The Phonology and Morphology of the
Tanacross Athabaskan Language
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in
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by
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Tanacross koxt’en ’iin gha
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ABS
TRACT

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by

Gary Holton

This dissertation presents a linguistic description of the phonology and morphology of Tanacross Athabaskan, an endangered language spoken by approximately sixty persons in eastern interior Alaska. There is little extant documentation of Tanacross; hence, this description is based primarily on data gathered from first-hand field work.

Tanacross is typical of the Athabaskan family in its typological characteristics. There is a relatively small phonemic inventory, and most of the phonemic contrasts are neutralized outside the stem-syllable onset position. The lexicon is relatively small, consisting of perhaps six thousand distinct morphemes. Noun morphology is relatively straightforward, with few active morphological processes. In contrast, verb structure is extremely complex, consisting of a possibly discontinuous root morpheme together with a string of inflectional and derivational affixes which combine via an elaborate system of non-concatenative templatic morphology. The verb word may stand alone as entire utterance. Members of other minor word classes tend to be monomorphemic.

Tanacross exhibits several unique properties which distinguish it from neighboring Athabaskan languages and invite further study. Tanacross is unique among the Alaska Athabaskan languages in having high tone as the reflex of Proto-Athabaskan constriction. In addition, more than any other tonal language in Alaska Tanacross has preserved segmental information lost via apocope through an elaborate system of compound tone. Tanacross also has many unique phonetic features, including the loss of suffix vowels and the devoicing of stem-initial fricatives. Tanacross morphology reflects its transitional status between the (historically) conservative languages of the lower Tanana river and the innovative languages of the Tanana and Yukon uplands.
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Chapter 1  Introduction

“The Athapaskan languages, in spite of their essential uniformity in phonetic type and morphology, are richly ramified and we need many more dialectic studies than we have yet had in order to understand the group as a whole… [W]e cannot afford to be without the testimony of all or most of the recoverable dialects.” (Sapir ca. 1932)

“The more closely one looks at it, the more enigmatic and challenging the field of Na-Dene proves to be. It seems fitting to conclude with the hope that fieldwork on the languages involved, and the analysis and publication of the fruits thereof, will come in time.” (Krauss 1969)

1.1  Introduction

This dissertation is intended as a phonological and morphological description of Tanacross, an Athabaskan language of eastern Alaska. In spite of a significant amount of research activity in the 1970’s, Tanacross remains one of the most under-documented of the eleven Athabaskan languages of Alaska. It is hoped that this dissertation will represent a first step toward addressing that deficiency.

In many ways the dearth of previous linguistic descriptions of Tanacross is quite understandable, for Tanacross shares many phonological and morphological properties with neighboring languages and with the Athabaskan language family as a whole. Thus many of the observations regarding the structure of Tanacross
sounds and words could be and in many cases have been made for other Athabaskan languages. Still, given the endangered status of the language, documenting those similarities with other Athabaskan languages should be considered every bit as important as documenting the differences. And there are plenty of the latter. Moreover, these differences in structure and function are all the more interesting in light of the high degree of structural homogeneity across the Athabaskan family. Bearing this point in mind I will present a description of Tanacross which draws heavily on comparative information, noting differences and similarities between Tanacross and neighboring languages where appropriate.

Unfortunately, due to constraints of time and space I have had to limit the coverage here to phonology and morphology, and even those areas are inadequately covered. The phonological description is limited to a cursory phonemic analysis and a phonetic description of those phonemes and their allophones. This is supplemented to some extent by instrumental analysis. I have described the tone system in some detail but only touched on the interaction between tone and intonation. The morphological description is limited largely to a discussion of the word-internal configuration of nouns and verbs. Some other minor word classes are discussed briefly, but syntactic issues are not directly addressed. Beyond phonology and morphology there are of course many more important areas of Tanacross grammar which must await future research.
1.2 The linguistic setting

The word Tanacross has been used to refer both to a village in eastern Alaska and to an ethnolinguistic group. The modern village of Tanacross is accessible by a short access road from the Alaska Highway, and some speakers now reside in the regional center of Tok, located approximately ten miles east of the village on the highway. In addition several speakers now reside in the nearest commercial center of Fairbanks, located two hundred miles downstream from Tanacross village and accessible by all-weather highway. Unless otherwise modified, I use the term Tanacross to refer to a language.²

Figure 1.1: The Northern Athabaskan languages (after Krauss & Golla 1981)

Tanacross is the ancestral language of the Mansfield-Ketchumstuk and Healy Lake-Joseph Village bands of Athabaskan people, whose ancestral territory
encompassed an area bounded by the Goodpaster River to the west, the Alaska Range to the south, the Fortymile and Tok Rivers to the east, and the Yukon Uplands to the north.

Figure 1.2: Map of the Tanacross linguistic region (after de Laguna & McClellan 1960)
In the late nineteenth century trading posts were established at Tanana Crossing, a ford along the Eagle Trail, directly across the Tanana River from the present-day village of Tanacross. A telegraph station followed in 1902, and an Episcopal mission in 1909. Both the Mansfield-Ketchumstuk and Healy Lake-Joseph Village bands eventually settled in Tanana Crossing, eventually shortened to Tanacross (McKennen 1959). The village was relocated across the river to its present location in the early 1970’s, and most present-day Tanacross speakers live in or near the village of Tanacross.

The name Tanacross has only recently been applied to the language and still has limited currency outside academic circles. Many other logonyms have been used. Wrangell’s 1839 wordlist refers to the language as the “Copper River Kolchan”, though Wrangell certainly had no notion of the linguistic geography of the Tanacross region. The first extensive ethnographic research in the area was conducted by McKennen in 1929-30, who excludes Tanacross from his map of what he labels as the Upper Tanana region (1959: 16). However, McKennen later appears to lump Tanacross and Upper Tanana together under the label Upper Tanana, noting:

“In considering the Tanana River as a whole, however, the [Tanana] Crossing and Upper Tanana natives should be lumped together, for between the Crossing and Healy River occur a whole series of rapids which today make navigation exceedingly dangerous and in earlier days practically prevented it.” (23)
McKennan mistakenly assumes that the Tanana River was a major transportation corridor, when in fact the various Tanacross bands have never had a true riverine culture, having only settled on the Tanana River in the twentieth century. The rapids referred to by McKennan serve as a barrier to salmon migration and remove a major incentive for river settlement (de Laguna & McClellan 1960). In contrast, land travel in this region is relatively easy, and extensive networks of trails connect the villages of the Tanacross region. Many of these trails are still used for hunting access. And at least until the construction of the Alaska Highway in 1942, foot and sled travel between Healy Lake, Mansfield and Ketchumstuk was extremely common (Ellen Demit, p.c.).

Osgood (1936) uses the term Tanana for the entire region of the Tanana River drainage below the Tok River to the confluence of the Tanana and Yukon rivers. Shinen (1958), who recorded a word list from Mary Charlie and Oscar Isaac in Tanacross village, refers to the language as the “Nabesna dialect”, and Shinen’s term was repeated in Hoijer (1963). Nabesna was actually Osgood’s preferred term for Upper Tanana, so Shinen appears to have followed McKennan in lumping Tanacross and Upper Tanana together but adopted Osgood’s logonym. Shinen’s list is clearly of Tanacross, not Upper Tanana origin. De Laguna & McClellan (1960) use the term Tanacross language, but only in a restricted sense referring to the language of Tanacross village proper. Krauss originally included
Tanacross with Lower Tanana, but after a more extensive linguistic survey of the region in the 1960’s, he began using the term “Transitional Tanana”, recognizing the distinction between Tanacross and the remainder of Tanana (Krauss, p.c.). As the significance of this distinction grew to justify a language rather than dialect boundary, the name Tanacross was applied to the Tanacross linguistic region, appearing for example in Krauss’ 1973 survey of the Athabaskan languages. The preferred self-designation for the language is simply “Indian”, though “Native Language” is sometimes used in more formal contexts. The term “Athabaskan” is disliked. The indigenous word neʔaneg, usually translated as ‘our language’, is also sometimes heard, though this is likely a neologism.

Tanacross is part of a large language/dialect complex, and the Tanacross linguistic region is bordered by several other closely related Athabaskan languages. To the northwest is Han, spoken in Eagle and across the Canadian border in Dawson and Moosehide. To the east is the language known by the geographic term Upper Tanana, spoken in the villages of Tetlin, Northway, Scottie Creek, Beaver Creek, and (formerly) Chisana. Tanacross and Upper Tanana share a high degree of mutual intelligibility, though the tonal patterns (with the exception of the Tetlin dialect, which is apparently toneless) are reversed. To the south near the headwaters of the Copper River in Mentasta is the Ahtna language. The Mentasta dialect of Ahtna is the most divergent of the four
main Ahtna dialects and shares many lexical and phonological features with Tanacross rather than with the other Ahtna dialects. McKennan remarks:

“The Tanana Crossing people have always been in much closer contact with the Indians of Copper River, the valley of the Tok [River] leading to the easy Mentasta Pass and thence down Slana River to the Copper. The Upper Tanana natives maintain that the Crossing dialect is much more similar to that of the Copper River than is their own.” (23)

Until very recently Lower Tanana was spoken at Salcha (Saagescheeg), just west of the Tanacross language area near the mouth of the Salcha river. As might be expected, Salcha shares many features with Healy Lake, the westernmost dialect of Tanacross, though the two are readily distinguished as separate languages (in particular by the presence of high marked tone in Healy Lake). With the passing of the Salcha dialect, the nearest Lower Tanana villages are located more than one hundred miles downstream at Nenana and Minto, and the linguistic boundary between Lower Tanana is now even more distinct.

The Tanacross linguistic region is geographically small by Alaska Athabaskan standards and hence contains little dialectal variation. A small number of phonological features distinguish two major dialects. The Mansfield-Ketchumstuk (MK) dialect of Tanacross was formerly spoken at Mansfield Lake (diθɔ̃dɔ́ʔ) and Ketchumstuk, until those bands combined and later moved to Tanacross village. This is the dialect spoken in Tanacross village and the dialect upon which this study is based. Unless indicated otherwise reference to Tanacross
language should be assumed to mean the MK dialect. A second dialect of Tanacross is spoken at Healy Lake and Dot Lake to the west, and formerly at Joseph Village, and is linguistically distinguished by the retention of schwa suffixes (Krauss 1973a). I refer to this as the Healy Lake (HL) dialect. All HL data are clearly indicated in this study; all other data are from the MK dialect.

1.3 Viability

As with all of the Athabaskan languages of Alaska, Tanacross is extremely endangered. Although most children have passive understanding of simple commands and phrases, most fluent speakers of Tanacross are at least fifty years old. Only among the oldest speakers is Tanacross the language of daily communication. Based on the age of the youngest speakers, Krauss (1997) estimates 65 speakers out of a total population of 220. In spite of the relatively small number of speakers, the percentage of speakers out of the total population is quite high for an Alaska Athabaskan language. Outside Tanacross village proper the percentage is much lower. Although 1990 census figures place the combined populations of Dot Lake and Healy Lake at 117, Kari (p.c.) estimates fewer than four speakers at Healy Lake and perhaps two or three at Dot Lake.

In spite of its small size (population 104) and proximity to predominantly non-native community of Tok, Tanacross maintains its own school, where
Tanacross literacy is sometimes taught. In addition, most households in the village contain at least one fluent Tanacross speaker.

Recently there has been an increase in interest in language revitalization, particularly among middle aged adults. A Tanacross Language Workshop was conducted in 1990, and several training sessions were held at the Yukon Native Language Centre in Whitehorse throughout the 1990’s. These training sessions resulted in Native Language teaching certification for at least one speaker. Tanacross language classes are planned at the University of Alaska regional center in Tok.

1.4 Genetic affiliation
Tanacross is a member of the Athabaskan family of languages, a well-established genetic grouping whose members occupy three discontinuous areas of North America: the Northern group in northwestern Canada and Alaska, the Pacific Coast in northern California, Oregon, and southern Washington, and the Apachean group in the desert southwest of the continental United States. The seven Apachean languages include Navajo, the largest North American language in terms of number of speakers. Apachean is a very tightly related and well-defined branch (Hoijer 1938). The Pacific Coast group is much less closely related than Apachean and is perhaps more of a geographic subgroup containing perhaps six languages. Of these only Tolowa and Hupa are still spoken today, and
these only by a handful of speakers. Of the roughly 24 Northern Athabaskan languages, eleven are spoken in Alaska, three of which straddle the border with Canada.

The Northern Athabaskan languages comprise a largely contiguous geographic subgroup whose member languages are spread over a wide area, stretching north nearly to the Arctic Ocean, east to Hudson Bay, and south to approximately the 50th parallel. The Athabaskan languages and coastal Alaskan languages Eyak and Tlingit together form the Athabaskan-Eyak-Tlingit (AET) family.

Figure 1.3: Subgrouping of Athabaskan-Eyak-Tlingit
Sapir (1915) originally proposed including Athabaskan, Tlingit and Haida within a super-family called Na-Dene (Eyak data had been forgotten at the time); however, Sapir’s Na-Dene proposal has been fiercely debated ever since (see Krauss 1973b; Pinnow 1976; Dürr & Renner 1995 for summaries of the debate). Arguments for a genetic relationship with Haida are based primarily on morphological similarity rather than regular sound correspondences. Since the work of Levine (1979) the relationship between Haida and Athabaskan-Eyak-Tlingit is very much in doubt. In contrast, ongoing work by Jeff Leer is showing the link with Tlingit to be much stronger than once believed.

Given the available data, it is difficult to discern linguistic subgroups within Northern Athabaskan. Hoijer’s (1963) tentative classification proposes seven Northern subgroups, but this classification is severely criticized by Krauss (1973b) for its reliance on very limited data and correspondences between stem-initial consonants. Rice’s classification in Goddard (1996) brings more data and improved methodology but still requires an untenable assumption of clear boundaries between languages. Krauss & Golla (1981) maintain that the family-tree model is not appropriate to the subclassification of Northern Athabaskan:
“[I]ntergroup communication has ordinarily been constant, and no Northern Athapaskan language or dialect was ever completely isolated from the others for long. The most important differences among Athapaskan languages are generally the result of areal diffusion of separate innovations from different points of origin, each language—each community—being a unique conglomerate.” (63)

The is certainly true for the languages of the Tanana River drainages, which form a continuum extending from Lower Tanana in the west (downriver) to Upper Tanana in the east (upriver). Tanacross itself was not defined as a distinct language until the late 1960’s (Krauss 1973a). The dialectology of this area has not been completely unraveled, but it is clear that Tanacross of course shares many features with neighboring languages and dialects, especially the Mentasta dialect of Ahtna, the (now extinct) Salcha dialect of Lower Tanana, the Tetlin dialect of Upper Tanana, and the Han language.

However, Tanacross is distinguished most dramatically from neighboring languages by the development of Proto-Athabaskan (PA) constricted vowels into high tone. In contrast, Lower Tanana, Han and Upper Tanana developed low tone, while Ahtna either did not develop or lost tone. The Tanacross tone system remains active in the phonology and morphology of the language. Tanacross shares close linguistic, geographical and social ties with Upper Tanana to the east. In fact, the close social ties which have bound Tanacross with other groups in the upper Tanana drainage area argue for the definition of a Tanana Uplands language and culture area. This area would include all groups which have regularly
participated in potlatch ceremonies with Tanacross, including the Upper Tanana of Tetlin, Northway and Beaver Creek; the Han of the vicinity of Eagle, Alaska and Dawson, Yukon; and the Mentasta Ahtna of the Mentasta area. By including Mentasta, I explicitly recognize that it is not accidental that Mentasta is the most divergent dialect of Ahtna and shares many linguistic features with Tanacross and Upper Tanana. Due to extensive multilingualism within the Tanana Uplands area, any study of Tanacross must account for the larger socio-linguistic framework within which Tanacross is embedded.

1.5 Previous research

In addition to the strictly linguistic resources to be discussed below, Isaac (1988) and Simeone (1995) provide important cultural background on the Tanacross community. The former is an oral history told by Chief Andrew Isaac, the last traditional chief of Tanacross. Though much of the text has been translated into English, the translation maintains much of the speech style of the original Tanacross language. The text contains many references to Tanacross flora and fauna, as well as cultural items. Simeone’s book is an ethnographic sketch written by an Episcopal lay worker who spent much of the 1970’s living in Tanacross village. Ethnographies of the eastern Alaska Athabaskan region, though not specific to Tanacross, can be found in McKennan (1959) and Andrews (1975). De
Laguna & McClellan’s (1960) field notes also contain extensive ethnographic information.

### 1.5.1 Athabaskan linguistics

An enormous body of literature has been devoted to both description and theoretical analysis of Athabaskan languages. Here I will mention only some of the seminal works and those which will have direct bearing on this dissertation.

Modern study of Athabaskan begins with the work of Edward Sapir, whose Athabaskan career arose from a casual encounter with Chasta Costa in 1906, when Sapir was age 22 (Krauss 1986). Sapir went on to conduct first-hand fieldwork in Tsuut’ina, Deg Xinag, Gwich’in, Hupa and Navajo, while also engaging in comparative work. Other notable early work was conducted by two of Sapir’s students, Li and Hoijer (Chipewyan and Apachean, respectively) and by two missionary linguists, Father Jetté on Koyukon (Jetté 1906) and Father Morice on Carrier (Morice 1932). Major grammars have been published recently for Navajo (Young & Morgan 1987), Sarcee (Cook 1984), Hupa (Golla 1970), and Slave (Rice 1989), making Rice’s work highly relevant to the description of Tanacross here.

There is a substantial body of northern Athabaskan literature which is relevant to the current work. Rice’s (1989) massive grammar of Slave devotes more than five hundred pages to the description of verbal morphology. In addition
to published works, a number of dissertations deal with the topic of Athabaskan verbal morphology. Most notable is Tenenbaum’s (1978) study of Nondalton Tanaina. Though somewhat more theory-internal, Randoja’s (1990) analysis of Beaver, and McDonough’s (1990) analysis of Navajo also provide (indirect) insights into morphological function. Both Axelrod (1990a; 1993) and Thompson (1977) contain excellent sketches of Koyukon verbal morphology.

Within Alaska, linguistic documentation began in earnest in the 1960’s with the work of Michael Krauss, joined in 1972 by Jeff Leer and Jim Kari with the formation of the Alaska Native Language Center (ANLC). Krauss and the ANLC staff have compiled a large body of published and unpublished documentation on all eleven Alaska Athabaskan languages, ranging from short wordlists to detailed comparative studies. Especially relevant to the current study are Krauss’ monograph on Athabaskan tone (1979), Kari’s Ahtna dictionary (1990) and Eliza Jones’ Koyukon dictionary (Jones & Jéte 2000).

1.5.2 Tanacross linguistics

As noted by Krauss & Golla (1981), the earliest written record by far of the Tanacross language is the “Copper River Kolchan” vocabulary recorded in Wrangell (1839). This list was probably collected at Nuchek in Prince William Sound, but its character is unmistakably Tanacross. Another short (three typescript pages) word list was collected by J.T. Geoghegan (Geoghegan &
Geoghegan 1904). David Shinen (1958) compiled a somewhat longer Tanacross word list from Mary Charlie and Oscar Isaac in Tanacross village, and a portion of this list was later published under the heading “Nabesna” in Hoijer (1963). More substantive documentation of Tanacross began with exploratory fieldwork by Krauss, who first called it “transitional Tanana” (1962). In the early 1970’s Nancy McRoy compiled some textual materials with speaker Mary Charlie (Charlie & McRoy 1972) and a short wordlist containing about 400 items, mostly nouns (McRoy 1973), as well as some basic literacy materials. In the late 1970’s and early 1980’s, Jeff Leer compiled further notes on grammatical paradigms (1982a) and phonological features (1977; 1982b), including the three-way fricative voicing contrast. Marilyn Paul (1978) presents some notes compiled from a class taught by Leer at ANLC. Ron Scollon transcribed and translated a collection of texts from speaker Gaither Paul (G. Paul 1980) using a revised orthography which indicates tone. Kari has compiled a preliminary stem list (1991b) based on information collected from several speakers in the 1980’s, but tone is not marked. Alice Brean has compiled lexical and paradigmatic information (1991). Minoura (1991; 1994) has compiled a short word list and information on tone. In spite of the various sources of lexical documentation, Krauss (p.c.) estimates than only twenty percent of the extant body of lexical information has been documented by linguists.
Recent work on Tanacross has been spearheaded by John Ritter of the Yukon Native Language Center (YNLC) during the past decade. Ritter began a comprehensive study of Tanacross phonology in the early 1990’s and developed a practical orthography. Tanacross speakers Irene Solomon and Jerry Isaac have participated in literacy workshops in Tok, Whitehorse and Dawson City, resulting in the production of literacy materials with accompanying cassette tapes (Solomon 1994, 1996; J. Isaac 1997). Solomon & Ritter (1997) provides crucial data for the description of tone phenomena. Additional sound recordings and field notes are available at YNLC. These YNLC materials provide the most rigorous treatment of tonology (tonal morphology) in Tanacross.

