second ($16/15$). When *Ové* occurs as a lower half-scale, the lower of the two major seconds (*sá* to *bé*) is large and the higher one (*bé* to *kî*) is small, but when it occurs as an upper half-scale, the reverse is true: the lower major second (*tá* to *lí*) is small and the higher one (*lí* to *gê*) is large. Either way, the two major seconds add up to a major third, but if they were in the same order in both positions, either the *bé* or the *lí* would be badly out of tune. There are similar anomalies in the other half-scales.

A few New Atlantean music theorists have proposed that these and many similar conundrums could be avoided by using Pythagorean tuning instead of Just Intonation. The Pythagorean system has the same pure fourths and fifths as Just Intonation while avoiding many (though not all) of its complications, but at the price of making certain other intervals – the major third in particular – even more out of tune than they are in Equal Temperament. This proposal has not met with wide acceptance.

The New Atlantean system of note names and melodic modes refers only to relative pitch; it is independent of absolute pitch. Any mode can be placed at any absolute pitch, with *sá* always referring to the tonic of the current mode at the current absolute pitch. Absolute pitches are generally referred to by their modern standard European letter names, based on A = 440 Hz (but deriving other pitches using just intonation rather than equal temperament, so that, for example, middle C is 264 Hz rather than 261.63 Hz). (In the system purportedly used in Old Atlantis, absolute pitches were designated by numbers, but this system is not particularly useful because it is not known what standard reference pitch it was based on.)

F.3.2. Human and Divine Music

The tuning system as it has been described so far is very precise and elegant but rather inconvenient in some ways. It has two particular disadvantages for the study of music theory: (1) it is not always easy, when presented with two numbers expressed as ratios of integers (that is, as fractions), to tell at a glance which one is larger, and by how much; (2) when adding or subtracting intervals represented in this way, it is necessary to multiply or divide the fractions and to reduce the result to the lowest terms, a rather cumbersome process which may require pencil and paper or a calculator. Therefore, an alternative formulation has been developed in which intervals are expressed as single integers rather than as fractions, and in which these integers can be added and subtracted rather than having to be multiplied and divided. The two formulations – which are not different systems for organizing pitch, but rather different ways of describing the same system – are known as *kyóyu varachtecháyú* “divine pitch” and *kyóyu nayazdecháyú* “human pitch”. (The words *varachtecha* “divine; of or pertaining to the gods” and *nayazdecha* “human; of or pertaining to mortal human beings” have acquired the secondary meanings of “perfect, precise, theoretical” and “imperfect, approximate, practical”, respectively.) The system as described above, in which every interval is represented as an exact ratio of two integers, is *kyóyu varachtecháyú*. The alternative system, simpler but less exact, is *kyóyu nayazdecháyú*.

In *kyóyu nayazdecháyú*, the octave is divided into 53 equal intervals called *kyemba*. One *kyemba* is equal to approximately 22.64 cents. A *kyemba* can be thought of as a “generic comma”, since it is roughly halfway between the syntonic comma and the ditonic comma.⁵ Every interval used in the New Atlantean pitch system can be represented, to a reasonably close approximation, as a whole number of *kyemba*. This representation has the disadvantage of not being precise, but this disadvantage is far outweighed, in many contexts, by the advantages of being able to compare two intervals at a glance and of being able to do “pitch arithmetic” by adding and subtracting integers rather than by multiplying and dividing fractions.

Table F.1, on the following page, compares the two kinds of *kyóyu*. Please bear in mind, however, that the two rightmost columns of the table are not meant to be taken literally; they are included only to show how closely *kyóyu nayazdecháyú* approximates *kyóyu varachtecháyú*. In reality, when one refers to an interval as, say, “three *kyemba*”, it is understood that one is speaking in approximations, using the *kyemba* notation as a convenient shorthand for the actual, exact interval.

⁵The ditonic (or Pythagorean) comma, $531441/524288$, or about 23.46 cents, is the difference between twelve acoustically pure perfect fifths and seven octaves. The syntonic comma is defined in footnote 4.

Table F.1. “Divine Pitch” vs. “Human Pitch”

Interval	Note Name	<i>Kyóyu Varachteháyu</i>		<i>Kyóyu Nayazdecháyu</i>		Difference
		Ratio	Cents	<i>Kyemba</i>	Cents	Cents
unison	<i>sá</i>	1:1	0.00	0	0.00	0.00
small semitone	—	25:24	70.67	3	67.92	-2.75
medium semitone	—	135:128	92.18	4	90.57	-1.61
large semitone	<i>bó</i>	16:15	111.73	5	113.21	1.48
extra-large semitone	—	27:25	133.24	6	135.85	2.61
small major 2 nd	<i>beran</i>	10:9	182.40	8	181.13	-1.27
large major 2 nd	<i>bé</i>	9:8	203.91	9	203.77	-0.14
augmented 2 nd	<i>bí</i>	75:64	274.58	12	271.70	-2.88
minor 3 rd	<i>kú</i>	6:5	315.64	14	316.98	1.34
major 3 rd	<i>kí</i>	5:4	386.31	17	384.91	-1.40
perfect 4 th	<i>nó</i>	4:3	498.04	22	498.11	0.07
augmented 4 th	<i>né</i>	45:32	590.22	26	588.68	-1.54
perfect 5 th	<i>tá</i>	3:2	701.96	31	701.89	-0.07
minor 6 th	<i>lú</i>	8:5	813.69	36	815.09	1.4
major 6 th	<i>lí</i>	5:3	884.36	39	883.02	-1.34
adjusted major 6 th	<i>liré</i>	27:16	905.87	40	905.66	-0.21
adjusted minor 7 th	<i>goran</i>	16:9	996.09	44	996.23	0.14
minor 7 th	<i>gó</i>	9:5	1017.60	45	1018.87	1.27
major 7 th	<i>gé</i>	15:8	1088.27	48	1086.79	-1.48
octave	<i>sá</i>	2:1	1200.00	53	1200.00	0.00