1.6 Methodology

Some parts of this description of Tanacross structure apply equally well to other Athabaskan languages, in particular Alaska Athabaskan. Other parts, such as the description of the rich synchronic tone system, are unique to Tanacross.

This description of the Tanacross language is based primarily on data from ongoing field work with speakers of the Tanacross language since 1997. Unless otherwise indicated, examples presented here represent forms which are generally acceptable to most members of the speech community rather than restricted to a particular idiolect. As with any language, there will inevitably be some disagreement as to pronunciation of particular words. No two people speak
exactly alike or use exactly the same pronunciations. In citing Tanacross words and phrases here I do not intend any prescriptive notion of what is right or correct. My only claim is that these examples would be judged acceptable to a majority of the speech community. Many Tanacross speakers were consulted in this study. These include Laura Sanford, Kenneth Thomas, Jerry Isaac, Irene Solomon, Larry Jonathan, Ellen Demit, and many others (see Acknowledgements above).

Field work was conducted in English. Most of the speakers with whom I consulted were raised for at least part of their youth speaking Tanacross but learned English at an early age. Among those I consulted, the latest age at which acquisition of English began was thirteen years. Both elicitation and narration were used to gather Tanacross data.

Data from my own field work is supplemented with information from previous researchers (Kari 1991a, 1991b; Krauss 1962; Leer 1977, 1982a; McRoy 1973; Minoura 1991; Solomon 1994, 1996, 1997). In most cases I have been able to confirm this data through my own field work. Data on the Healy Lake dialect derives entirely from Krauss (1962).

1.7 Organization of this dissertation
This dissertation can be divided into two primary parts: the first deals with the sound system; the second with morphology. However, it is impossible to make a
clean separation between these two parts due to the intricate interaction between Tanacross phonology and morphology. Some morphological features, such as the voicing of stem-initial fricatives in possessed nouns, must necessarily be discussed with the description of fricatives in the chapter on segmental phonology. Similarly, the modification of stem tones in possessed nouns must be referred to in the chapter on tone. I make no apologies for this non-linearity of presentation; it reflects an inherent feature of the Tanacross languages.

In chapter 2 I describe the segmental phonological properties of the sound system, including the phonemic inventory. In chapter 3 I describe phonetic properties, in particular the results of instrumental analyses of laryngeal features of consonant and vowel phonation. Chapter 4 describes nominal morphology. Chapter 5 describes verbal morphology and is much longer than other chapters due to the relative complexity of the Tanacross verb. Finally, various minor word classes such as pronouns, postpositions, adverbs, particles, conjunctions, adjectives, and directionals are discussed in chapter 6. Four appendices are included containing a discussion of the Tanacross practical orthography; a list of mode-subject-classifier paradigms for Tanacross verbs; a sample text with interlinear glosses; and a selected vocabulary list.
Notes to chapter 1

1 The term Athabaskan has a variety of spellings, each with concomitant political implications. The two most common spellings in Alaska are “Athabascan”, used by the Tanana Chiefs Conference, a regional Native organization, and “Athabaskan”, used by the Alaska Native Language Center. I have standardized to the latter spelling in this document. The term itself is of Cree origin and was applied arbitrarily by Gallatin (1836) after an early survey of the languages (cf. Krauss 1987).

2 Within Alaska, the term Tanacross Athabaskan is used to refer to the Tanacross language, while the unmodified term Tanacross is used to refer to the village. When used without further modification in this paper, I always intend the term Tanacross to refer to the language.

3 There is potential confusion between the term Upper Tanana used to denote a language name and upper Tanana, used to denote the geographic region surrounding the upper section of the Tanana river. Where not ambiguous, I will use lower case “upper” to refer to the geographic area.

4 Several excellent Athabaskan bibliographies have appeared recently. The most recent can be found in Mithun (1999), which contains an extensive list of materials published through 1998. Rice (1995) contains a selected bibliography, organized by topic. Three recent collections of papers also contain good bibliographies (Cook & Rice 1989; Jelinek et al. 1996; Fernald & Platero 2000). Note that the Alaska Native Language Center maintains an extensive collection containing nearly all published and unpublished Athabaskan materials, including field notes, paper drafts, and manuscripts. Though now somewhat outdated, Krauss and McGary (1980) represents an annotated catalog of that collection.

5 For an excellent discussion of Sapir’s contribution to Athabaskan linguistics, see Krauss (1986), which also contains an annotated bibliography of Sapir’s Athabaskan work.
Chapter 2  Phonology

In this chapter I describe the segmental phonological properties of the Tanacross sound system. Phonetic properties are described in chapter 3. The analysis presented here is couched within the framework of traditional generative phonology, though the emphasis is much more focused on describing the Tanacross phonological system than framing this system within current theoretical models. Due to the relative homogeneity of Athabaskan sound systems, the phonemic analysis draws not only on Tanacross data but also on previous work in other Athabaskan languages and comparative Athabaskan (Krauss 1964, 1969; Krauss & Golla 1981; Krauss & Leer 1981).

I have attempted to employ standard symbols to distinguish phonemic, phonetic and orthographic transcriptions. Transcriptions enclosed in forward slashes are intended as phonemic transcriptions, while those in square brackets are intended to be phonetic. However, the latter type vary as to the amount of phonetic detail which is present. This should be clear from the context of the particular examples. Orthographic transcriptions, such as those which refer to a secondary source, are usually enclosed in angle brackets. Transcriptions which are not otherwise marked can be considered phonemic. A discussion of the
differences between the Tanacross practical orthography and the phonemic system used here can be found in Appendix A.

2.1 Consonants

The Tanacross consonant inventory shares many properties with that of other Athabaskan languages. There is a three-way distinction between unaspirated, aspirated and ejective stops and affricatives in several places of articulation. Fricatives occur in the same places of articulation as the affricates and additionally in the velar position. Fricatives may occur either voiceless or voiced. In stem-initial position, voiced fricatives occur ‘semi-voiced’. The category of sonorant includes both nasal stops and approximants. Sonorants occur in a much more limited number of places of articulation. The complete phonemic inventory of Tanacross consonants is shown in Table 2.1. Following Athabaskanist conventions, unaspirated stops and affricates are written using the symbol for the corresponding voiced stops, while aspirated stops and affricates are written using the symbol for the corresponding voiceless stops. Thus, the series /d, t, t’/ corresponds to phonetic [t, tʰ, t’] in syllable-onset position. Elsewhere, the series /d, t/ corresponds to phonetic [d, t] (ejectives occur only in onset position). The Americanist symbols /s, ž, č, j, y/ are used to represent palatal consonants [ʃ, ʒ, š, ř, j] respectively.
Table 2.1: Tanacross consonant inventory

<table>
<thead>
<tr>
<th>Obstruents</th>
<th>Unaspirated</th>
<th>d</th>
<th>dz</th>
<th>dl</th>
<th>dθ</th>
<th>j</th>
<th>g</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirated</td>
<td>t</td>
<td>ts</td>
<td>tl</td>
<td>tθ</td>
<td>č</td>
<td>k</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ejective</td>
<td>t’</td>
<td>ts’</td>
<td>tl’</td>
<td>tθ’</td>
<td>č’</td>
<td>k’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td>Voiceless</td>
<td>s</td>
<td>l</td>
<td>θ</td>
<td>š</td>
<td>x</td>
<td>h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Voiced</td>
<td>z</td>
<td>l</td>
<td>δ</td>
<td>ž</td>
<td>y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sonorants</td>
<td>Voiceless</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td>ŋ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Voiced</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td>y</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The classification as to manner of articulation shown above is based on phonological patterning rather than phonetics. Stops and affricates are classified together as obstruents because they pattern together in having a three-way distinction in laryngeal setting. And some phonetic approximants pattern with fricatives in terms of the distribution of voicing.

### 2.1.1 Evolution of the Tanacross Consonant System

Among the Athabaskan languages mergers, splits and shifts of stops and affricates occur as series of consonants sharing the same place of articulation. For example, in Tanacross the entire PA *č* and *čʷ* series have merged to a ts series. That is, PA *j* and *jʷ* have merged to dz; PA *č* and *čʷ* have merged to ts; and PA *č’* and *čʷ’* have merged to ts’. The remaining PA stop and affricate distinctions are essentially preserved. The PA *ts* series has shifted to tθ. The PA velar series *k* has been fronted to č, and the PA uvular *q* series has been slightly fronted to [k].
The PA alveolar lateral affricate series is preserved. The glottal stop patterns with the voiceless unaspirated stops in that it may occur in both onset or coda position in prefixes and stems. The merger of the PA *č and *čʰ series is a characteristic which Tanacross shares with Upper Tanana and Ahtna but not with languages to the north and west (including Han, Gwich’in, and Lower Tanana), which preserve the PA *čʰ series as retroflex palatal consonants.

2.1.2 Coda voicing distinctions

In this section I discuss the nature of the voicing distinction in stem syllable codas. There are two important and related remarks to be made in this regard, the first regarding the phonetic nature of the voicing distinction and the second regarding the synchronic and diachronic morphological source of the distinction. These issues are discussed in more detail in the following sections, but I provide a unified summary here.

While the precise phonetic characterization of voiced coda consonants in stem syllables varies with manner of articulation, all voiced coda consonants in stem syllables can be characterized as having a released articulation. And in all cases, phonologically voiced codas are fully voiced phonetically. In contrast, phonologically voiceless codas are phonetically voiceless and aspiration is not contrastive. Thus [let], [letʰ], and [let´] are all acceptable pronunciations of /let/ ‘smoke’.
The most striking feature of the voiced coda consonants is that the voicing may continue slightly beyond the release of the consonant, yielding a short vocalic segment following the consonant. The duration of this vocalic segment is considerably longer following stop consonants (/d/ and /g/) than following affricates and fricatives. Voiced affricates and fricatives are longer in duration than their voiceless counterparts. In addition, the extent of the voicing following stop release varies considerably across speakers. Krauss’ (1962) early work with the Healy Lake dialect reports a very clear vowel following voiced coda stops. This effect is less apparent in modern speakers of the Mansfield dialect. I do not have sufficient data to examine the degree to which this difference in the phonetic quality coda stops is in fact a dialectal feature.

In this dissertation I have chosen to analyze the vocalic segment following voiced coda consonants as a subphonemic phonetic feature of phonologically voiced stops. This analysis follows current practices for other Athabaskan languages (cf. Sharon Hargus & Tuttle 1997), but as noted by Krauss (p.c.) it has the disadvantage of obscuring some important synchronic and diachronic suffixation processes.

To a large extent the voicing contrast in stem-syllable coda consonants is morphologically predictable. In the simplest case, consonants are voiced preceding a vocalic suffix—in particular the possessive suffix -ɛʔ and the
nominalizing suffix -e—and voiceless elsewhere. The suffix vowel is absorbed into the stem syllable, triggering voicing of the coda consonant. This is exemplified below.

(2.1) Realization of voiced coda consonants

\[
\begin{align*}
/\text{let}/ + /\text{e}/ \rightarrow /-\text{lêd}/ & \quad [-\text{lêd}?], [-\text{lêd}^\#?] \quad \text{‘smoke’ (possessed)} \\
/\text{mîrl}/ + /\text{e}/ \rightarrow /-\text{mîrl}/ & \quad [-\text{mîrl}?], [-\text{mîrl}^\#?] \quad \text{‘snare’ (possessed)} \\
/\text{kôn}/ + /\text{e}/ \rightarrow /-\text{kôn}/ & \quad [-\text{kôn}?] \quad \text{‘matches’ (possessed)}
\end{align*}
\]

In cases where the coda consonant has no voiced counterpart the behavior of the suffix vowel is somewhat different. For example, following a glottal stop the vowel of the vocalic suffix is retained and harmonizes with the stem vowel.²

(2.2) Retention of suffix vowel following glottal stop

\[
/\text{sîî}/ + /\text{e}/ \rightarrow /-\text{sîî}?/ \quad [-\text{sîî}^?] \quad \text{‘food’ (possessed)}
\]

Clearly these two cases are entirely parallel in the morphology of the language, though they receive somewhat different treatment under this analysis.

There is an additional historical dimension to the voicing contrast. Many Tanacross words containing voiced stem-syllable codas are not followed by a synchronic suffix but are reflexes of forms containing a final vowel. This yields final voicing contrasts such as that between \textit{mey} ‘lake’ < PA *\textit{wən}, and \textit{nun} ‘animal’ < PA *\textit{nunə}. The Tanacross voicing contrast clearly derives from a PA contrast between suffixed and unsuffixed forms. This original contrast is potentially obscured by the analysis here. It would of course be equally possible
to instead analyze the coda voicing contrast as a subphonemic feature. Thus, [denfrq] ‘moose’ could be analyzed as having the underlying form /denرفه/ rather than /denرف/ (note the sequence [nd] is here phonemically /n/). Under this alternate analysis word-final consonants are phonetically voiceless. While this alternate approach might simplify some of the a morphological analysis, I have not adopted this approach in this dissertation.

Finally, note that the voicing distinction also arises in prefix codas, though here the phonemic status of the contrast is more clear. Voiced prefix coda consonants are phonetically similar to voiced stem coda consonants. However, prefix coda consonants may occur voiceless even when followed by a voiced segment. For example, the velar of the human plural prefix x- syllabifies as a coda in [xa_nittel] ‘they turned around’ yet remains voiceless.

In the next three subsections I describe stops/affricates, fricatives, and sonorants in turn.

2.1.3 Stops and affricates
As in other Athabaskan languages, the Tanacross stop and affricate inventory is dominated by a large number of obstruent places of articulation, each of which may have one of three distinct laryngeal specifications and airstream mechanisms: unaspirated, aspirated, and ejective. The full contrast between unaspirated, aspirated and ejective occurs only in syllable-onset position.
Tanacross ejective consonants do not occur in Tanacross coda syllables, unlike in other Athabaskan languages such as neighboring Ahtna. Thus in coda position only a two-way contrast in phonation of stops and affricates is possible, which is realized phonetically as a voiceless vs. voiced distinction in coda position. The alternation between voiced and voiceless obstruents is to a large degree morphologically conditioned.

2.1.3.1 Stop/affricate series
With the exception of the glottal stop, Tanacross stops and affricates occur in series contrasting unaspirated, aspirated and ejective consonants for each place of articulation. One of the most striking features of the Tanacross consonant inventory is the large number of affricates, all of which may be analyzed as complex segments consisting of a temporal transition which begins from an alveolar place of articulation. To each fricative series other than the velar, there is a corresponding alveolar affricate series released into a fricative with the same place of articulation. This statement could apply equally well to the velar series since the pulmonic velar stops are essentially affricates, i.e., [kʰ] and [gʰ]. Affricate series are thus distinguished by the place of articulation of the fricative portion of the affricate.

Only in the alveolar position is there a contrast between stops and affricates in the same nominal place of articulation. These series differ only
slightly in their articulation. In addition to apical alveolar stop without affrication, there are affricate series corresponding to both laminal and lateral releases.

Examples contrasting unaspirated, aspirated and ejective alveolar stops (2.3), alveolar affricates (2.4), and lateral affricates (2.5) are given below.

(2.3) (Apical) alveolar stops

/dâ/    ‘should’ (DEONTIC PARTICLE)
/tah/    ‘among’
/t’ah/   ‘wing’

(2.4) (Laminal) alveolar affricates

/-dzi/   ‘hearing’
/ts’rθ/   ‘otter’
/ts’iʔ/   ‘to, toward’

(2.5) Lateral (alveolar) affricates

/dlēg/    ‘squirrel’
/-tlēʔ/    ‘friend’
/tl’url/   ‘rope’

In addition to these alveolar stops and affricates from original PA stops and affricates there is also a prenasalized, fully voiced prenasalized alveolar stop ["d] which occurs as an allophone of /n/. This phoneme is discussed with the sonorants in section 2.1.5.1.1 below.

Examples of laminal dental affricates are given below.

(2.6) Dental affricates

/dēl/    ‘mountain’
/tθe‘/    ‘rock’
/tθ’éx/   ‘sinew’
(2.7) Palatal affricates

/jirz/ ‘camprobber (Perisoreous canadensis)’
/çuł/ ‘down feathers’
/ćox/ ‘quill’

Stem-initial unaspirated dental affricates are quite rare. The first example in (2.6) is one of a very few such forms. In stem-final position laminal dental affricates contrast in voicing rather than aspiration and may vary freely with dental fricatives.

(2.8) Stem-final dental affricates varying with fricatives

/eţhžátθ/ [eţhʃáθ], [eţhšáθ] ‘it’s snowing’
/ndáťθ/ [ŋtátθ], [ŋtáθ] ‘it’s heavy’

In coda position unaspirated obstruents are phonetically voiced and released. As discussed in section 2.1.2 above the voicing may continue beyond the release of the stop.

(2.9) Voicing contrasts in coda stop consonants

/leť/ [lɛt] ‘smoke’
/mlɛdʔ/ [uɭɛdʔ] ‘its smoke’
/k`ød/ [k`ɒd] ‘enough’

The velar series is the only Tanacross obstruent series which does not have an alveolar component. Velar stops are slightly backed following low back vowels, though this level of phonetic detail is usually not transcribed here.

(2.10) Backing of velar stops

/k`i/ → [k`i] ‘birch’
/gəʔ/ → [əʔ] ‘small’
In syllable-onset position velar stops tend to be heavily affricated. This affrication
is not phonemic, as there is no contrast between stops and affricates in velar place
of articulation. In spite of the presence of affrication with velar stops there is still
a clear contrast between stem-initial velar stops and fricatives.

(2.11) Contrast between stem-initial velar stops and fricatives

/kah/  [kʰah]  ‘for’
/xah/  [xah]  ‘goose’

Affrication of stem-initial velar stops also occurs in neighboring Upper Tanana
(Minoura 1994: 166).

2.1.3.2  Glottal stop

Glottal stop differs from the other stops/affricates in that it does not occur as part
of a series. I classify it with the unaspirated stops based primarily on its
distribution. Glottal stop may occur in both onset and coda position of stem
syllables. The glottal stop is also the only segment which may occur as the second
member of a complex coda. Glottal stop does not occur as the first member of a
complex coda.

(2.12) Phonemic glottal stop in stem onsets and codas

/nekʔəh/  ‘I see it’
/tsáʔ/  ‘beaver’
/ʃlʊʔ/  ‘my fish’

In prefix syllables the glottal stop may occur in onset or coda position.
(2.13) Phonemic glottal stop in prefix codas

/ ké?díʔaʔy/  ‘ladder’ (cf. kéʔ ‘foot’)

Glottal stop is regularly inserted before vowel-initial words. This rule of glottal stop insertion applies only to underlingly vocalic segments and not to vocalic allophones such as the vocalic reflex [u-] of the third-person singular possessive prefix /m-/ (see section 2.1.5.1 below). Thus it is possible to have a phonetic contrast between a word-initial sequence of glottal stop plus vowel on the one hand, and vowel-initial word on the other.4

(2.14) Contrast between initial vowels with and without glottal stop

/ ukah/  [ʔukʰah]  ‘for’ (BENEFACTIVE)
/mkʔáʔ/  [ʔkʔáʔ]  ‘his gun’

Glottal stop is also inserted preceding a vowel and following a nominal possessive prefix other than the first, second or third person singular, š-, n-, or m-, respectively. This yields distinctions between singular-possessor possessed forms of stems which are underlingly vowel-initial, such as -ärdeh ‘older sister’, and those which are underlingly glottal-initial, such as -ʔaneg ‘words, language’.

Thus note the contrast between the first-person possessor forms in (2.15ab) and the glottal stop in the first-person plural possessor forms in (2.15cd).

(2.15) Insertion of glottal stop following possessive prefix

a.  /š + aɾdeh/  [šarteh]  ‘my older sister’
b.  /š + ʔaneg/  [šʔandeg]  ‘my language’
c.  /neʔ + aɾdeh/  [neʔarteh]  ‘our older sister’
d.  /neʔ + ʔaneg/  [neʔandeg]  ‘our language’
Glottal stop is also inserted following the disjunct verb prefix boundary where the disjunct boundary is itself preceded by a vowel. This rule can be written as in (2.16), where the hash (#) represents the disjunct prefix boundary.

(2.16) Disjunct boundary glottal stop insertion rule
\[ \emptyset \rightarrow ? / V\#_\_V \]

For example, in (2.17) the continuative prefix \( \text{ná} \)- is a disjunct prefix of shape CV. When the continuative prefix is immediately followed by the conjunct first-person subject prefix \( \text{eg} \)-, a glottal stop is inserted between the adjacent vowels. When the continuative prefix is immediately followed by the conjunct conjugation prefix \( \delta \)-, no glottal stop is inserted.

(2.17) Insertion of glottal stop following disjunct boundary

a. /ná # egzé/ [náʔegšé:] ‘I am hunting’
(c.f. /ná # ġegzé/ [náďegšé:] ‘I was hunting’)
b. /sta # i-l-θet/ [stʰʔilθʰet] ‘he ran away’

Because the conditioning environment for glottal stop insertion in other than word-initial position depends on a phonological boundary below the word level (namely, the disjunct boundary), phonemic transcription must either represent this boundary or explicitly represent this (sub-phonemic) glottal stop.

2.1.4 Fricatives

Tanacross fricatives occur in six places of articulation, corresponding to all of the places of articulation in which stops occur, with one exception: there is only one
fricative series corresponding to the apical and laminal alveolar stop/affricate series. The lateral, dental, alveolar, palatal, and velar fricatives occur in series containing voiceless and voiced members. The glottal fricative only occurs voiceless and thus does not participate in a voicing alternation. The lateral series is exceptional in that the voiceless alveolar lateral fricative /l/ alternates with a voiced alveolar lateral approximant /l/.

The palatal series is also somewhat exceptional in that the phonemically voiced member never occurs with full phonetic voicing. The alveolar and palatal fricatives are sibilants, in the sense that friction is produced by directing a jet of air at the teeth (cf. Ladefoged & Maddieson 1996: 138). The remaining fricatives are non-sibilant.

The voicing status of the phonemically voiced fricatives differs depending on position. The fully voiced allophone occurs in prefix syllables and in stem (word-final) syllable codas. A ‘semi-voiced’ allophone occurs in stem syllable-onsets. (These ‘semi-voiced’ fricatives are not phonemic.) The phonetic nature of these semi-voiced fricatives is discussed in section 3.1 below. Semi-voiced fricatives are represented phonetically using the symbol for the voiceless fricative together with a diacritic lowered wedge (e.g., [θ]). This notation should be approached with caution, since the diacritic denoting semi-voiced fricative is used with the symbol for the voiceless rather than the voiced fricative. In the
following two sections I discuss first the places of articulation of the Tanacross fricatives, then the patterning of voicing alternations in fricatives.

2.1.4.1 Place of articulation

In the following subsections I describe each of the Tanacross fricative series. The dental, alveolar and velar fricatives are discussed together. Lateral fricatives are discussed separately because they have some unique properties resulting from the fact that the voiced lateral fricative behaves phonetically like a sonorant. The palatal fricatives are discussed separately because they differ from the other fricatives in the way they participate in morphologically conditioned voicing alterations. The voiced palatal fricative also differs from other voiced fricatives in its diachronic source as a sonorant.

2.1.4.1.1 Dental, alveolar and velar fricatives

The dental, alveolar and velar fricative series each consist of voiceless and voiced variants. In contrast to the laterals, both the voiced and voiceless members of each of these series are phonetically true fricatives. Examples of dental, alveolar, and velar fricatives are given below. Dental fricatives occur in both onsets and codas of stem syllables. Dental fricatives do not occur in prefix syllable codas. In prefix onsets, voiceless dental fricatives are rare outside of incorporated nouns.
Alveolar fricatives are common in stem onsets and codas but relatively infrequent in prefix syllables. Voiced alveolar fricatives do not occur in prefix syllables, and voiceless alveolar fricatives do not occur in prefix syllable codas.

(2.19) Tanacross alveolar fricatives

/\s\d\textbackslash y/ ‘knife’
/\nm\z\d\textbackslash \textbackslash g\d\textbackslash \r\textbackslash t\textbackslash / ‘its saliva’
/\d\e\s\r\textbackslash / ‘shallows’
/\j\r\z\r\textbackslash / ‘camprober (Perisoreous canadensis)’
/\s\u\s\r\textbackslash / ‘robin (Turdus migratrius)’
/\s\i\n\t\e\h\textbackslash / ‘you are’
/\s\e\j\e\l\l\textbackslash / ‘grayling (Thymallus arcticus)’
/\s\t\a\n\n\d\i\s\d\i\r\textbackslash / ‘I’m lonesome’

The distribution of velar fricatives is much less restricted than that of alveolar and dental fricatives. Both voiceless and voiced velar fricatives may occur in onsets and codas of stem syllables. Voiceless velar fricatives occur in both onsets and codas of prefix syllables. Voiced velar fricatives are restricted to onset position of prefix syllables.
2.14.1.2 Lateral fricatives

The voiceless alveolar lateral fricative /l/ pairs phonologically with /l/, a voiced alveolar lateral approximant. Even though the latter is not phonetically a fricative, it patterns phonologically as the voiced counterpart to the voiceless alveolar lateral fricative. Voiceless and voiced lateral fricatives participate in morphologically conditioned voicing alternations. For example, stem-final /l/ is voiced to /l/ in nominalized forms such as that in (2.21).

(2.21) Voicing distinctions in stem-final lateral fricatives

/nač’e?á?l/ ‘s/he’s eating’
/nač’e?á?l/ ‘that one who is eating’

The patterning of the voiced lateral approximant with the fricative series is typical of Athabaskan phonology. For example, voiced /l/ also occurs as the voiced variant of the h-classifier (<*l) under application of the classifier voicing rule known as the ‘D-effect’ (see section 5.3.1.2.1). There is also a syllabic variant of the voiced lateral approximant which occurs in some loan words.
(2.22) Loanwords containing syllabic laterals

/lər/  [lər] ‘tea’
/lsəz/  [lsəz] ‘money’

Syllabic laterals do not appear in native vocabulary, where a prothetic vowel is required to form a licit syllable, as in ələgə ‘it is dry’. The syllabic lateral is perhaps better classified as a sonorant, as it does not participate in voicing alternations.

2.1.4.1.3 Glottal fricative

The glottal fricative series contains only one member, the glottal fricative /h/. This phoneme occurs in both onset and coda position in both stem and prefix syllables. It has no voiced variant. The glottal fricative clearly contrasts with the velar fricative, as evidenced by the following minimal pair.

(2.23) Contrast between glottal and velar fricatives

/hên/  ‘creek, small river’
/xen/  ‘quickly’

Some examples of glottal fricative in both stem and prefix syllables are given below.

(2.24) Examples of glottal fricative

/eˈdah/  ‘she is sitting’
/aˈhəl/  ‘she is walking’
/ehtsˈeɨ/  ‘it’s windy’
/həhələʔ/  ‘oldsquaw duck’

The glottal fricative does not occur in complex codas.
2.1.4.1.4  Palatal fricative

The palatal fricative series contains the voiceless palatal fricative /ʃ/ and the voiced palatal fricative /ʒ/. The voiced palatal fricative never occurs phonetically with full voicing, but is always realized as ‘semi-voiced’ [ʃ]. Where other languages exhibit a phonetically fully voiced palatal fricative, Tanacross has the semi-voiced reflex.

The voiced palatal fricative sometimes sounds as if it begins voiceless and transitions to a voiced palatal fricative. It can also sound as if it begins voiceless and transitions to a voiceless palatal approximant ɣ (thus the spelling <shy> in many older orthographies). However, the voiced fricative contrasts phonologically (and phonetically) with the sequence voiceless palatal fricative plus palatal sonorant.

(2.25) Contrast between /ʒ/ and /ʃy/

/ʒa/    ‘sky’
/ʃyats’eʔ/  ‘my daughter (female speaker)’
/myats’eʔ/  ‘her daughter’

This contrast is apparent acoustically as well. The waveform of the sequence [ʃy] in Figure 2.1 shows a clear transition from fricative to approximant, whereas the waveform of the voiced palatal fricative in Figure 2.2 shows no clear segment boundary.
Figure 2.1: Waveform of /ʃyats’eʔ/ ‘my daughter (female speaker)’

Figure 2.2: Waveform of /ʃar/ [ʃaɾʼ] ‘sky’

The voiced palatal fricative is clearly a distinct segment; however, the structure of the palatal fricative series is not entirely parallel to that of the other fricative series.

Palatal fricatives differ in several important respects. First, palatal fricatives do not occur stem-finally (though they may occur in prefix syllable codas). More significantly, palatal fricatives do not participate in morphologically conditioned voicing alternations (see section 2.1.4.2.2 below). This asymmetry is explained by the differing sources of the two Tanacross palatal fricatives. The voiceless variant /ʃ/ reflects the merger of PA palatal and velar fricatives, *ʃ and *x, while voiced /z/ reflects PA *y stem-initially in obstruent closed or open
stems (Krauss & Leer 1981). The remaining fricatives reflect original PA fricatives.

2.1.4.2 Fricative voicing alternations

In other than stem-initial position, voiceless fricatives are always phonetically voiceless, and voiced fricatives are always phonetically fully voiced. Some examples are given below.

(2.26) Stem-final voiced fricatives

\[-ts’êðʔ\] ‘thigh’
\[çíz\] ‘camprober (Perisoreous canadensis)’

(2.27) Stem-final voiceless fricatives

\[te’s\] ‘shallows’
\[t’ox\] ‘nest’

(2.28) Prefix syllable voiced fricatives

\[tiðíhtah\] ‘I’m sitting down’
\[yíhha’t\] ‘I’m walking along’

(2.29) Prefix syllable voiceless fricatives

\[ʔišna’\] ‘I’m drinking’
\[tʰat’oy\] ‘paddle’
\[xtélt’ih\] ‘they’re staying’

In particular, in prefix syllables and in stem syllable codas phonemically voiced fricatives always occur fully voiced. In contrast, stem-initial voiced fricatives are phonetically ‘semi-voiced’. Thus, the phonetic realization of voiced fricatives may be different in prefixes and stems, as exemplified below.
(2.30) Phonetic realization of voiced fricative

\[
\text{/š\text{\textipa{ni}}}\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{"/} \quad [\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{"]} \quad \text{‘my hand’}
\]
\[
\text{/š\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{"/} \quad [\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{\textipa{\text{\textacuten}}}\text{"]} \quad \text{‘my index finger’}
\]

The phonetic realizations of stem-initial voiced fricatives are examined further in section 3.1 below.

In addition, with the exception of the palatal place of articulation, voicing is not contrastive for fricatives in stem-initial position. The distribution of voiced and voiceless non-palatal fricatives is phonologically and morphologically conditioned. Because the palatal series behaves somewhat differently, it is discussed separately below.

2.1.4.2.1 Non-palatal alternations

In the lateral, dental, alveolar and velar places the alternation between voiced and voiceless fricatives in stem-initial position is phonologically or morphologically conditioned. In verb stems, phonologically conditioned voiced fricatives are found regularly in stem-initial position following a voiced segment. Voiceless fricatives occur following voiceless segments; the voiced (phonetically ‘semi-voiced’) variant occurs following a voiced segment. Thus, voiceless fricatives occur following the h-classifier, which is voiceless, and also following the first singular subject \textit{ih}- and second plural subject \textit{ah}- with \textit{Ø}-classifier. Voiced fricatives occur elsewhere.
(2.31) Alternation between voiceless and voiced stem-initial fricatives

a. náʔihθet
   náʔ-ihθet
   THM-PROG-1SG-stand
   ‘I am standing’

b. náʔɛθet
   náʔ-ɛθet
   THM-PROG-stand
   ‘s/he is standing’

For verbs which include a classifier morpheme (d-, h-, or l-), which necessarily occurs in immediate pre-stem position, the occurrence of a semi-voiced fricative is then governed by the voicing state of the classifier. Voiceless fricatives occur following the voiceless classifier h-. Semi-voiced fricatives occur following voiced classifiers d- and l-. Notice that semi-voiced fricatives occur following the d- classifier even though the d- classifier always surfaces as voiceless t-.

(2.32) Voiceless stem-initial fricative with h-classifier

náč’ihlóx (h-classifier)
náč’-i-hlóx
CONT-INDEF-2SG-H-fish
‘you’re fishing’

(2.33) Voiced stem-initial fricatives with voiced classifiers

a. datzeý (d-classifier)
   da-t-zeý
   GEN-D-black
   ‘it’s black’

b. delaɣos (l-classifier)
   de-l-ɣos
   THM-L-play
   ‘s/he is playing’
Morphologically conditioned voiced fricatives are found in the possessed forms of nouns, which include a possessive pronominal prefix. Note that most of the possessive prefixes end in a voiced segment, so the morphologically conditioned voiced alternation found in possessed nouns may actually represent an extension of the phonological conditioning by analogy.

(2.34) Possessive paradigm for noun št ‘dog’

\begin{align*}
& śtɪrɡ? \quad \text{‘my dog’} \\
& nɪrɡ’ \quad \text{‘your dog’} \\
& uɪrɡ’ \quad \text{‘his/her dog’} \\
& \text{John uɪrɡ}’ \quad \text{‘John’s dog’} \\
& nɛlɪrɡ? \quad \text{‘our dog’} \\
& nuhɪrɡ’ \quad \text{‘y’all’s dog’} \\
& xuɪrɡ? \quad \text{‘their dog’}
\end{align*}

(2.35) Unpossessed and possessed fricative-initial noun stems

\begin{align*}
\text{Unpossessed} & \quad \text{Possessed} \\
θɛθ & -ðɛð? \quad \text{‘skin’} \\
sek & -zɛg? \quad \text{‘saliva’} \\
xeł & -γɛl? \quad \text{‘pack’}
\end{align*}

2.1.4.2.2 Palatal alternations

The palatal fricatives do not participate in the stem-initial voicing alternation. In fact, voiceless and voiced palatal fricatives may even contrast in stem-initial position, whereas for other fricatives such alternations are always phonologically or morphologically conditioned. An example of this contrast is given below.
Contrast between voiceless and voiced palatal fricatives in stem-initial position

\[ /\text{ša}/ \quad \text{‘for me’} \]

\[ /\text{ža}/ \quad \text{‘sky’} \]

The voiced palatal fricative remains semi-voiced regardless of the voicing status of the pre-stem segment. This is true both in verb stems, as in (2.37), and for noun stems, as in (2.38). The verb stem -žah ‘go, walk’ contains a voiced palatal fricative regardless of the preceding subject prefix.

Absence of phonologically conditioned voicing alternation in palatal fricatives

a. nenihžah
   ne-n-ih-žah
   TERM-MODE-1SG-walk
   ‘I went home’

b. neninžah
   ne-n-in-žah
   TERM-MODE-2SG-walk
   ‘you went home’

The noun stem šǐʔ ‘food’ contains a voiceless palatal fricative which remains voiceless even when preceded by a voiced possessive prefix.

Absence of morphologically conditioned voicing alternation in palatal fricatives

a. šǐʔ ‘food’

b. ušǐ ‘his food’
It should be noted that the voiceless palatal fricative is quite rare. Krauss records the following forms with stem-initial voiceless palatal fricative. Forms are cited in Krauss’ orthography.

(2.39) Tanacross (MK and HL) voiceless palatal fricative (Krauss 1962)

< PA *x-

<table>
<thead>
<tr>
<th>ŝos</th>
<th>‘black bear’</th>
</tr>
</thead>
<tbody>
<tr>
<td>ŕēt</td>
<td>‘scar’</td>
</tr>
<tr>
<td>ŕěθ</td>
<td>‘wart’ (sometimes ŕěθ)</td>
</tr>
<tr>
<td>ŕen</td>
<td>‘medicine song’</td>
</tr>
<tr>
<td>ŕēθ</td>
<td>‘hill’</td>
</tr>
<tr>
<td>ŕr</td>
<td>‘food’</td>
</tr>
<tr>
<td>ŕr’s</td>
<td>‘drum’</td>
</tr>
<tr>
<td>ŕeze</td>
<td>‘drill’</td>
</tr>
</tbody>
</table>

< PA *š-

| ŕr | ‘I’ (related to š- ‘my, me’) |
| ŕe | ‘summer’ |

In contrast, the voiced palatal fricative /ž/ is quite common, occurring in many lexical items. Some examples are given below.

(2.40) Tanacross voiced palatal fricative

/ža/ ‘sky’
/žāʔ/ ‘louse’
/téžah/ ‘he left’
/žçx/ ‘house’
/žetθ/ ‘snow’
/žir/ ‘in’
/dežen/ ‘shaman’

The lack of a parallel in voicing alternations between the palatal and other fricative series may be responsible for the innovative strengthening of palatal fricative onsets noted in some modern Tanacross speakers. For example, I have recorded the form čěθ ‘wart’ where one would expect a voiceless palatal
fricative, < PA xe’s (cf. (2.39) above). Strengthening the fricative onset to an affricative effectively removes the problem of the lack of an analogical possessed form, as the affricatives do not exhibit voicing alternation between possessed and unpossessed form. Thus učéðʔ ‘his wart’.

2.1.5 Sonorants

The term sonorant as applied to Athabaskan languages includes both approximants and nasal stops. Tanacross has sonorant consonants in three places of articulation: labial, alveolar, and palatal. All three sonorants derive from original PA sonorants. Tanacross sonorants share several phonotactic properties which distinguish them from stops and fricatives. Unlike stops and fricatives, sonorants are always fully voiced in syllable-onset position. In coda position sonorants may contrast in voicing, though this voicing is at least in part morphologically predictable. In fact, it may be more accurate to analyze the alveolar and palatal sonorants as having no voicing contrast at all. With the exception of a few lexicalized forms, voiceless variants occur in word-final position, and voiced variants occur elsewhere. I have chosen here to analyze voiceless sonorants as distinct phonemes for two reasons: (1) consistency with the obstruent analysis; and (2) phonetic validity.
2.1.5.1 Labial sonorant

The Tanacross labial sonorant /m/ has two primary allophones: a voiced bilabial nasal stop and a rounded labio-velar approximant. It occurs as the regular reflex of the PA labio-velar sonorant *w. The labial sonorant has two principal allophones. In environments immediately preceding a vowel, it occurs as a voiced bilabial nasal stop, produced with some rounding of the lips. Elsewhere /m/ occurs as either a high back rounded vowel [u] or as a syllabic rounded labio-velar approximant [w]. These latter two forms appear to be in free variation, and I do not distinguish them here.\(^8\) I have standardized to the vocalic symbol [u] for phonetic transcriptions throughout the remainder of this dissertation. The alternation between the two allophones of the labial sonorant is especially apparent in the third person singular possessive prefix, which occurs as [m-] before a vowel and as [u-] before a consonant. For example, the u- form occurs before glottal initial -ʔat ‘wife’, and the m- form occurs before vowel-initial -a’dēh ‘older sister’. The example in (2.41) compares this behavior with that of the first person singular possessive prefix, which exhibit a parallel alternation, but between syllabic and non-syllabic forms.

(2.41) Alternation in the third person singular possessive prefix

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ʔat]</td>
<td>‘my wife’</td>
</tr>
<tr>
<td>[at]</td>
<td>‘his wife’</td>
</tr>
<tr>
<td>[ʕa'teh]</td>
<td>‘my older sister’</td>
</tr>
<tr>
<td>[ma'teh]</td>
<td>‘his older sister’</td>
</tr>
</tbody>
</table>
The syllabic variant [u] also occurs in a few unanalyzable stems, such as [udzih] (/mdzih/) ‘caribou’. It is traditional within both practical and technical orthographies to distinguish between the [m] and [u] allophones of the labial sonorant, so that while ‘his wife’ in (2.41) could be transcribed phonemically as /m?at/ it is more customary to transcribe it as <wu?at>, where the initial consonant serves merely to block the rule of glottal stop insertion. In contrast, it is not customary to write the distinction between the syllabic palatal fricative and the non-syllabic palatal fricative. I will follow both of these customs in broad transcriptions. Some examples of the nasal allophone are given below.

(2.42) Stem-initial m-

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>de:me</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>k’etmah</td>
<td>‘willow ptarmigan’</td>
</tr>
<tr>
<td>e:me:ts</td>
<td>‘it’s boiling’</td>
</tr>
</tbody>
</table>

The labial sonorant does not occur in coda position in stem syllables. There are in fact very few PA stems ending in non-nasal sonorants (Krauss & Leer 1981: 79).

In stem-final position PA *-w is either lost (after full vowels) or reflected as Tanacross /γ/, though phonetically much more fronted and labialised, i.e., [γw]. I know of only one example of this reflex, shown below.

(2.43) Tanacross reflex of stem-final PA *-w

/ts’òγ/ [ts’òγw] < PA *c’òw-< ‘spruce’
Note that the original PA labial nasal *m is in Tanacross merged with /n/ (see next section). Unlike the other Tanacross sonorants, /m/ does not occur with a voiceless variant.

2.1.5.1.1 Voiced labial stop

The labial sonorant /m/ has been reported to occur as prenasalized [mʰb] or fully oral voiced stop [b] in stem syllables which do not contain a tautosyllabic nasal segment. However, the alternation between [m] and [mʰb] (or [b]) is much less regular than that for corresponding allophonic variation of the alveolar sonorant (see section 2.1.5.2 below). Instead, the oral variant of the labial sonorant occurs in free variation with the nasal variant, and the use of the oral variant may be restricted to particular idiolects. With few exceptions, the purely nasal form seems to be preferred in modern speech, though this may represent a recent leveling of an historic alternation. Some older sources report may more instances of oral labials; I discuss these below.

Geoghegan’s (1904) Tanacross vocabulary, probably collected in the Healy Lake area, contains at least one instance which may refer to the phoneme /b/ or one of its allophones. The transcription is not terribly reliable, but the occurrence of the form <ava> ‘to hurt’ is quite interesting. This could possibly be a borrowing from Gwich’in avaa ‘ouch!’, or more likely, an attempt to transcribe a bilabial fricative, e.g., [aβa]. Minoura (1994) lists Upper Tanana [ʔabah] ‘ouch’
as the only instance of a full (i.e., not prenasalized) bilabial stop in Upper Tanana. The same form occurs in the Mentasta dialect of Ahtna, though there it behaves as a regular phoneme (Kari 1990). In modern Tanacross the form occurs as [amah] or sometimes [abah] ‘ouch’, though the latter form represents a rare lexicalized instance of fully oral [b].

Scollon records prenasalized labial stops in several Tanacross place names in the speech of Gaither Paul. In (2.44) the form in angled brackets represents Scollon’s transcription; the form in square brackets represents my own phonetic transcription based on Scollon’s orthography.

(2.44) Tanacross place names (Scollon 1979)

<dambeendáag> [de^mben^dáag] ‘highest peak above Sheep Creek’
<mbasíntsítsíig> [mbesítsítsíig] ‘Mansfield Hill’

Kari records several instances of bilabial stops in complex nouns.9

(2.45) Tanacross bilabial stops (Kari 1991b)

<nach’inbaal saa’> ‘December’
<tt’iiitu’ beedz> ‘herring gull’
<tsidaanbiidh> ‘crossbill’

Kari also records several forms in which either labial (oral) stops or labial nasal stops may occur. This may be a case of free variation or variation across speakers.10
(2.46) Tanacross b/m variation (Kari 1991b)

<taamagh>, <taabagh> ‘shore’
<amah>, <abah> ‘ouch’
<demee>, <debee> ‘sheep’
<ts’elmeet>, <ts’elbeet> ‘arctic loon, common loon’
<delmeedz>, <delbeez> ‘the gold one’
<meth>, <beth> ‘riverbank’

My own data record only the nasal variants of the forms in (2.46), as shown in (2.47).

(2.47) Tanacross m- < PA *w-
εme’dz ‘it’s boiling’

Regardless of the current status of the labial sonorant alternation, it is clear that [b] is not actually an obstruent but rather a voiced variant of the sonorant /m/, occurring in free variation with that segment. It remains phonetically fully voiced and hence distinguished from the other unaspirated obstruents, which are voiceless in onset position.

2.1.5.2 Alveolar nasal

Tanacross has two alveolar nasal phonemes: one voiced and one voiceless. As mentioned above, the voicing contrast derives from a suffixation process in which voiced coda alveolar nasals can be analyzed as underlyingly (or at least historically) intervocalic. There is no voicing contrast in prefix syllables or in stem-initial position.
2.1.5.2.1 Stem-initial and prefixal alveolar nasal

The alveolar sonorant /n/ may occur in both onset and coda position in both stem and prefix syllables. In stem-initial position when no tautosyllabic nasal segment (consonant or vowel) is present, /n/ may be realized as one of several stop-like allophones.

Tanacross /n/ has several historical sources. Original PA *n- is retained in prefixes and in stem-initial position before an original tautosyllabic nasal.

(2.48) Tanacross n- < PA *n-

*nũn ‘animal’
č’išnař ‘I’m drinking’ (< PA *-naŋ*)

Tanacross stem-initial n- may also derive from PA palatal (oral or nasal) sonorant, again only before an original tautosyllabic nasal.

(2.49) Tanacross n- < PA *y-, *ŋ-

*nẽn ‘you’ (< PA *ŋ厄)
*nẽn ‘back, spine’ (< PA *ye’n)
naʔínđet ‘(you) stand up’ (< PA *ŋ- 2SG)

Finally, stem-initial n- may also derive from PA *h- before original tautosyllabic alveolar nasals.

(2.50) Tanacross n- < PA *h-

-nař < PA *-hæn
Prefixal \( n- \) occurs syllabic when no other phonological material is available with which to build a canonical syllable. For example, the second person singular possessive prefix \( n- \) occurs syllabic before consonant-initial nouns but syllabifies with the initial vowel of vowel initial nouns.

(2.51) Syllabification of alveolar nasal

\[
\begin{align*}
\text{\[n\]} + \text{\[\?at\]} & \rightarrow [\text{n\?at}] \quad \text{‘your wife’} \\
\text{\[n\]} + \text{\[\?ardeh\]} & \rightarrow [\text{n\?ardeh}] \quad \text{‘your older sister’}
\end{align*}
\]

Similar behavior is evident in complex nouns in which \( n- \) was probably historically a prefix.

(2.52) Syllabic \( n- \) in complex nouns

\[\text{n\?en} \quad \text{‘meat’}\]

Prefixal \( n- \) is always voiced in Tanacross. In this respect the behavior of the alveolar nasal in Tanacross differs from that reported for Lower Tanana by Tuttle (1998: 46). In Lower Tanana prefixal \( n- \) preceding the voiceless \( t- \) classifier (Tanacross \( h- \)) is either deleted (Minto dialect) or devoiced, with subsequent deletion of the classifier (Salcha dialect). In Tanacross the nasal is deleted with concomitant nasalization of the preceding vowel.

(2.53) Deletion of prefixal nasal: comparison with Lower Tanana

\[
\begin{align*}
\text{\[d\?hts\]} & \quad \text{‘you made it’ (Tanacross)} \\
\text{\[d\?lts\]} & \quad \text{‘you made it’ (Minto)} \\
\text{\[d\?nts\]} & \quad \text{‘you made it’ (Salcha)}
\end{align*}
\]

In general, Tanacross always retains the feature [+nasal] in the form of nasalization of the preceding vowel when a pre-stem \( n- \) is deleted (see chapter 5).
When no tautosyllabic nasal segment is present, /n/ is regularly realized as a prenasalized alveolar stop [ⁿd], consisting of a nasal onset followed by a fully voiced stop. The stop portion of the segment is always voiced and hence quite different from the unaspirated alveolar stop, which is never voiced in syllable-onsets. That it is a single segment is evidenced by the fact that it occurs in stem-initial position, a locus which does not permit consonant clusters. It is here classified as a sonorant on the basis of its phonological patterning: like /m/ the prenasalized stop may only occur in onset position and always occurs voiced. The situation with the nasal and stopped allophones of alveolar sonorant is in many ways parallel to that with the labial sonorant. However, in the alveolar case the allophonic alternation is entirely regular.

(2.54) Alveolar nasal allophones

\[/n/ \rightarrow [ⁿd] / +__ V[-nas] \ C[-nas] \ (where + signifies a stem boundary)\n
\[n] / elsewhere\n
The examples below exemplify this allophonic variation.

(2.55) Allophonic variation between [ⁿd] and [n]

\[-ne'k/ \quad [-ⁿde'k] \quad ‘to swallow’ (root)\n
\[-né'i/ \quad [-ⁿé'i] \quad ‘face’\n
The prenasalized allophone itself varies quite a bit in pronunciation. When preceded by an open syllable, the prenasalized stop usually (though not always) syllabifies as a consonant sequence [nd]. Note that the [d] of this sequence is a true voiced stop, not a voiceless unaspirated stop as in the phoneme /d/.\n
(2.56) Alveolar prenasalized stop

\[ [\text{d}frg] \]  ‘creek’
\[ [\text{yand}frg], [\text{ya}ndfrg] \]  ‘toward the creek, up the creek’

In some cases the prenasalized variant may be pronounced with little perceptible nasal component, yielding a fully voiced oral stop [d].

Tanacross is unique within Alaska in having prenasalized [\text{d}] as a reflex of the PA palatal nasal sonorant *\text{j}w, as in [\text{dejl}] ‘axe’ < PA * \text{j}*\text{el} (Krauss & Leer 1981: 17). 

Surrounding languages exhibit either [n] (Lower Tanana, Upper Tanana, Ahtna) or [d] (Han), though Northern Tutchone is like Tanacross in having the prenasalized stop.

In the remainder of this dissertation I transcribe /n/ phonetically as [\text{d}] or [nd] where appropriate, unless specifically referring to a phonemic transcription enclosed in forward slashes. This practice may lead to potential confusion between the phonemic sequence /nd/, which is phonetically [nt], and the phonetic sequence [nd], which is an allophone of /n/. This is perhaps an unfortunate consequence of the conventional practice of using /d/ rather than /t/ to signify an unaspirated stop, but in any case the distinction should be clear when slashes or square brackets are used.
2.1.5.2.2  Stem-coda alveolar nasal

In codas of stem syllables a contrast has developed between voiced [n] and voiceless [ŋ]. This contrast is analogous to the situation with the palatal sonorant discussed in the next section. The voiceless nasal occurs as the reflex of PA sonorants *-n, *-m; the voiced nasal occurs as the reflex of PA *-ŋ. But this contrast is maintained only in simple codas, that is, those without glottal stop appendix or vocalic suffix. When followed by a glottal stop appendix, the alveolar nasal occurs voiced, as shown in (2.57).

(2.57) Voicing comparisons of stem-coda alveolar nasals in complex codas

/könʔ/ ‘fire’
/sênʔ/ ‘star’
/mɛŋ/ ‘lake’
/teŋ/ ‘ice’

Voicing contrasts also arise as a result of synchronic morphological processes. When followed by an underlyingly vocalic suffix -ɛ or -eʔ, stem-final /n/ is also voiced. An example of this contrast is found in the alternation between verbal and nominalized forms, as in (2.58).

(2.58) Voicing distinctions in stem-coda alveolar nasals

/hɛn ɛtteŋ/ ‘the river is frozen’
/hɛn ɛtteŋ/ ‘frozen river’

The second form in (2.58) could be analyzed synchronically as containing vocalic suffix -ɛ, which would permit an analysis of the voiceless form as a word-final allophone of /n/. However, voiced [n] also occurs stem-finally in lexicalized
forms which may be historically suffixed but are not synchronically analyzable as containing a vocalic suffix. In this respect Tanacross differs from Lower Tanana, where the /n/ remains intervocalic, followed by a vocalic suffix.

(2.59) Stem-final voiced [n]

tïkâːn ‘wolf’ (cf. Lower Tanana (Minto) tikani)
ŋlɛːn ‘meat’ (cf. Lower Tanana (Minto) nɔlænī)

In the so-called heavy forms (i.e., possessed forms of noun stems—see 4.4.2), stem-final alveolar nasal occurs lengthened. In this case the contrast between voiceless and voiced is neutralized.

The contrast between original (i.e., unsuffixed) voiced and voiceless alveolar nasals is neutralized in suffixed forms, where both occur lengthened.

This length

(2.60) Lengthening of stem-coda alveolar nasal

/ʂ-/ + /kɔnʔ/ + /ɛʔ/ [ʃkɔnʔ] ‘my fire’
/ʂ-/ + /meŋ/ + /ɛʔ/ [ʃmɛnʔ] ‘my lake’

Lengthened /n/ is indicated in the practical orthography via doubling of the consonant.

2.1.5.3 Palatal sonorant

The Tanacross palatal sonorant may occur voiced or voiceless. When voiced it is phonetically a palatal approximant (IPA [j], orthographic <y>) articulated with the tongue body held toward the palatal region. When voiceless it varies freely
between a voiceless palatal approximant [ɟ̞] and a voiceless palatal fricative [ç].

Both voiced and voiceless variants are here classified as sonorants based on their distribution: voiced palatal sonorants occur only in other than stem-initial position. In prefixes they are always voiced, reflecting PA *y-. In stem-final position they may be voiced or voiceless, contrasting in ways similar to the alveolar sonorant. The palatal sonorant does not occur in stem-initial position. In stem-initial position the reflex of PA *y- is a voiced palatal fricative /z/, not a sonorant. Thus, the Tanacross sonorant system is somewhat rearranged from that in neighboring Lower Tanana, which preserves stem-initial voiced palatal approximants.¹²

In prefixes /y/ occurs in both onset and coda position, however, with the exception of its occurrence in the third person singular object pronoun yi- (discussed in section 5.3.5.2.2) it is quite rare in this position. Examples of /y/ in prefixes are shown below.

(2.61) Palatal sonorants in prefix syllable-onsets

-yats’e? ‘woman’s daughter’
yadime’y ‘northern lights’
yinjiθɛh ‘he’s looking at him’

(2.62) Palatal sonorants in prefix syllable codas

ɭʊɣ eyniŋʔɛŋ ‘I want fish’
naynełʔɛh ‘he’s looking at him again’
The contrast between voiceless and voiced palatal sonorants in stem-final position is very much parallel to that with alveolar sonorants. The voiceless palatal occurs only in simple codas.

(2.63) Voicing distinctions in stem-final palatal sonorants

\[
\begin{align*}
\text{elgey} & \quad \text{‘it’s white’} \\
\text{elgey} & \quad \text{‘the white one’} \\
\text{dey} & \quad \text{‘springtime’} \\
\text{dey} & \quad \text{‘grouse (Dendragapus canadensis)’}
\end{align*}
\]

As with the alveolar sonorant, voiced /y/ also occurs stem-finally in forms which are historically suffixed but are now lexicalized with the [+voice] suffix. In the Lower Tanana cognates the /y/ remains intervocalic, followed by a vocalic suffix.

(2.64) Stem-final voiced [y]

\[
\begin{align*}
\text{nihdúry} & \quad \text{‘lynx’ (cf. Lower Tanana (Minto) nuduyi)} \\
\text{mek’áy} & \quad \text{‘gull’}
\end{align*}
\]

Again like the alveolar sonorant, the stem-final palatal occurs lengthened in heavy stems. In this case the voicing contrast is neutralized. That is both voiceless and voiced stem-final palatal sonorants are lengthened and voiced in the heavy (possessed) form.

(2.65) Lengthening of stem-final palatal sonorant

\[
\begin{align*}
/\text{s}/ + /\text{a’y}/ + /-\ddot{e’}/ & \quad [\text{s}\ddot{a’y}’] \quad \text{‘my snowshoes} \\
/\text{s}/ + /\text{se’y}/ + /-\ddot{e’}/ & \quad [\text{s}s\ddot{e’y}’] \quad \text{‘my knife’}
\end{align*}
\]

Lengthened /y/ is indicated in the orthography via doubling of the consonant.
2.2 Vowels

The Tanacross vowel system consists of six phonemic vowels. This system represents a reorganization of the PA via a merger of the PA reduced vowels *ɔ and *α as /ɛ/, a feature which Tanacross shares with the neighboring Tetlin dialect of Upper Tanana, but not with the more distant Upper Tanana dialects, which preserve all three PA reduced vowels (Minoura 1994: 174). Krauss (1964) reconstructs PA with four ‘full’ vowels and three ‘reduced’ vowels. The Tanacross reflex of the third reduced vowel *u is /o/. The full versus reduced distinction is maintained to some degree in that the Tanacross vowels /o ɛ/ do not participate in length contrasts and occur in a much more restricted distribution.

The Tanacross vowel space can be described phonologically in terms of a tripartite height distinction and a bipartite backness distinction, as shown in Table 2.2.

Table 2.2: Tanacross vowel system

<table>
<thead>
<tr>
<th></th>
<th>front</th>
<th>back</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>mid</td>
<td>e</td>
<td>o</td>
</tr>
<tr>
<td>low</td>
<td>e</td>
<td>a</td>
</tr>
</tbody>
</table>

There is a small degree of allophonic and free variation in some vowels, which I summarize in this paragraph. The high back vowel /u/ is fully rounded and varies little in pronunciation, being generally equivalent to the cardinal value. The mid
back vowel /o/ is only slightly rounded and may occur unrounded as [ɤ],
especially preceded an unrounded vowel in a prefix syllable.

(2.66) Roundness of mid back vowel

| /lóχ/   | /[lóχ] | ‘fishhook’          |
| /lóʔáhaˤ/ | /[lʏʔáhaˤ] | ‘he’s walking around’ |

The vowel /ɛ/ is a low front unrounded vowel, much higher than the cardinal
value. There is some variation in pronunciation between speakers ranging from
[ɛ] to [æ], though this variation is regularized to [ɛ] in my transcription. This
vowel is predictably backed to [æ] or [a] preceding a velar fricative.

(2.67) Backing of low front vowel /ɛ/

| /sɛnʔ/ | /sɛʔ/ | /sɛχ/  |
| /sɛnʔ/  | /[sɛnʔ] | ‘star’   |
| /sɛʔ/  | /[sɛʔ]  | ‘gaff hook’ |

The low unrounded vowel /a/ is actually pronounced more like a back vowel as
[ɑ], though I do not distinguish these two vowels in my transcriptions. The vowel
/ɪ/ is a high front unrounded vowel. It may occur slightly lowered as [ɨ] in closed
prefix syllables in which the coda is not occupied by a glottal consonant.

(2.68) Allophones of /ɪ/

| /stθiʔ/ | /[stθiʔ] | ‘my head’   |
| /sɪnt’eh/ | /[sɪnt’eh] | ‘he is’    |

The mid front unrounded vowel /e/ is pronounced slightly higher and with the lips
more spread than the lower mid front vowel /ɛ/.
(2.69) Mid-front vowels

/ʔɛl/  ‘trap’
/ʔɛl/  ‘with’

In closed syllables with glottal fricative or glottal stop codas, the contrast between the two mid-front vowels is neutralized.

Unlike neighboring Upper Tanana, Tanacross preserves PA stem-final consonants, thus there has been no diphthongization of vowels as the result of loss of stem-final consonants. However, the vowels /e/, /a/, and /u/ may occur as the first component of a phonetic diphthong ending in a high front vowel.

(2.70) Tanacross phonetic diphthongs

/gay/   [kai]   ‘small’
/čay/   [čʰai]   ‘woman’s grandchild’
/k’ęyʔ/ [k’ɛiʔ]  ‘willow’
/t’ęy/   [t’ɛi]   ‘trail’
/tθuy/   [tθʰui]  ‘man’s grandchild’

Of these, the diphthong [ei] is by far the most common. However, in all cases these phonetic diphthongs are more profitably analyzed phonemically as true vowels followed by a tautosyllabic palatal approximant [y] (see section 2.1.5.3 above). As noted above syllable-final voiced palatal approximants contrast with voiceless palatal approximants.

(2.71) /-kay/  ‘handle object in open container’ (optative)
/-ka’y/  ‘handle object in open container’ (imperfective)
The existence of voicing contrasts in stem-final palatal approximants lends further support to the analysis of phonetic diphthongs as sequences of vowel plus approximant rather than as phonemic diphthongs.

2.2.1 Duration

Under certain circumstances vowel length may be phonemically contrastive in Tanacross. There are two primary loci for length contrast, both of which are to a large extent morphologically conditioned. First, certain noun stem syllables may contrast short and long vowels in unpossessed and possessed forms. Second, certain prefix syllables may occur long as the result of deletion of prefix consonants. I will discuss each type of length contrast separately.

The length contrast is possible only with the vowels /i e a u/. The remaining vowels /o e/ always occur short. This length contrast reflects the PA distinction noted by (Krauss 1964) between full vowels (reflected as Tanacross /i e a u/) and reduced vowels (reflected as Tanacross as /o e/). In PA reduced vowels are always short, and full vowels are long except before glottal stop or the enclitic *he (Leer 1979: 5). The contrast is maintained in Tanacross, where the reflexes of PA full vowels in stems are long except before a glottal stop or glottal fricative. Full vowels in open or non-glottal closed stems are always long. Reduced vowels never occur long (and hence cannot occur in open stem syllables).
(2.72) Phonotactically conditioned length contrast in full vowel stems

/gah/ ‘rabbit’
/k’aʔ/ ‘gun’
/saʔ/ ‘sun’
/ʔaríʔ/ ‘snowshoe’

But not all full vowels in stems closed with glottal stop are short. The possessed forms of noun stems containing a full vowel and ending in a glottal stop contain a lengthened vowel. This lengthening occurs as part of a regular process of stem modification which derives possessed forms of nouns (see section 4.4.2 below). An example is shown in (2.73).

(2.73) Morphologically conditioned length contrast in full vowel stems

/k’aʔ/ ‘gun’
/mk’aʔʔ/ ‘her gun’

Note that the possessed form in (2.73) may also be pronounced [uk’aʔʔ], with extra-syllabic schwa and no lengthening of the stem vowel. This alternate pronunciation may represent a regularization of the constraint against long vowels preceding glottal stop. A length contrast may also arise between alienably and inalienably possessed forms of open noun stems, which have glottal closed possessed forms (see section 4.4.3.2 below).

(2.74) Length contrast between alienable and inalienable possession (Leer 1982b: 5)

/tur/ ‘water’
/jēg túʔ/ ‘wine’ (inalienable)
/štũʔ/ ‘my water’ (alienable)
Beyond these morphologically conditioned length contrasts there is little evidence for a phonemic length contrast in stem vowels. However, I should stress that this conclusion relies crucially on my analysis of the Tanacross vowel system as consisting of six phonemic vowels. Many of the phonemic distinctions in stem vowels which I have analyzed in terms of vowel quality have been previously analyzed in terms of length. For example, Leer analyzes Tanacross as having a five-vowel system and interprets the distinction between my [tel] ‘crane’ and [tel] ‘blood’ as a length distinction between [teɬ] and [tel], respectively (1982b: 6). There is in fact a phonetic length difference between these two words. However, under my six-vowel analysis this length difference is phonotactically conditioned by the full versus reduced vowel distinction: full vowels occur long in stems unless closed by a glottal stop or glottal fricative. Other examples of a length contrast in stems cited by Leer are also readily handled in terms of vowel quality in a six-vowel analysis. For example, Leer cites the near-minimal pairs [nɛʰɑ̃] ‘it’s big’ and [sáx] ‘gaff hook’. Under the six-vowel analysis the latter vowel (phonetically closer to [ɔ]) is analyzed as an allophone of the reduced vowel /ɛ/ before velar fricatives. As a reduced vowel it is necessarily short.

I turn now to a discussion of length contrasts in prefix syllables. There are clear cases of contrast between long and short full vowels in both disjunct (proclitic) and conjunct verb prefixes. While vowels in prefix syllables are
underlyingly short, long vowels may arise as a result of deletion of prefix consonants. Thus, long vowels in prefix syllables always correspond to more than one morpheme, a finding which Rice also confirms for Slave (1989: 85). Vowels cannot occur long in closed prefix syllables, so there is much less possibility of length contrast in prefix syllables. There are two common loci for deletion in the Tanacross verb complex, one in the disjunct prefixes and one in the conjunct prefixes. Both of these processes delete the second syllable of a sequence of two open syllables.

(2.75) Deletion in verb prefixes

\[ C_1 V_1 C_2 V_2 \rightarrow C_1 V_1 \]

Syncopation in the conjunct domain happens commonly with the deletion of conjugation prefixes in forms not containing an inner subject prefix (i.e., forms other than first person singular, second person singular and plural). An example can be found in the rule of \( \gamma \)-vocalization (see section 5.3.3.1.2.1), which delete the \( [\gamma\-] \) progressive conjugation prefix, with concomitant lowering of the preceding vowel, in verb forms without inner subject prefix.

(2.76) Length contrast in conjunct prefix syllables

a. téyihhâl
   té-\( \gamma \)-ih-ha'l
   INCEP-PROG-1SG-walk
   ‘I am walking along’
b. tā′haʕl
   tē-ʕ-haʕl
   INCEP-PROG-walk
   ‘he is walking along’

An example of syncopation in the disjunct domain in the deletion of the iterative
prefix na- when preceded by an open syllable, a phenomenon referred to by Leer
as “na-absorption” (1982b: 6). This deletion results in the lengthening of the
preceding vowel, as shown in (2.77).

(2.77) Length contrast in disjunct prefix syllables (Leer 1982b: 5)

a. tāyihdlah
   ta-ʕ-iḥ-dlah
   water-CJ-1SG-handle.plural.objects
   ‘I put them in the water’

b. taɣihdlah
   ta-na-ʕ-iḥ-dlah
   water-ITER-CJ-1SG-handle.plural.objects
   ‘I put them back in the water’

Although I have not analyzed the duration of prefix syllables instrumentally, there
is a clear perceptual difference in length between mono-morphemic and bi-
morphemic prefix syllables.

2.2.2 Nasalization

In addition to the six Tanacross oral vowels, there are four nasalized vowels
corresponding to the four full vowels /i e a u/, yielding a total of ten phonemic
vowels (not including tone distinctions). Nasalized vowels may occur in any
environment except preceding a tautosyllabic nasal consonant. The reduced
vowels /e/ and /o/ do not occur nasalized in any environment.

(2.78) Oral versus nasal vowel contrasts

| /tsiɾl/  | ‘young boy’ |
| /-intsɨ/ | ‘nose’      |
| /-geɣ/   | ‘white’     |
| /-geɣ/   | ‘dry’       |
| /t’aθ/   | ‘cottonwood’|
| /-t’aʔ/  | ‘leaf’      |
| /-zû/    | ‘good’      |
| /sûs/    | ‘robin’     |
| /gûθ/    | ‘fireweed’  |
| /gûɾ/    | ‘worm’      |

In some languages (e.g., Slave; see Rice 1989: 83) it is possible to analyze vowel
nasalization as deriving from an underlying sequence of oral vowel plus nasal
consonant. In Tanacross nasalization has been phonemicized, and there is a
contrast between nasalized vowels and oral-nasal sequences as in (2.79).

(2.79) Nasalized vowels versus oral-nasal sequence

| /-næɾ/  | ‘mother’ |
| /næɾn/ | ‘this’ |
| /ðeqtsjɪ/ | ‘I made it’ |
| /ðeqtsɪɾn/ | ‘that which I made’ |

In addition to these phonemic contrasts between nasal vowels and oral-nasal
sequences there are synchronic processes of vowel nasalization related to deletion
of nasal consonants. In particular, the alveolar nasal of the second person singular
subject prefix may be deleted in order to satisfy constraints against complex codas
in prefix syllables. In such cases the nasal feature is retained on the preceding consonant.

(2.80) Pre-stem nasalization rule

\[ CVnC \text{stem-boundary} \rightarrow CVC \]

This situation most commonly occurs in verbs containing non-zero classifiers, such as the h-classifier verb ‘to fry’ below. Thus there is a contrast in prefix vowel nasalization between \( inharl \) ‘he is walking’ (\( \emptyset \)-classifier) and \( iht’ēθ \) ‘you’re frying’ (h-classifier), the latter of which is illustrated in (2.81).

(2.81) Pre-stem nasalization with second person singular subjects

\[
\begin{align*}
\text{fish} & \quad 2\text{SG-CL-fry} \\
\text{fur} & \quad \text{\( iht’ēθ \)} \\
\text{fur} & \quad \text{\( in-h-t’ēθ \)}
\end{align*}
\]

‘you’re frying fish’

Even in verbs containing the zero classifier there may be alternation between [in] and [\( \dot{\text{r}} \)] in the realization of the second person singular subject prefix. Leer has noted a preference for the oral-nasal sequence preceding alveolar stops and affricates and the nasalized form before fricatives (1982b: 15). There may also be a kind of vowel nasalization harmony; my own data also suggest a preference for the nasalized form preceding a nasalized stem vowel. In all cases speakers agree that both oral and nasal forms are acceptable, suggesting than these variants are in free variation.
2.3 Tone

Tone as described here is a phonological property. Generally, high tone corresponds to raised pitch, and low tone corresponds to lowered pitch. There may be other phonetic correlates of tone as well. Some of these are discussed in section 3.2 below. There are also other sources of pitch variation in Tanacross, in particular intonation. Various non-declarative speech-acts are marked via distinctive intonation contours which affect the phrase-final pitch. Since verb stems often occur in phrase-final position, this has the effect of modifying the pitch realization of the verb stem, often overriding the lexically assigned pitch. The interaction between tone and intonation is discussed further in Holton (2000).

In this dissertation I use the term tone only to refer to lexically-assigned tone and tone which derives from lexically-assigned tone via regular tone-spreading processes. By lexically-assigned I mean tone which derives via tonogenesis from PA distinctions in syllable constriction. Pitch deriving from intonation is not marked in the transcriptions.

All Tanacross vowels (and syllabic consonants) bear a tonal specification and may contrast in pitch. Prefix vowels may have either high or low tone. Stem vowels may have one of five tones: low, high, falling, rising or extra-high. While a complete set of minimal pairs contrasting these five tones does not exist, the pattern of tones is a fundamental part of the Tanacross language. Some examples of stem tones are given below.
(2.82) Stem tone contrasts

/tür/ 'water’ (low tone)
/dū?/ ‘and, also’ (high tone)
/nūn/ ‘animal’ (falling tone)
/ml¿ŋ?/ ‘his fish’ (rising tone)

Among Athabaskan languages, Tanacross is ‘high-marked’ in that Tanacross reflexes of PA constricted syllables are high tone, while reflexes of non-constricted syllables have low tone. The pitch of these underlying tones may be further modified via interaction with phrasal intonation to demarcate various pragmatically-marked structures, such as questions, imperatives, and negation. Tone also interacts with the morphology to demarcate morphological units. And surface pitch realization is modified by an active tonal phonology which allows for re-association of tones from one morpheme to another.

Due to the complex morphology and the relatively long length of words, it can be difficult to locate minimal pairs which exemplify tonal contrasts in Tanacross. That is,. However, the tonal melody resulting from the sequences of tones in a word or phrase is crucial to effective communication and thus carries a significant semantic burden. Indeed, tone is fundamental to understanding Tanacross, just as it is with other tonal Athabaskan languages.

2.3.1 Athabaskan tonogenesis

The study of tone is one of the most interesting aspects of comparative Athabaskan phonology. Not all Athabaskan languages have tone systems, but
among those that do there are two distinct types. One type has high pitch syllables precisely where the other type has cognates with low pitch, and vice versa. The high versus low pitch contrast in modern tonal Athabaskan languages reflects a former distinction between constricted and non-constricted syllables in PA (Krauss 1964). However, the modern languages differ as to whether PA constriction develops into high or low tone or is lost altogether.\textsuperscript{16} Tanacross is unique among the Alaska Athabaskan languages in exhibiting high tone as the reflex of PA constriction. Languages like Tanacross are known as ‘high-marked’, while those in which constriction is reflected as low-tone are known as ‘low-marked’. Interestingly, Tanacross is a high-marked isolate: all of the neighboring Athabaskan languages are either low-marked or non-tonal. The high-marked status of Tanacross is particularly conspicuous in comparison with Upper Tanana, with which Tanacross shares a high degree of mutual intelligibility in spite of an opposing or “mirror-image” tone system. In Tanacross “marked” syllables (reflexes of PA constricted syllables) exhibit high tone, whereas in Upper Tanana marked syllables exhibit low tone (cf. Tanacross \textit{tě̃žâh} vs. Upper Tanana \textit{tɛ̃žáh} ‘he left’).

In Tanacross unmarked syllables are lower in pitch, resulting in a two-way distinction in lexical tone. In addition, compound tones arise in two ways: 1) syncopation of medial consonants in historically bi-syllabic stems, and 2)
suffixation of tonal affixes. Compound tone is discussed in the second subsection below.

While all stem syllables must be underlyingly associated with a tone unit, there is some evidence that prefix syllables may be either high tone, low tone, or toneless.

2.3.2 Level tone

Tanacross is distinguished from neighboring languages by the development of Proto-Athabaskan (PA) constricted vowels into high tone. In contrast, Lower Tanana, Han and Upper Tanana developed low tone, while Ahtna did not develop tone. The PA source for both Tanacross high tone and Upper Tanana low tone has been termed constriction by Leer, but a precise phonetic characterization of this constriction remains elusive (see section 2.3). Contrast between PA constricted and non-constricted vowels is maintained in Tanacross as a tonal contrast. In particular, reflexes of PA stems with final glottal or glottalized sonorant are high-toned in Tanacross, resulting in minimal pairs which contrast in tone.

(2.83) Level tone contrasts

nénʔ ‘land’ < PA *ŋənʔ
nen ‘you’ < PA *ŋən

Reflexes of PA constricted syllables are termed “marked”, while reflexes of non-constricted syllables are termed “unmarked”. Thus, Tanacross marked syllables
are high-toned while Upper Tanana marked syllables are low-toned. In most
orthographies only the marked tone is overtly indicated. However, evidence from
compound tone stems indicates that all stems must be underlyingly specified as
either high or low.

Table 2.3: Examples of Tanacross level tone on nouns

<table>
<thead>
<tr>
<th>Low Tone</th>
<th>High Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>tur</em></td>
<td>‘water’</td>
</tr>
<tr>
<td><em>tθε</em></td>
<td>‘rock’</td>
</tr>
<tr>
<td><em>sa</em></td>
<td>‘sun’</td>
</tr>
<tr>
<td><em>se:k</em></td>
<td>‘saliva’</td>
</tr>
<tr>
<td><em>tl’url</em></td>
<td>‘rope’</td>
</tr>
<tr>
<td><em>tɛy</em></td>
<td>‘trail’</td>
</tr>
<tr>
<td><em>let</em></td>
<td>‘smoke’</td>
</tr>
<tr>
<td><em>meŋ</em></td>
<td>‘lake’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>‘beaver’</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>tsáʔ</em></td>
<td></td>
</tr>
<tr>
<td><em>lɛ’ts</em></td>
<td></td>
</tr>
<tr>
<td><em>tθ’ɛx</em></td>
<td></td>
</tr>
<tr>
<td><em>t’ɛs</em></td>
<td></td>
</tr>
<tr>
<td><em>dɛ’yʔ</em></td>
<td></td>
</tr>
<tr>
<td><em>sɛnʔ</em></td>
<td></td>
</tr>
<tr>
<td><em>kónʔ</em></td>
<td></td>
</tr>
</tbody>
</table>

2.3.3 Compound tone

In addition to the level high and low tones which arise directly from PA
constricted and non-constricted syllables, Tanacross has compound rising and
falling tones whose origin may be traced synchronically or diachronically to
sequences of level tones. Tanacross tone, like that in many languages, can be
analyzed as operating independently from consonantal and vocalic material on an
independent autosegmental tier. When consonantal or vocalic material is deleted
via either historical or active phonological processes, the associated tone may
remain and re-associate with another tone bearing unit. As in many other
Athabaskan tone languages, in Tanacross this re-association occurs leftward.
(2.84) Leftward re-association of delinked tones

Where Tanacross differs from other Athabaskan tone languages is in its treatment of the multiply linked tone bearing unit resulting from the leftward re-association of the tone in (2.84). For example, in Gwich’in multiply linked tone bearing units are not licit, forcing delinking (and later stray erasure) of the first of the two associated tones, as shown in (2.85).¹⁷

(2.85) Delinking of tone from multiply associated tone units (Gwich’in)

Similar tone spread also occurs in languages which preserve both tone bearing units. For example, Lower Tanana (Minto) marked (low) tone associated with possessive suffixes spreads leftward to associated with the stem vowel (Krauss 1996). Original stem tone is delinked, resulting in a leveling of possessed nouns to marked (low) tone. Thus, Minto [tθ’àχ] ‘sinew’ and [denatθ’àxmlà?] ‘our sinew’.

But the delinking rule in (2.85) does not apply in Tanacross. Instead, Tanacross preserves both tone associations, and sequences of unlike tones are realized as compound tones. A high-low sequence is realized as falling tone; a low-high sequence is realized as rising tone. Thus, Tanacross differs from
languages like Gwich’in and Lower Tanana in that stem tone does not assimilate
to a following suffix, but rather is preserved in the form of compound tone.

One locus of compound tones in Tanacross is found in monosyllabic noun
stems descended from PA disyllabic stems. Loss of PA medial or final consonants
results in a Tanacross monosyllable with multiple tone associations. Where these
tones differ, a compound tone arises, either rising (2.86) or falling (2.87).

(2.86) Rising tone on noun stems
   a. x̂ʔ ‘raft’< PA *χəŋə’s
   b. ts’êd? ‘blanket’< PA *ts’ədi?

(2.87) Falling tone on noun stems
   dêy ‘spring’< PA *داŋ’ə
   mâŋ ‘shore’< PA *war’n’gə
   denig ‘moose’
   jîz ‘camprobber’
   jèg ‘berries’

   Compound stem tone may also arise through one of several synchronic
morphological processes which derive historically from suffixation but are now
realized via suprafication. PA had several suffixes of shape *V(?), including the
nominalizing suffix *-ə, the possessive suffix *-ʔə, and the kin term suffix *-ə.
The vowel of these original suffixes is syncopated in Tanacross (though its
voicing feature is retained and linked to the stem-final consonant; see section
4.4.2 below). The associated tone then re-associates with the preceding tone
bearing unit, as in (2.84). The PA nominal possessive suffix *-ʔə is constricted
and hence realized as high tone in Tanacross. Thus, Tanacross low tone stems with the possessive suprafixed contain a low-high sequence which is realized as rising tone, as shown in (2.88).

(2.88) Rising tone from PA possessive suffix *-Ø?

\[
\begin{array}{llll}
L & H & L & H \\
\vert & \vert & \vert \\
\text{čox} & + ? \rightarrow \text{čeý} & \text{‘quill’} \\
& [+\text{voi}] \\
\end{array}
\]

As shown in (2.89), the possessed form of a high-tone stem remains high, because there is no tonal contour associated with the possessed form.

(2.89) High tone from PA possessive suffix *-Ø?

\[
\begin{array}{llll}
H & H & H & H \\
\vert & \vert & \vert \\
\text{sáx} & + ? \rightarrow \text{sáý} & \text{‘gaff hook’} \\
& [+\text{voi}] \\
\end{array}
\]

In both cases the stem tone is essentially retained.

As noted by Ritter (p.c.), compound falling tones arise in an analogous manner, through the affixation of historically low-tone suffixes to high tone stems. In particular, the PA nominalizing suffix *-Ø is not constricted and hence realized with low tone. In (2.90) I represent the Tanacross nominalizing suprafixed via the feature [+voiced] linked to a low tone. It has no segmental realization.
(2.90) Falling tone from nominalizing suffix PA *-ə

\[
\begin{array}{llll}
H & L & H & L \\
\end{array}
\]

\[t'\acute{e}\theta + [+voi] \rightarrow t'\acute{e}\delta\]

‘I fry the fish’

‘the fish which I fry’

As with high tone suffixes, the low tone of the nominalizing suffix has no effect on low tone stems.

(2.91) Low tone from nominalizing suffix PA *-ə

\[
\begin{array}{llll}
L & L & L & L \\
\end{array}
\]

\[me't\acute{e}s + [+voi] \rightarrow me'dz\]

‘I boil the fish’

‘the fish which I boil’

Although the kin term suffix *-ə is not productive, its presence in the form of a falling tone is readily apparent in a number of Tanacross kin terms. The forms in

(2.92) all derive from PA disyllabic forms in which the first syllable is constricted, symbolized here with an apostrophe (cf. Krauss 1977b).

(2.92) Tanacross kin terms with falling tone

\[-\mathbb{\ddot{c}}\acute{a}ry/ \text{‘woman’s grandchild’} < \text{PA *-k\c{c}’y\c{c}}\]
\[-\mathbb{\ddot{t}}\acute{e}y/ \text{‘grandfather’} < \text{PA *-\c{c}\c{c}’y\c{c}}\]
\[-\mathbb{\ddot{t}}\acute{a}y/ \text{‘father’s brother’} < \text{PA *-t\c{c}\c{c}’y\c{c}}\]

As expected, the historic kin term suffix does not change the tone of originally low tone forms, such as Tanacross /-t\ddot{h}ury/ ‘man’s grandchild’ < PA *tsuyə.
It is of course possible for these various processes yielding compound tones to compete with one another. This occurs, for example, in possessed forms of compound tone noun stems such as those in (2.86) and (2.87). In such cases the tone spread process applies in a recursive manner, first to the innermost suffix, then to the outermost suffix. However, triply linked tone bearing units are prohibited, so the second tone spread process applies with delinking as in (2.85). This is represented in (2.93) below.

(2.93) Possessed forms of compound tone stems

\[
\begin{array}{c}
T & T & T \\
\sqrt[3]{V} & \sqrt[3]{V} & \sqrt[3]{V}
\end{array}
\]

Even with this delinking it is still possible to derive a compound tone provided the first tone of the original compound tone differs from the outer suffix tone. Thus, in possessed forms rising tone stems behave as if they were low tone, and falling tone stems are behave as if they were high tone.

(2.94) Possessed forms of rising tone stems

\[
/x\dd{a}\theta/ \text{‘raft’} \quad /\dd{a}\dd{y}\dd{a}\dd{\dd{a}}\dd{\theta}/ \text{‘my raft’}
\]

(2.95) Possessed forms of falling tone stems

\[
/j\dd{e}\dd{g}/ \text{‘berries’} \quad /\dd{j}\dd{\dd{e}}\dd{g}/ \text{‘my berries’} \\
/dl\dd{e}\dd{g}/ \text{‘squirrel’} \quad /\dd{d}dl\dd{e}\dd{g}/ \text{‘my squirrel’}
\]

2.3.4 Extra-high tone

An additional level tone arises in verbal negation, indicated in PA via a vocalic suffix. Negative forms employ much the same heavy stem form as do
nominalized forms, though with an additional tone modification, resulting in extra-high tone. This phenomenon has only recently been reported in Tanacross (John Ritter, p.c.). A similar phenomenon is found in the Beaver Creek dialect of Upper Tanana (Minoura 1994). In the examples given below, the double acute accent indicates extra-high tone. The morpheme k ’á is an obligatory phrasal proclitic which, along with the extra-high tone, marks negation.

(2.96) Tanacross negative morphology (after Solomon 1997)

a.  ḥžá’tθ  ‘it’s snowing’

b.  k’á ḥžá’dθ  ‘it’s not snowing’

Evidence that this extra-high tone associated with negation is a true lexical tone rather than an intonational pattern comes both from within Tanacross and from comparison with other languages. Crucially, the negative verb form always includes voicing of the stem-final consonant, indicating the presence of a negative morpheme which is suprafixed in nature. This offers the possibility of a negative suprafix which has an associated tone. Further evidence is provided by Lower Tanana, which has a high-rising tone associated with negative suffixes (Tuttle 1998: 159).

(2.97) Comparison with Lower Tanana (Minto) negative morphology

a.  k’á nékǐ’ê’y  ‘I did not see it’ (Tanacross)

b.  nətl’ilɛ  ‘I did not see it’ (Lower Tanana)
The pitch on the Lower Tanana negative enclitic =ê begins higher than ordinary phrase final pitch and then rises. Tanacross extra-high tone likely has the same origin. The pitch difference may be motivated by the fact that Tanacross has an ordinary rising tone with which the extra-high tone might contrast, whereas Lower Tanana does not.

### 2.3.5 Tone spread

In addition to the leftward tone spread which gives rise to compound tone (section 2.3.3), there is in Tanacross an additional rightward spreading of high tone onto prefix syllables. This type of tone spread differs in two significant ways (other than its directionality) from the compound tone spreading rule. First, its domain is restricted to prefix syllables; tone does not spread rightward onto stem syllables. Second, only high tone spreads rightward; a high tone prefix following a low tone stem remains high.

When a high tone (or rising tone) precedes a low tone prefix syllable, the high tone generally spreads to the following syllable. This can be formulated autosegmentally as in (2.98) by assuming that unmarked prefix syllables have no associated tone but rather have low tone assigned by default if tone spread does not occur.
(2.98) High tone spread rule

\[
\begin{array}{c}
H \\
| \\
V \\
\end{array}
\quad \begin{array}{c}
L H \\
\downarrow \\
\downarrow \\
V V \\
\end{array}
\]

Rightward spreading of high tone is motivated by a constraint which requires all tone bearing units to be linked to a tone.

(2.99) Low tone prefix preceded by low tone stem remains low

\begin{align*}
\text{se'y} & \quad \text{nek?eh} \\
\text{se'y} & \quad \text{n-ek?-?eh} \\
\text{knife} & \quad \text{THM-1SG-see:IMPF} \\
\text{`I see the knives'}
\end{align*}

(2.100) Low tone prefix preceded by high tone stem becomes high

\begin{align*}
\text{lóx} & \quad \text{nék?eh} \\
\text{lóx} & \quad \text{n-ek?-?eh} \\
\text{fish.hooks} & \quad \text{THM-1SG-see:IMPF} \\
\text{`I see the fish hooks'}
\end{align*}

The domain of tone spread is restricted to prefix syllables; tone does not spread to a low-tone (unmarked) stem syllables.

Tone spread may occur cyclically rightward, but high tone does not spread to a pre-stem syllable which precedes a marked stem syllable (John Ritter, p.c.).

Thus in (2.101) tone spread from the high tone postposition ?éf occurs with the unmarked imperfective form of the verb stem `stay' but not with the marked perfective form.
(2.101) Blocking of tone spread

a. uʔél  δíhdah
   uʔél  δ-ih-dah
   3S-with  CJ-1SG-stay.IMPF
   ‘I’m staying with him’

b. uʔél  γíhdá?
   uʔél  γ-ih-dá?
   3S-with  CJ-1SG-stay.PERF
   ‘I stayed with him’

Falling tone stems also block the spread of high tone to a unmarked pre-stem syllable, as shown in (2.102). The *ná*-continuative morpheme in this example is lexically high toned but does not spread to the pre-stem syllable.

(2.102) Blocking of tone spread with falling tone stems

léts  náγokt’êδ
léts  ná-γo-ek-t’êδ
frybread  CONT-OPT-1S-cook:OPT
‘I’m gonna make frybread’
(LS 11/11/98)

2.3.6 Inherent low tone

There exist at least two Tanacross prefixes which block the spreading of preceding high tone. These morphemes always surface with low tone and hence can be analyzed as autosegmentally linked to a low tone. The most common example of such a morpheme is the *na*-iterative prefix. This prefix occurs thematically in the example in (2.103). The high tone of the noun *kòń*‘fire’ does not spread to the *na*-prefix of the following verb.18
(2.103) Blocking of tone spread with iterative na-

kό́nʔ natéγokk’ây
kό́nʔ na-té-yo-ek-k’ây
fire ITER-INCT-OPT-1SG-make:fire:OPT
‘I’m gonna build a fire’

When the iterative na- prefix is deleted via the process of na-absorption, the low tone of the iterative prefix is retained and combines with a preceding high tone to form a compound falling tone (see section 2.2.1).

(2.104) Falling tone from na-absorption

dets’ën xá’net’t’ax
dets’ën xá-na-n-et-t’ax
duck back-ITER-THM-D-fly
‘the duck is flying around’ (Solomon 1996: 11)

As in (2.103) the high tone of the prefix xá- does not spread to the following prefix after deletion of the na- iterative prefix.

2.3.7 Tone summary

All Tanacross syllables are lexically specified for one of four tones: high, low, rising, or falling. High tone develops from PA constricted syllables; low tone develops from PA non-constricted syllables. The existence of compound (rising and falling) tone represents an additional development beyond original tonogenesis; syllables with compound tone are, at least historically, bimorphemic.

In addition to these four tones, there is a fifth extra-high tone, marking verbal negation. Compound tones may be analyzed autosegmentally as sequences of level tones. Tonal phonology, including rules of tone spread, requires that stem
syllables be lexically specified for tone, whether high or low. For prefix syllables, in most cases only high tone need be specified; low tone can be assigned by default to syllables which remain toneless after application of tone spread rules. Exceptions include the *na-* iterative prefix and the bound postposition *e-*, which must be lexically specified as low.

### 2.4 Syllable structure

In this subsection I describe the structure of Tanacross syllables and the phonotactic restrictions on the distribution of segments within the syllable. The Tanacross syllable is fairly rigidly structured, with severe limitations on the occurrence of certain consonants in certain syllable positions. A primary distinction can be made between stem and prefix syllables. The stem syllable is here by definition considered to be the ultimate syllable of any word category. In Tanacross the morphological stem is monosyllabic; hence, the stem syllable minimally contains the stem but may also contain a suffix.\(^{19}\) The stem syllable permits a much more complex syllable structure and admits a much wider range of phonemic contrast. In contrast, the prefix syllable is relatively simple.

#### 2.4.1 Stem syllables

An additional distinction can be made between ‘light’ and ‘heavy’ stem syllables. These terms are usually abbreviated to ‘light stem’ and ‘heavy stem’, though following my use of the term stem they more accurately refer to the stem syllable
rather than just to the stem itself. Light stems are unsuffixed and are either open
or have codas which contain a single consonant or at most a sonorant consonant
and glottal stop.

(2.105) Light stem syllables

\[
\begin{align*}
C_1V \\
C_1VC_2 \\
C_1VC_2 \\
C_1VN (\text{where } N= [n], [y])
\end{align*}
\]

The coda is much more restricted than is the onset. The onset \( C_1 \) may be filled by
any obstruent, any voiceless fricative, a voiced palatal fricative, or a voiced
sonorant. The exceptional behavior of the voiced palatal fricative reflects its
source in PA *y (see section 2.1.4.1.4 above). In a light stem syllables the
consonant \( C_2 \) of a simple coda is voiceless. The contrast between unaspirated,
aspirated and ejective obstruents is neutralized in this position; obstruents are
realized as phonetically voiceless segments.

Heavy stems contain either a synchronic suffix or a fossilized suffix.

Where the suffix remains synchronically separable, heavy stem forms alternate
with corresponding light stem forms. Thus a given morphological stem may have
both light and heavy forms. In either case the morphology of the suffixation
process is highly fusional. The suffix merges with the stem syllable with
compensatory lengthening of the nucleus or coda. The possible heavy stem
syllable structures are listed in (2.105).
As with light stem syllables, the coda of heavy stem syllables is much more restricted than is the onset. The onset $C_1$ of a heavy stem syllable may be filled by any obstruent, any fricative, or a voiced sonorant. Voiced fricatives are phonetically semi-voiced in onsets of heavy stem syllables. The coda consonant $C_2$ in a heavy stem syllable is voiced and phonetically lengthened. The coda consonant is always released, and voicing may continue briefly beyond the release. The latter effect is more pronounced for stops than for other segments.

For sonorants an additional phonemic length distinction is possible in heavy stem syllable codas. Voiced sonorants may occur phonetically lengthened in heavy stems such as [nûrn] ‘animal’ or [k’ary] ‘marmot’. In these cases the ‘lengthening’ of the coda is analogous to that in [tlɛɡ] ‘squirrel’ or [teltsʰɛdз] ‘mouse’. In addition voiced sonorants may occur phonemically long as in [ʊkόn?] ‘his matches’ (compare [kόn?] ‘matches’).

The rhyme of a stem syllable must consist minimally of a long vowel, or a short vowel plus a consonant. Thus, the minimal Tanacross stem syllable is of the form $C_1V$ or $C_1VC_2$, examples of which are given below.  

(2.106) Heavy stem syllables

$C_1V?$
$C_1VC_2(\?)$
$C_1VN(\?)$ (where $N= [n], [y]$)
$C_1V^CN(\?)$ (where $N= [n], [y]$)

$C_1V\cdot$ or $C_1VC_2$, examples of which are given below.  

20
(2.107) Tanacross minimal (light) stem syllables

/za/  ‘sky’
/zá/  ‘louse’

Only the full vowels /i e u/ may occur long, thus reduced vowels /a/ and /ɛ/ occur only in closed stem syllables. There is a tendency for these vowels to occur long except when followed by a glottal stop or glottal fricative (though some exceptions are noted in section 2.2.1). Thus compare [tʰah] ‘among’ and [t’ær] ‘beneath’.

The morphological processes governing the distribution of light and heavy stem syllables are discussed in section 4.4.2 (for nouns) and section 5.5 (for verbs).

2.4.2  Prefix syllables

Prefix syllables are in general much less complex than stem syllables. The minimal prefix syllable consists of a single vowel or a single consonant serving as a syllabic nucleus. Examples of minimal prefix syllables are shown below. Consonants which may serve as syllable nuclei include [l], [ʃ], [x], [ɣ], [n]. The vowel [u] might also be considered an example of a syllabic consonant when occurring as an allophone of /m/ (see section 2.1.5.1 above). The vowel [i] could be considered a syllabic consonant when it occurs in prefix syllables as an allophone of the third person singular object prefix y-.
Examples of minimal prefix syllables

[utsih] ‘caribou’
[inehʔeh] ‘he’s looking at him’
[šmet] ‘my belly’
[xtek] ‘story, news’
[ʃtʰaʔïltʰet] ‘he ran away’
[nk’áʔ] ‘your gun’

The most common prefix syllable type is CV. The full prefix syllable template is given below.

Prefix syllable template

\[(C_1)(C_2)V(V)(C_2)\]

While prefix syllables may occur without onsets, only the vowels /u/ and /i/ may occur in such syllables. Other vowels require a prothetic glottal stop onset, as in [ʔahaʔ] ‘he’s walking along’. In addition, onsetless prefix syllables may only occur word-initially.

The onset of a prefix syllable may be filled by any consonant with the exception of glottal fricative [h], voiceless sonorants [ŋ ʃ], or alveolar and palatal voiced fricatives [z ñ]. Voiced fricatives are always fully voiced rather than semi-voiced in prefix onset position. Alveolar stops and sonorants and velar affricates are especially common prefix syllable-onset consonants.

The prefix syllable rhyme consists of a single mora, either a short vowel followed by a coda or a long vowel without a coda. As noted in section 2.2.1 above, long prefix vowels are always bimorphemic, arising as the result of
deletion of prefix consonants. Closed syllables containing long vowels do not occur as prefixes. The overwhelming majority of prefixes contain a front vowel.

2.5 Chapter summary

Like other Athabaskan languages Tanacross has a large inventory of stop and affricate consonants which contrasts three manners of articulation. The fricative inventory is somewhat smaller and contrasts only voiceless and voiced. The sonorant inventory is smaller still, and voicing alternations are largely morphologically determined. The vowel inventory is relatively simple, consisting of six phonemic vowels. With the exception of the merger of PA *ɔ and *a, the overall structure of the PA vowel system is essentially preserved. To this system Tanacross adds additional contrasts in nasalization, length and tone.

The existence of the six-vowel system appears to simplify the analysis of the Tanacross sound system. By allowing for a sixth phonemic vowel, as in the Tetlin dialect of Upper Tanana, the complexity of the length distinctions is greatly reduced. Distinctions which must be analyzed as length contrasts under a five-vowel analysis can be analyzed as quality contrasts under six-vowel analysis. From a comparative typological perspective it is interesting to note that Tanacross shares the six-vowel system (at least in structure, not quality) with neighboring dialects: Salcha (Lower Tanana) to the west and Tetlin (Upper Tanana) to the east.
Notes to chapter 2

1 The voiced palatal fricative actually never occurs fully voiced phonetically, but is instead consistently realized as [ʃ]. See the discussion of fricative voicing in section 2.1.4 and note 12 below.

2 Other patterns are also possible. For example, [k’áʔ] ‘gun’, and [šk’áʔ]

3 The actual place of articulation varies somewhat from just beneath the alveolar ridge to the postalveolar region.

4 John Ritter (p.c.) has observed merger of word-initial /u/ and the vocalic allophone [u] of the third-person possessive prefix /m/.

5 The neighboring Han Athabaskan language lacks the lateral approximant and instead exhibits an alternation between voiceless /l/ and voiced /ɬ/.

6 The lowered wedge IPA diacritic was chosen because it indicates voicing. However, this symbol fails to capture the dynamic nature of the semi-voiced consonants. A wedge opening rightward might better capture the crescendo voicing transition in these consonants (Krauss, p.c.)

7 Most orthographies write the semi-voiced fricatives distinctively (usually with an underscore under the voiceless variant), even though they are arguably not phonemic (given access to morphological) information. It would of course be possible to avoid these additional orthographic symbols by simply writing the voiced symbol for the semi-voiced one (e.g., z for š) and noting the morphophonemic rules which predict the occurrence of voiced and semi-voiced variants. This approach has the advantage of capturing the phonological unity of the lenis segments under one symbol. Indeed, older orthographies (e.g., McRoy 1973) do follow such a scheme (though shy is used instead of zh). But the current tendency among practical orthographies is to represent all three phonetic voicing values.

8 For example, we have [uk’ɛt] or [wʊk’ɛt] ‘on it’. The latter pronunciation differs from the former in having a narrower constriction of the lips.

9 Tone is not transcribed in Kari’s data.
Kari’s vocabulary list includes data from speakers Kenneth Thomas, Sr., Oscar Isaac, Silas Solomon, Andrew Isaac, Alice Brean, and Nellie Probert.

As Krauss & Leer (1981) point out, the precise phonetic characterization of PA *pʰw* (or *p₂, as they refer to it abstractly) is not clear. The labialization is motivated by the existence of two sets of correspondences which could be reconstructed as palatal nasal sonorants. The set to which ‘wedge’ belongs contains labial forms (e.g., Eyak wəl).

The lack of stem-initial voiced palatal sonorants may be an artifact of the particular phonological analysis presented here. I have classified semi-voiced [ʃ], the reflex of stem-initial PA *y-, as a fricative based on its apparent phonological patterning with fortis [ʃ] (see section 2.1.4.1). But the distribution of voicing in the palatal fricatives does not parallel that in the other fricatives. In particular, semi-voiced [ʃ] occurs in environments where fortis [ʃ] would be expected. It may be preferable to classify [ʃ] as a palatal sonorant, yielding an analysis in which the palatal and alveolar sonorants are more phonologically parallel. Both approaches have their merits, but it is not obvious which is more advantageous. Phonetically, [ʃ] clearly shares more with fricatives than with sonorants. It is on this basis that I classify it as a fricative.

In a very few cases a short vowel may occur in an open stem syllable, as in the negative particle k’á.

The study of the interaction between tone and intonation in Athabaskan languages is in its infancy, though Tuttle’s (1998) work with Lower Tanana represents an important effort in this direction. John Ritter (p.c.) has also been investigating intonational phenomena in Tanacross and Upper Tanana.

The social history of the study of Athabaskan tone is itself quite riveting. See Krauss (1986; 1979) for details.

Secondary tone may also arise in the modern languages from sources other than PA constriction, as is the case with Navajo (Krauss 1979).

Tone spread of the form shown here also occurs in languages which preserve both tone bearing units. For example, Lower Tanana (Minto) marked (low) tone associated with possessive suffixes spreads leftward to associated with the stem.
vowel (Krauss 1996). Original stem tone is delinked, resulting in a leveling of possessed nouns to marked (low) tone. Thus

18 John Ritter (p.c.) has observed some variation (perhaps idiolectal) in the ability of iterative *na*- to block high-tone spread. For example, *utáʔ nátédæk* ‘his father is walking around’ is a possible variant of *utáʔ nátédæk*. Even in the latter case, and in example (2.103) as well, high-tone spread may be additionally blocked by the same rule which prevents spreading to an unmarked syllable which is followed by a marked syllable.

19 In other Athabaskan languages stems may be disyllabic; Tanacross stems are always monosyllabic.

20 Some particles such as the negative marker *k’á* do appear to be of shape CV, but these are quite exceptional.

21 John Ritter (p.c.) reports some free variation between voiced and semi-voiced variants, for example, *[minlæʔɛtθ]* or *[minjæʔɛtθ]* ‘his thumb’.
Chapter 3 Two phonetic studies

In this chapter I present the results of two acoustic studies of the Tanacross sound system. The first explores the nature of the voicing distinction in fricatives. The second explores the relationship between tone and phonation. There are of course many other areas of the Tanacross sound system worthy of closer phonetic study; I have chosen to focus here on two areas which seem to play particularly important roles in Tanacross. Each of these areas can be considered an aspect of laryngealization, indicating the important role of this feature in Tanacross. The first deals with laryngeal states during fricative articulation; the second deals with laryngeal state during vowel articulation. 

3.1 Voicing distinctions in Tanacross fricatives

As noted in section 2.1.4.2, the phonetic realization of voicing in phonemically voiced fricatives varies considerably with the morphological position of the fricative. Voiced fricatives in prefix syllables or in stem syllable codas are consistently voiced. In stem onset position, voiced fricatives may be only partially or sporadically voiced, or even in some cases completely voiceless. While not phonemically distinct, such partially voiced fricatives have been referred to as ‘semi-voiced’ (cf. Leer 1982b; Solomon 1996).
In this section I attempt to characterize the phonetic nature of semi-voiced fricatives. At least in positions other than the lateral, Tanacross semi-voiced fricatives rarely exhibit true semi-voicing, in that they rarely show a clear monotonic transition from a voiceless to voiced state. The lateral series is exceptional in that the voiceless alveolar lateral fricative /l/ alternates with a voiced alveolar lateral approximant /l/.² Quantitative acoustic measurements indicate that Tanacross voiceless fricatives are consistently produced with greater high amplitude noise than their semi-voiced counterparts in stem onset position.

3.1.1 Phonetic correlates of voicing

There are several potential acoustic parameters which may serve to characterize the Tanacross semi-voiced fricatives. One obvious candidate is voicing, which can be readily observed in spectrographic data via a variety of quantitative measures. Other potential parameters are suggested by acoustic studies of languages which possess phonemic contrasts which are not easily accounted for in terms of voicing measures such as voice onset time. Among these languages are those which have been described as having a contrast between ‘fortis’ and ‘lenis’ consonants.

As noted by Jaeger (1983) the fortis/lenis distinction has been used in at least three different senses. Some researchers have used the fortis/lenis distinction to describe the distinction between voiceless aspirated and voiced unaspirated
consonants in languages like English (cf. Jakobson & Halle 1964). However, this type of distinction is much better characterized in terms of voice onset time (Lisker & Abramson 1964). Another type of system which has been characterized in terms of a fortis/lenis distinction is found in languages like Javanese and Korean, but these contrasts have been better explained in terms of laryngeal tension: ‘tense’ versus ‘lax’ voice (Catford 1977). A third type of language to which the term fortis/lenis has been applied has contrasts which are not explainable in terms of either voice onset time or laryngeal tension. It is this sense of the term fortis/lenis which appears to be most relevant to the distinction between voiceless and semi-voiced fricatives in Tanacross.

Studies of the fortis/lenis distinction in this third type of language have revealed several articulatory and acoustic factors which may potentially disambiguate fortis and lenis consonants. Lenis consonants tend to be articulated with less force and have more gradual onsets of following vowels. When compared with their fortis counterparts, lenis consonants also tend to be erratically voiced, be of shorter duration, and employ a lower pressure airstream with lower intensity frication. These results are summarized below.
Table 3.1: Phonetic correlates of the fortis/lenis distinction (after Jaeger 1983)

<table>
<thead>
<tr>
<th>Articulatory</th>
<th>Fortis</th>
<th>Lenis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulatory</td>
<td>greater force of articulators</td>
<td>less force of articulators</td>
</tr>
<tr>
<td></td>
<td>sharper onsets of following</td>
<td>more gradual onsets of</td>
</tr>
<tr>
<td></td>
<td>vowels</td>
<td>following vowels</td>
</tr>
<tr>
<td>Glottal</td>
<td>voiceless</td>
<td>fluctuate between voiced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and voiceless</td>
</tr>
<tr>
<td>Timing</td>
<td>longer</td>
<td>shorter</td>
</tr>
<tr>
<td>Pulmonic</td>
<td>greater air pressure</td>
<td>less air pressure</td>
</tr>
<tr>
<td></td>
<td>higher intensity frication</td>
<td>lower intensity frication</td>
</tr>
</tbody>
</table>

In the remainder of this section I examine some potential phonetic correlates of a fortis/lenis distinction in Tanacross fricatives with the intent of gaining a better characterization of semi-voiced fricatives. Quantitative analysis of acoustic data does in fact indicate that Tanacross voiceless fricatives share many of the phonetic correlates of fortis consonants in Table 3.1, while semi-voiced fricatives share many of the phonetic correlates of lenis consonants. This is not to say that the voicing contrast in Tanacross fricatives would be better described in terms of fortis and lenis. But at least this correlation does go some way toward characterizing the phonetic nature of Tanacross semi-voiced fricatives. In particular, Tanacross semi-voiced fricatives are distinguished from voiceless fricatives stem-initially by their shorter duration and lower intensity of frication.

While I have not had the opportunity to investigate potential articulatory correlates, the three acoustic factors in Table 3.1 are readily examined using spectrographic and waveform analyses of digitized recordings. My preliminary investigations indicate that both the glottal and pulmonic factors are relevant to
the distinction between Tanacross voiceless and semi-voiced fricatives. This preliminary study is based on a sample of 226 fricatives from Tanacross speakers Irene Solomon and Jerry Isaac, analyzed using Signalyze and ESPS Waves.³

3.1.1.1    Voicing and spectrographic data
The presence of voicing in a fricative segment is reflected instrumentally in the presence of voicing bars in a wide-band spectrogram. By this gauge phonemically voiceless Tanacross fricatives can be seen to be consistently voiceless. However, qualitative investigation of voicing data for phonemically voiced fricatives reveals that only for the lateral series are stem-initial voiced fricatives consistently realized as semi-voiced. An example is shown in Figure 3.1.

Figure 3.1: Spectrogram of /ʃɬɹ̪?/ ‘my dog’

Here the lateral fricative begins without any voicing bars present, i.e., it is phonetically voiceless. The vertical lines demarcate the onset and release of the semi-voiced lateral fricative. Approximately mid-way through the segment,
voicing bars appear, indicating the onset of voicing. This segment is thus truly ‘semi-voiced’: it begins voiceless and transitions to a voiced segment.

However, the voicing behavior is quite different for the other four fricative series. In some cases, a stem-initial dental, alveolar, palatal or velar voiced fricative may begin voiceless and transition to voiced, as in Figure 3.1. But in most cases spectrograms of such fricatives show erratic voice bar patterns or even no voice bars whatsoever. For example, spectrograms of both the voiceless dental fricative in Figure 3.2 and the semi-voiced dental fricative in Figure 3.3 show a complete absence of voice bars. That is, both the voiceless and voiced dental fricatives in these examples are phonetically voiceless.

Figure 3.2: Spectrogram of /náʔihθət/ ‘I am standing’
Figure 3.3: Spectrogram of /náʔéʔet/ [náʔéʔet] ‘/s/he is standing’

These two examples can be compared with a spectrogram of a fully voiced dental fricative in a prefix syllable, as shown in Figure 3.4. Here voicing bars are clearly present in the spectrogram throughout the full duration of the segment.

Figure 3.4: Spectrogram of /diɗindah/ [tiɗintah] ‘you are sitting down’

These examples are not necessarily representative of the sample, but they serve to demonstrate the range of voicing variation which is possible. I now turn to the quantitative analysis of the acoustic data.
3.1.1.2 Quantitative measures of voicing

In order to better quantify these results, I compiled two measures of fricative voicing for each of the stem-initial phonemically voiced fricatives in the sample. The lateral fricative was excluded from these measurements, as it exhibits consistent partial voicing. For each of the remaining fricatives in the sample, I first examined a wide-band spectrogram to see if any voicing bars were present for the duration of the fricative. All of the fricatives in the sample were in intervocalic position, and the edges of the higher formants of the surrounding vowels were used to demarcate the boundaries of the consonant. The resulting measurement was discrete: voicing bars were either present or absent. This measurement thus divided the phonemically voiced fricatives into two classes: phonetically voiceless and phonetically partially voiced. By dividing the number of partially voiced fricatives by the total number of phonemically voiced fricatives for each series, we obtain a percentage which indicates the frequency with which phonemically voiced fricatives can be truly said to be ‘semi-voiced’. These results are shown in Table 3.2.

Table 3.2: Voicing and voice onset time (VOT) of semi-voiced fricatives

<table>
<thead>
<tr>
<th></th>
<th>% partially voiced</th>
<th>mean VOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>[θ]</td>
<td>41</td>
<td>-17.8 ms</td>
</tr>
<tr>
<td>[ʃ]</td>
<td>47</td>
<td>-31.4</td>
</tr>
<tr>
<td>[ɣ]</td>
<td>24</td>
<td>-7.2</td>
</tr>
<tr>
<td>[ɣ]</td>
<td>46</td>
<td>-17.8</td>
</tr>
</tbody>
</table>
For each of the four series this frequency is less than half. In other words, more than half of the time semi-voiced fricatives occur without any voice bars present in the segment.

In addition to this discrete measurement of voicing, I also measured voice onset time (VOT). This measurement was somewhat more difficult to operationalize, as voicing in some tokens of voiced fricatives was rather erratic and did not exhibit a monotonic transition from voiceless to voiced. Thus, VOT was measured only for the tokens for which the measurement made sense. VOT is most typically employed as a measure of aspiration, represented as the amount of time elapsed between the release of a consonant and the onset of voicing for a following segment. For our purposes, we expect voicing to begin before the release of the fricative segment, unless the fricative is entirely voiceless. Thus, we expect VOT measurements for phonemically voiced fricatives to be either negative or zero. Smaller (more negative) VOT measures will thus correspond to earlier transition from voiceless to voiced during the articulation of a semi-voiced fricative.

For this measurement the higher formats of the following vowel were used to delineate the temporal boundary of the fricative, and the first voice bar in the fricative was used to mark the beginning of voicing. Completely voiceless fricatives thus have a VOT of zero. For each of the four series VOT
measurements for voiced fricatives were then averaged. The resulting means all indicate a relatively short VOT in the range of -20 ms. The complete results are shown in Table 3.2 above. Since the duration of most voiced fricatives in the sample is on the order of 200 ms, this VOT value does not represent a (qualitatively) significant difference from zero. The VOT measurements thus confirm the discrete measurements of voicing.

Taken together with the discrete measurements of voicing, the VOT measurements indicate that phonemically voiced and voiceless fricatives do not appear to differ significantly with respect to the presence of voice bars. If the presence of voice bars is taken to be an indicator of phonetic voicing, then phonemically voiceless fricatives are always voiceless, but phonemically voiced fricatives in stem-initial position are often voiceless as well. These results are of course somewhat qualitative, but they do indicate that voicing alone is probably not a sufficient parameter with which to distinguish voiced and voiceless fricatives in stem-initial position.

3.1.1.3  Duration
Another potential distinguishing factor which has been suggested is timing. However, duration measurements of the fricatives in the sample indicate that while fully voiced (hence not stem-initial) fricatives are clearly of shorter duration than phonemically voiceless fricatives, duration does not disambiguate
phonemically voiced and voiceless fricatives in stem-initial position. These results are summarized below.

Table 3.3: Mean duration of fricatives in milliseconds

<table>
<thead>
<tr>
<th></th>
<th>voiceless</th>
<th>voiced (stem-onset)</th>
<th>voiced (elsewhere)</th>
</tr>
</thead>
<tbody>
<tr>
<td>dental</td>
<td>194</td>
<td>186</td>
<td>79</td>
</tr>
<tr>
<td>alveolar</td>
<td>184</td>
<td>212</td>
<td>94</td>
</tr>
<tr>
<td>palatal</td>
<td>174</td>
<td>185</td>
<td>——</td>
</tr>
<tr>
<td>velar</td>
<td>152</td>
<td>208</td>
<td>88</td>
</tr>
</tbody>
</table>

There is no statistically significant difference in duration between the voiceless and voiced (i.e., semi-voiced) fricatives in stem-onset position.

3.1.1.4 Amplitude and intensity of frication

A clue to the acoustic factors which distinguish voiceless from voiced fricatives in stem-initial position can be found in the higher frequencies of spectrograms such as that in Figure 3.3. There the voiceless fricative exhibits a greater amount of high frequency (>3000 Hz) noise than does the corresponding voiceless fricative. This appears to be especially true for \( \theta \) and \( x \). This observation appears to agree with Jaeger’s (1983) findings for Jawoñ, namely, that fortis fricatives are often produced with greater pulmonic force than their lenis counterparts. In other words, fortis fricatives have more friction.

Following Jaeger (1983), the degree of pulmonic force (i.e., frication) can be measured by calculating the amplitude of the signal after subtracting the effects
of voicing. Applying a 500 Hz high-pass filter ensures that any contribution to the amplitude from voicing is neutralized. It is then possible to calculate the peak amplitude of the signal over the duration of the fricative. I applied these calculations to each of the stem-initial fricatives in the sample and then computed the mean and standard deviation for each series. I further divided the results by speaker to eliminate the effect of cross-speaker variation. The results are summarized in Table 3.4 below.

Table 3.4: Mean peak amplitude of frication in dB (500 Hz filter, 10 ms window) for fricatives in stem-initial position

<table>
<thead>
<tr>
<th></th>
<th>Speaker 1</th>
<th></th>
<th>Speaker 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>voiceless</td>
<td>voiced</td>
<td>voiceless</td>
<td>voiced</td>
</tr>
<tr>
<td>dental</td>
<td>9.4 ± 1.6</td>
<td>5.8 ± 1.7</td>
<td>8.5 ± 2.4</td>
<td>4.3 ± 1.2</td>
</tr>
<tr>
<td>alveolar</td>
<td>15.3 ± 0.4</td>
<td>13.2 ± 1.8</td>
<td>8.6 ± 1.5</td>
<td>6.3 ± 1.5</td>
</tr>
<tr>
<td>palatal</td>
<td>15.9 ± 1.7</td>
<td>14.5 ± 0.6</td>
<td>10.2 ± 1.1</td>
<td>9.2 ± 1.4</td>
</tr>
<tr>
<td>velar</td>
<td>12.2 ± 2.8</td>
<td>11.7 ± 1.2</td>
<td>11.1 ± 1.7</td>
<td>8.4 ± 1.8</td>
</tr>
</tbody>
</table>

In both speakers there is a clear (though not always statistically significant) difference in amplitude between phonemically voiced and voiceless fricatives in stem-initial position. Figure 3.5 shows a spectrogram and (filtered) amplitude for a voiceless fricative followed by a semi-voiced fricative. The lack of high frequency noise in the semi-voiced fricative is readily apparent in the spectrogram and is paralleled by a lower amplitude.
Figure 3.5: Spectrogram and amplitude for /sɜːs ʒɜːr/ [sɜːs ʃɜːr] ‘nice robin’

In summary, only for the lateral series can we say that the voiced fricative is truly ‘semi-voiced’ in stem-initial position. The semi-voiced lateral fricative begins voiceless and transitions to voiced. Other semi-voiced fricatives exhibit quite a bit of variation in voicing and are no shorter in duration than their voiceless counterparts. However, we can tentatively characterize semi-voiced fricatives in stem-initial position as having lower amplitude frication noise, a characterization which seems to agree with acoustic studies of lenis fricatives in languages which have a fortis/lenis contrast.

3.1.2 Summary

Although Tanacross has sometimes been described as having a three-way voicing contrast in fricatives, it should be emphasized that there is only a two-way phonemic contrast. The semi-voiced variants occur as allophones of the voiced fricatives and are restricted to stem onset position.
The phonetic nature of the Tanacross semi-voiced fricatives is partially obscured by the ad-hoc label ‘semi-voiced’. In some cases, semi-voiced fricatives can be considered to be complex segments which transition from a phonetically voiceless to a phonetically voiced fricative. This is consistently the case with the semi-voiced lateral fricative. However, in many other cases this characterization of semi-voiced fricatives is inappropriate.

The fortis/lenis distinction may not be entirely appropriate to the characterization of voicing distinctions in Tanacross fricatives either; however, at least some of the acoustic parameters which have been associated with the fortis/lenis distinction in languages such as Jawoñ also correlate well with the voiceless versus semi-voiced distinction in Tanacross. In particular, semi-voiced fricatives do appear to contain less high-frequency noise than do their voiceless counterparts. Further investigation of these acoustic parameters may thus help to provide a better understanding of the semi-voiced phenomenon in Tanacross.

Moreover, it seems likely that similar semi-voiced phenomena exist in neighboring languages. Minoura reports a “three-way opposition of fricatives in terms of voice” in Upper Tanana Athabaskan (1994:166). And recent field work with Harry David, Jr. suggests that semi-voiced fricatives also exist in the speech of at least some speakers of Han Athabaskan (though in other speakers the semi-voiced distinction is not present (cf. Ridley 1983)). Very probably the semi-
voiced distinction in stem-initial fricatives is an areal phenomenon characteristic of eastern Alaska Athabaskan languages.

### 3.2 Pitch, tone and phonation

This study of phonation type represents a preliminary examination of the non-pitch related phonetic correlates of tone. The evidence suggests that laryngealization distinctions in vowels may correlate with lexical tone at least as well as does pitch.

#### 3.2.1 Pitch

While there is quite a bit of variability among speakers as to the pitch level corresponding to marked (high) and unmarked (low) tone, for any given speaker the pitch associated with each tone is very steady and consistent. That is, when we compare the tone on marked stems, such as those in the left column of Table 2.3, with those of marked stems, such as those in the right column of Table 2.3, we find consistent and statistically significant differences in pitch. Table 3.5 shows the results of such a comparison for one female speaker.

<table>
<thead>
<tr>
<th>tone</th>
<th>mean F0</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>unmarked</td>
<td>182 Hz</td>
<td>13.0 Hz</td>
</tr>
<tr>
<td>marked</td>
<td>221 Hz</td>
<td>14.6 Hz</td>
</tr>
</tbody>
</table>

\( t=7.80, \ df=29, \ p<.0001 \)
To control for the effects of phrase-final intonation, this sample is comprised of nouns stems elicited in non-phrase final position. The pitches of marked and unmarked stems, as measured by fundamental frequency, are clearly differentiated from each other.

The fundamental frequency of the extra-high tone is on the order of 20-30 Hz higher than that of the ordinary level high tone. The pitch trace in Figure 3.6 is from a male speaker’s pronunciation of k’á yeh t’ēd ‘he is not frying it’.

Figure 3.6: Pitch trace showing negative intonation with extra-high tone

A pitch trace of this phrase is shown in Figure 3.7. The pitch clearly falls toward the end of the second syllable of the phrase, remaining low until the onset of the vowel of the final syllable.
3.2.2 Phonation

In this section I discuss the phonation type correlates of tone in Tanacross. One of the significant unanswered questions regarding Athabaskan tonogenesis concerns the phonetic nature of PA vowel constriction and the extent to which these phonetic properties have been maintained in the modern languages. Kingston (1985) proposes that constricted vowels in PA (or shortly after PA) may have been accompanied by some type of laryngealization and suggests plausible means by which both high and low tone could have developed from this laryngealization. Kingston posits two types of laryngealization, creaky and tense voice, both of which are “produced with a medial compression of the vocal folds which lengthens the closed phase of the glottal cycle and thereby tilts the spectrum up” (Kingston 1985: 42). According to Kingston these two types of laryngealization are each produced with different rates of vocal fold vibration, resulting in differing pitch levels. Under this hypothesis Athabaskan tonogenesis was thus the
result of the “characteristic fundamental frequency supplant[ing] spectral perturbation as the principal feature of constriction” (Kingston 1985: 42).

As Leer (1999) points out, this hypothesis invites the possibility that the phonetic properties of PA constriction may have included both phonation and tone. Were this the case then it would be entirely plausible that some sort of laryngealization feature persists today in the modern Athabaskan languages. Tonogenesis would then result from a restructuring in the salience of one feature over the other. Or as noted by Krauss (p.c., 1998) the highlighting of tonal features over laryngeal features may be an artifact of modern linguistic analysis rather than a reflection of speakers’ psychological reality. In any case, what is interesting about this hypothesis from an instrumental point of view is that such tilting of the spectrum should be detectable as increased energy in higher vowel formants, an easily quantified acoustic parameter.

While the nature of vowel phonation has not been extensively studied in Tanacross, some glottal-final marked (high-tone) syllables are indeed noticeably laryngealized (e.g., ŝtāʔ ‘my father’). Preliminary acoustic studies appear to support this impressionistic observation that Tanacross marked syllables have a concomitant creaky voice component as compared to unmarked syllables. Several instrumental techniques have been established to distinguish creaky and modal phonation types. Although phonation is related to the state of the glottis, glottal
activity need not be directly observed in order to infer information about phonation. Several acoustic measures have been shown to be adequate predictors of phonation type. Ladefoged et al. (1988) and Kirk et al. (1993) have examined acoustic techniques in several languages which are known to exhibit a phonemic distinction between creaky and modal voice vowels. In these languages, which include Burmese and Jalapa Mazatec, the existence of creaky phonation is well-established. Minimal pairs differing only in phonation type (rather than, say, vowel quality or pitch) can be found. Thus, one can be relatively certain that acoustic parameters associated with differences between phonemically creaky and modal vowels in these languages are relatively good indicators of phonation type.

Kirk et al. (1993) make two important observations regarding the spectrographic properties of creaky (laryngealized) vowels. First, the formants of creaky vowels tend to be clearer and more crisply delineated than those of modal vowels. Second, creaky vowels tend to have more energy in their higher formants than do modal vowels of the same quality. Both of these properties appear to be associated with Tanacross marked vowels. The plots below show a wide band spectrogram (300 Hz bandwidth filter) for an unmarked (Figure 3.8) and a marked (Figure 3.9) Tanacross noun stem containing the same vowel. Both stems are typical in pitch for their respective markedness categories: the low tone stem thhe has an F0 of 174 Hz; the high tone stem th’éex has an F0 of 210 Hz.
Several qualitative differences are recognizable in these spectrograms. Both plots Figure 3.8 and Figure 3.9 show similar formant frequencies, reflecting the similar qualities of the two vowels, both mid front [e]. However, the formant bands in the spectrogram of /θ̄e/ are less fuzzy than those in /θe/. In addition, the marked stem shows greater relative amplitude in the higher formats than does the unmarked stem. That is, the relative darkness of the higher formants in comparison to F0 is much greater in the marked stem than in the unmarked stem. All formants appear equally dark in the marked stem, indicating equal energy. But the higher formants in the unmarked stem are significantly lighter than F0. (These
observations may quantified using power spectra—see below.) Thus, the features associated with the spectrogram of Tanacross marked stem vowels are the same features which have been found to be associated with creaky voice in languages which distinguish creaky vowel phonemically.

In order to quantify these observations of Tanacross spectrographic data, I examined the power spectra of vowels in a short sample of Tanacross noun stems. Each noun stem was elicited in a frame sentence in order to minimize the effects of prosodic intonation contours. A typical frame was something like *jan du? _____ sint’eh* ‘this is a ______’. For each stem I measured the amplitude of F0 and F1 at the center of the vowel. F0 measurements were made using FFT spectra, and F1 measurements were made using LPC spectra. A statistical t-test was applied to the difference of these measurements (amplitude at F1 less amplitude at F0). In general, this difference is negative or near zero for marked syllables (i.e., more energy in the higher harmonics) and positive for unmarked syllables (i.e., less energy in the higher harmonics). And the two means are statistically disassociated.

<table>
<thead>
<tr>
<th>tone</th>
<th>mean Δ amplitude</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>high (marked)</td>
<td>3.4 dB</td>
<td>4.2 dB</td>
</tr>
<tr>
<td>low (unmarked)</td>
<td>-1.9 dB</td>
<td>5.5 dB</td>
</tr>
</tbody>
</table>

\[ t=2.77, \text{df}=13, \text{p}<.02 \]
Some sample power spectra from the data are shown below for unmarked (Figure 3.10–Figure 3.12) and marked (Figure 3.13–Figure 3.15) syllables containing three different vowels. It is important here to compare power spectra for marked and unmarked vowels of similar quality, as the frequency of a vowel formant also affects its intensity.

Figure 3.10: Power spectrum for unmarked noun /tθe/ ‘rock’

Figure 3.11: Power spectrum for unmarked noun /sa/ ‘sun’
Figure 3.12: Power spectrum for unmarked noun /tl’url/ ‘rope’

Figure 3.13: Power spectrum for marked noun /θéχ/ ‘sinew’

Figure 3.14: Power spectrum for marked noun [-kʰan] ‘arm’
This data indicates that marked syllables do exhibit a significantly greater degree of laryngealization, or creak, than do unmarked syllables. This result is perhaps somewhat surprising, as creak is usually associated with lowered pitch, whereas in Tanacross the high-toned syllables seem to exhibit more creak than the low-tone ones.

The existence of a correlation between marked tone and creaky phonation in Tanacross is at least compatible with the hypothesis that PA constriction involved some sort of creakiness or laryngealization. However, it is of course possible that the observed creak is a synchronic effect unrelated to tone. This sort of creak can be observed in Navajo vowels in the environment of a glottal stop (Ian Maddieson, p.c.). Even if creak were present in PA constricted syllables, it could well have disappeared once tone became the distinguishing phonemic quality. On the other hand, it is also possible that the functional role of creak lingered on in Tanacross, amplifying and augmenting the role played by tone. In that case the observed creak could be viewed as a vestige of historical
constriction. The strength of the correlation between tone and phonation offers at least circumstantial evidence in favor of lingering creak. It seems unlikely that synchronous creak would develop so fully without a PA source.

3.3 Chapter summary

The results of these studies represent a preliminary step toward the characterization of the phonetic nature of fricative voicing and vowel tone. Laryngealization appears to play an important role in both features. The coverage here is far from complete, and much phonetic investigation of the Tanacross sound system remains to be done. One important area for future research is the behavior of pitch in pragmatically marked structures such as negation and contrastive focus. This is currently the subject of ongoing research by John Ritter (p.c.).
Notes to Chapter 3

1 The instrumental data presented in this chapter are derived from digital recordings made with a Sony TCD-D7 digital audio recorder and Sony ECM-959 microphone. These digital recordings were transferred onto a Dell Pentium III computer via a direct digital cable with a sample rate of 22,050 hertz. Acoustic analysis was performed using the PCQuirer and Speech Analyzer software packages. Some additional acoustic analysis was performed using ESPS Waves on a Sun Sparc workstation and Signalyze on a Macintosh computer.

2 The neighboring Han Athabaskan language lacks the lateral approximant and instead exhibits an alternation between voiceless /ɬ/ and voiced /ɬ/.

3 Data from Jerry Isaac is recorded in Isaac (1997).

4 The greater amplitude (darkness) of the second plot is attributable to the greater overall loudness in the second word. Each of the dark bands represents a vowel formant, one of the resonant harmonic “overtones” in the vocal cavity. The frequencies of the formants characterize the shape of the vocal cavity and hence the quality of the corresponding vowel.

5 Thanks to Siri Tuttle for pointing this out.
Chapter 4  Noun morphology

The lexical category of noun in Tanacross can be morphologically delimited as the class of lexemes which may be inflected for possession via possessive prefixes and suffixes. Inflection is in some cases obligatory, as in the case of inalienable nouns. There are also some nouns which do not occur in possessed form but are included in this category because they pattern semantically with other nouns defined on morphological criteria and share similar distributional patterns. Pronouns might also be considered to fall within the noun category based on distributional criteria, but they are excluded here because they fail to satisfy morphological criteria for nouns. (Pronouns are discussed in section 6.1 below.) Postpositions may be inflected with pronominal prefixes which are formally identical to possessive prefixes; however, postpositions cannot be inflected with possessive suffixes. Postpositions also differ from nouns in their distributional properties. I follow Rice (1989) in distinguishing postpositions as a separate lexical category (see section 6.4 below).

Nominal morphology is relatively simple in comparison to verbal morphology. Nouns may be inflected for possession, and nouns referring to humans may be optionally marked for plural number. Beyond compounding and nominalization, there is no productive derivational morphology which operates on
nouns. However, both compounds and nominalizations form an extremely rich part of the lexicon, permeating the semantic structure of the language.

The configurational properties of nouns are quite variable. Simple nouns may consist of a single syllable and single morpheme; whereas, complex nouns may consist of several syllables and include derivational morphology. I distinguish here between basic and derived nouns. Basic nouns are usually mono-morphemic and monosyllabic but may also be polysyllabic words which are not synchronically analyzable as poly-morphemic. In contrast, derived nouns include overt derivational morphology and are hence poly-morphemic. Derived nouns may include fossilized derivational affixes or may be the products of the productive derivational processes of compounding and nominalization. Derived nouns also include inherently possessed nouns which include possessive suffixes. In addition to basic and derived nouns, loanwords can be considered a distinct category of noun.

This chapter is organized as follows: section 4.1 describes basic nouns; section 4.2 describes affixed nouns, compounds and nominalization; section 4.3 deals with loanwords; section 4.4 describes the possessive construction and possessive morphology; and section 4.5 describes nominal number.
4.1 Basic nouns

Many Tanacross nouns consist of a single morpheme, and the overwhelming majority of these are monosyllabic. I call these basic nouns. There are a large number of such nouns; I cite only a few examples below. One criterial feature of basic nouns is level tone. Monosyllabic nouns with compound tone necessarily derive from more than one morpheme (at least diachronically).

(4.1) Monosyllabic basic nouns

<table>
<thead>
<tr>
<th>P</th>
<th>Meaning</th>
<th>P</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>de'ı</td>
<td>'blood'</td>
<td>k’á?</td>
<td>'gun'</td>
</tr>
<tr>
<td>de'ı</td>
<td>'sandhill crane'</td>
<td>je’y</td>
<td>'mittens'</td>
</tr>
<tr>
<td>tu</td>
<td>'water'</td>
<td>čẹŋ</td>
<td>'meadow'</td>
</tr>
<tr>
<td>te’y</td>
<td>'trail'</td>
<td>ču’y</td>
<td>'down feathers'</td>
</tr>
<tr>
<td>t’a’θ</td>
<td>'cottonwood'</td>
<td>č’ox</td>
<td>'quill'</td>
</tr>
<tr>
<td>t’es</td>
<td>'charcoal'</td>
<td>k’éy?</td>
<td>'willow'</td>
</tr>
<tr>
<td>dla’t</td>
<td>'moss'</td>
<td>ŋa’y</td>
<td>'snowshoe'</td>
</tr>
<tr>
<td>tl’ox</td>
<td>'grass'</td>
<td>ŋe’k</td>
<td>'dress'</td>
</tr>
<tr>
<td>tl’as</td>
<td>‘clam’</td>
<td>ċet</td>
<td>‘smoke’</td>
</tr>
<tr>
<td>dōde’ı</td>
<td>‘mountain’</td>
<td>li’</td>
<td>‘dog’</td>
</tr>
<tr>
<td>tōe’</td>
<td>‘rock’</td>
<td>sa’</td>
<td>‘sun’</td>
</tr>
<tr>
<td>tōe’k</td>
<td>‘caribou fence’</td>
<td>se’k</td>
<td>‘saliva’</td>
</tr>
<tr>
<td>tō’eŋ</td>
<td>‘bone’</td>
<td>ã’ri</td>
<td>‘embers’</td>
</tr>
<tr>
<td>tō’e’x</td>
<td>‘sinew’</td>
<td>ã’ry</td>
<td>‘sand’</td>
</tr>
<tr>
<td>dzẹŋ</td>
<td>‘muskrat’</td>
<td>šos</td>
<td>‘bear’</td>
</tr>
<tr>
<td>dzẹ’x</td>
<td>‘pitch’</td>
<td>še’n</td>
<td>‘summer’</td>
</tr>
<tr>
<td>tsá’</td>
<td>‘beaver’</td>
<td>ža’x</td>
<td>‘house’</td>
</tr>
<tr>
<td>tsj’θ</td>
<td>‘otter’</td>
<td>ža’</td>
<td>‘lice’</td>
</tr>
<tr>
<td>ts’ey</td>
<td>‘boat’</td>
<td>xé’l</td>
<td>‘club’</td>
</tr>
<tr>
<td>ts’ɨt</td>
<td>‘porcupine’</td>
<td>xetl</td>
<td>‘sled’</td>
</tr>
<tr>
<td>gah</td>
<td>‘rabbit’</td>
<td>meŋ</td>
<td>‘lake’</td>
</tr>
<tr>
<td>gu’θ</td>
<td>‘fireweed’</td>
<td>nén?</td>
<td>‘land’</td>
</tr>
<tr>
<td>kón?</td>
<td>‘fire’</td>
<td>n’dur</td>
<td>‘forest’</td>
</tr>
<tr>
<td>žeg</td>
<td>‘lie, untruth’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Many basic nouns may also serve as verb stems with the addition of aspectual suffixes. It has been suggested that basic nouns are fundamental roots from which both nouns and verb may be derived (cf. Sapir 1932; Hoijer 1971).

In addition to monosyllabic basic nouns, there are a fair number of Tanacross basic nouns which consist of more than one syllable. In many cases polysyllabic nouns can be analyzed as the result of derivational affixation, borrowing, compounding, or nominalizations (see below). However, there remains a small residue of polysyllabic nouns which are not analyzable and must be considered basic. Sometimes it is possible to identify component morphemes in these nouns, but it is often not possible to assign specific meanings to these morphemes.

(4.2) Polysyllabic basic nouns

| ts’éhxeh | ‘girl’ |
| déneh | ‘man, person’ |
| dets’ên | ‘duck’ |
| nondlêd | ‘white person’ |
| denîg | ‘moose’ |
| kentsiŋθ | ‘mocassin’ |
| xáxkeh | ‘chief’ |
| sejel | ‘grayling (Thymallus arcticus)’ |
| č’ehtêg | ‘ruffed grouse (Bonasa umbellus)’ |
| ṇtsił | ‘flicker (Colaptes auratus)’ |

There also exist monosyllabic Tanacross nouns which derive historically from polysyllabic nouns. One source of such nouns is in the so called PA ‘broken’ or polysyllabic stems.
(4.3) Tanacross monosyllabic nouns from PA polysyllabic stems

\[ \text{xir}^\theta \text{ ‘raft’ < PA } *\text{χαρας} \]
\[ \text{ts’ed}^\text{?} \text{ ‘blanket’ < PA } *\text{ts’өdi?} \]
\[ \text{dэy ‘spring’ < PA } *\text{dэяөө} \]
\[ \text{ts’oγ ‘spruce’ < PA } *\text{өө’өөөөө} \]
\[ \text{jэγ ‘berry’ < PA } *\]
\[ \text{dлэг ‘squirrel’ < PA } *\text{dэ-лөө-ө} \]

### 4.2 Derived nouns

In most cases polysyllabic nouns can be analyzed as derivations from either mono-morphemic nouns or polysyllabic verbs. The derivational processes involved include prefixation, suffixation, compounding, and nominalization. In addition, polysyllabic nouns may arise as the result of borrowing from other languages. I discuss each of these processes in the next four subsections.

#### 4.2.1 Derivational affixes

Some nouns appear to be derived from other noun or verb stems via affixation of the prefix \text{de-}. This meaning of this prefix is unclear.

(4.4) Nouns prefixed by \text{de-}

\[ \text{deža’z} \quad \text{‘cow moose’} \]
\[ -ža’z \quad \text{‘woman’s son’} \]
\[ \text{dэme’} \quad \text{‘Dall sheep } (\text{Ovis dalli})' \]
\[ -\text{ma’} \quad \text{‘gray’} \]

Nouns may also be built from a root plus a prefix which is formally identical to an adverbial verb prefix, such as \text{tθ’i-} ‘straight’ or \text{tэh-} ‘underwater’.
(4.5) Nouns containing adverbial prefixes

a. tθ’irúʔ ‘Tanana River, major river’
   tθ’i- ‘straight’
   tur ‘water’

b. tehmíl ‘fishnet’
   teh- ‘underwater’
   míl ‘snare’

The noun prefixes discussed above are not synchronically productive, though the corresponding adverbial prefixes are a productive part of the verbal morphology.

In some cases monosyllabic nouns may contain fossilized suffixes. One example in Tanacross is the reflex of the PA instrumental suffix *-l. This suffix may occur on both nouns and verbs.

(4.6) PA instrumental suffix

   tl’url ‘rope’ (cf. deč’ihtl’ur ‘I set a snare’ < -tl’ur ‘manipulate fiber’)
   k’iřl ‘birch sap’ (cf. k’iř ‘birch’)
   nitsirl ‘subterranean house’ (cf. -tsiř ‘make’)

However, this suffix is not synchronically productive in Tanacross. Nouns containing the fossilized instrumental suffix are best analyzed synchronically as mono-morphemic.

4.2.2 Compound nouns

Tanacross nominal compounds are lexicalized, and their meanings are not always predictable from the meanings of their components. Compounds are often not morphologically distinguished from corresponding phrases by formal criteria.
There is no compounding morphology. The first member of a compound may be a phonetically reduced form of the noun. This reduction may involve a change in vowel quality or a loss of final consonant.

(4.7) Reduced forms of compounded nouns

\[
\begin{array}{ccc}
\text{tu} & \text{ta-} & \text{‘water’} \\
\text{-dza’y} & \text{dza-} & \text{‘ear’}
\end{array}
\]

(This reduced form is often identical to the incorporating form of the noun; see section 5.4.1 below). However, most nouns do not have special reduced forms. Even among those that do, compounds may be formed with either the full or reduced form with no apparent semantic difference. For example, compounds may be built from either \text{tu-} or \text{ta-}, meaning ‘water’.

The first element of a nominal compound is in most cases a noun; the second element may be a noun, postposition, adjective, or verb. The most common type of compound is composed of two nouns, each of which may be basic or derived.

4.2.2.1 Noun-noun compounds

Noun-noun compounds may be of two types: possessed or unpossessed. Possessed compounds are identical in form to a nominal possessive construction (see section 4.4 below). The second member of a possessive compound occurs with possessive morphology, including a possessive suffix and semi-voiced stem-initial fricative where appropriate. The form of the first member of a compound
Possessive noun-noun compounds also include those in which the second member
is inherently possessed but lacks the possessive suffix, such as some kinship and
body part nouns. The presence of possessive morphology may still be detectable
in the lenition of stem-initial fricatives. An example is given in (4.9).

(4.9) Possessed noun-noun compounds lacking possessive suffix

<table>
<thead>
<tr>
<th>Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta’đéθ</td>
<td>‘tent’</td>
</tr>
<tr>
<td>ta’</td>
<td>‘water’</td>
</tr>
<tr>
<td>-đéθ</td>
<td>‘skin’</td>
</tr>
</tbody>
</table>

Possessive noun-noun compounds also include those in which the second member
may be reduced from that usually seen in the free form of the noun, as evident in
(4.8cd).

(4.8) Possessed noun-noun compounds

<table>
<thead>
<tr>
<th>Compound</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. turtiγéz?</td>
<td>‘bowl’</td>
</tr>
<tr>
<td>turti</td>
<td>‘cup’</td>
</tr>
<tr>
<td>-γéz?</td>
<td>‘egg’, ‘round’</td>
</tr>
<tr>
<td>b. taččen?</td>
<td>‘stand of timber’</td>
</tr>
<tr>
<td>ta’</td>
<td>‘water’</td>
</tr>
<tr>
<td>ččen</td>
<td>‘meadow’</td>
</tr>
<tr>
<td>c. -dzar’l’ur’l?</td>
<td>‘earring’</td>
</tr>
<tr>
<td>-dzar’y?</td>
<td>‘ear’</td>
</tr>
<tr>
<td>tl’ur’l</td>
<td>‘rope’</td>
</tr>
<tr>
<td>d. k’áttθé?</td>
<td>‘bullets’</td>
</tr>
<tr>
<td>k’á?</td>
<td>‘gun’</td>
</tr>
<tr>
<td>tθe’</td>
<td>‘rock’</td>
</tr>
<tr>
<td>e. ts’eňirnts’r’g?</td>
<td>‘umbilical cord’</td>
</tr>
<tr>
<td>ts’eňirn</td>
<td>‘child’</td>
</tr>
<tr>
<td>-ts’r’g?</td>
<td>‘intestines’</td>
</tr>
<tr>
<td>f. tsir’yr’l?</td>
<td>‘ancestors’</td>
</tr>
<tr>
<td>-tsi’</td>
<td>‘grandfather’</td>
</tr>
<tr>
<td>-yr’l</td>
<td>? PLURAL ?</td>
</tr>
</tbody>
</table>
Unpossessed noun-noun compounds do not exhibit possessive morphology on the second member of the compound. When the entire compound is possessed, the possessive suffix is present, but initial fricatives of the second member remain fortis.

(4.10) Unpossessed noun-noun compounds

a. ketéł -kéʔ tél ‘socks’ ‘foot’ ‘foot wrappings’
b. turtirł tu̱ tił ‘cup’ ‘water’ ‘container’
c. tθiżú’s -tθiʔ žúrs ‘hat’ ‘head’ ‘furry’ (John Ritter, p.c.)
d. tátłe xtθ’á’k tátłe x tθ’á’k ‘washbasin’ ‘soap’ ‘plate’
e. kenč’otł -kéʔ č’otł ‘boots’ ‘foot’ ‘furry’
f. k’jets’eʔ k’j’ ts’eʔ ‘canoe’ ‘birch’ ‘boat’
g. tl’a sk’e tl’a s k’e ‘deep pool’ ‘clam’ ‘cavity’
h. nitsirł *diig nitsirł *dirg ‘Robertson River’ ‘housepit’ ‘river, creek’
Notice that in some cases, such as *tʰiːžúːs* (4.10c), it may not be possible to identify both members of the compound. In other cases, one member of the compound may be an obsolete or rarely used word, such as the noun *nitsñi* ‘house pit’, which is present in the compound place name term *nitsñi* *u disg* (4.10h) but has been supplanted by the noun *žax* ‘modern house’.

### 4.2.2.2 Other compounds

Nominal compounds may also include a component which is not a noun. These types of compounds are necessarily unpossessed. Most often the second member of such compounds belongs to one of the major lexical categories of verb or postposition. Noun-postposition compounds are distinguished from nominalized postpositional phrases by the lack of the nominalizing enclitic. Also, noun-postposition compounds may include a noun with reduced form.

(4.11) Noun-postposition compounds

| a. | ta’mârγ | ‘riverbank’ |
|    | ta’ | ‘water’ |
|    | mâγ | ‘edge’ |
| b. | xélt’s’iʔ | ‘evening’ |
|    | xéľ | ‘darkness’ |
|    | ts’iʔ | ‘toward’ |
| c. | xélt’arγ | ‘afternoon’ |
|    | xéľ | ‘darkness’ |
|    | t’aγ | ‘underneath’ |
| d. | tθít’aγ | ‘scalp’ |
|    | tθí | ‘head’ |
|    | t’aγ | ‘under’ |
Noun-verb compounds are distinguished from nominalized verb phrases (see section 4.2.3.1) by the absence of verb prefix morphology and the absence of nominalizing morphology.

(4.12) Noun-verb compounds

a. turdele ‘soup’
   tur ‘water’
   -dele ‘hot’

b. tdele ‘steambath’ (cf. tdeo ne dele ‘hot rocks’)
   tdeo ‘rock’
   -dele ‘hot’

c. xetl’ti ‘sled handlebars’
   xetl ‘sled’
   fr ‘classify sticklike object’

d. tagnos ‘swan (Cygnus buccinator)’
   tano ‘water’
   -nog ‘drink quickly’

e. šoszey ‘blackbear’ (cf. šos datzey ‘a black-colored bear’)
   šos ‘bear’
   -zey ‘black’

In addition to these compounds built from major categories, there are a few compounds built from nouns and a minor category word. Compounds which include adjective components are exemplified in (4.13). Noun-adjective compounds are distinguished from phrases by their lexicalization properties, in particular, their unpredictable semantics.
(4.13) Noun-adjective compounds

a. ṭiḡaɣ ‘puppy’
   ţir ‘dog’
   gary ‘little’

b. ṭuʁɣcitation ‘king salmon’
   ṭuʁ ‘fish’
   ɣcitation ‘big’

4.2.2.3 Embedding of compounds

Compounding may apply recursively so that one or both members of a compound noun is itself a compound.

(4.14) Compounds based on compounds

a. žəxtʃʔt’aɣ ‘roof’
   žax ‘house’
   tʃʔt’aɣ ‘scalp’ (tthii ‘head’ + t’aagh ‘under’)

b. xetlkət’l’aɣ ‘sled runner’
   xetl ‘sled’
   ket’l’aɣ ‘sole’ (ke’ ‘foot’ + tl’aad ‘under’)

4.2.3 Nominalization

Nouns may be derived from verb phrases and postpositional phrases via an extremely productive process of nominalization. Nominalized verbs are sometimes called deverbal nouns, though the morphology of nominalization applies identically to both verb phrases and postpositional phrases. I use the term nominalized verb and nominalized postposition to refer to nouns which are derived from verb phrases and postpositional phrase, respectively, via nominalization.
Nominalizations are morphologically marked via the nominalizing suffix -e and are readily distinguished from noun-verb compounds by the fact that the nominalizing suffix attaches to a fully inflected verb phrase. In contrast, noun-verb compounds include only a verb stem (see section 4.2.2.2 above). The vowel of the nominalizing suffix is usually realized as voicing of the preceding stem coda consonant or lengthening of the preceding stem vowel. The low tone of this suffix combines with the tone of the verb stem to yield falling tone on originally high tone verb stems. This is diagramed in Figure 4.1.

![Figure 4.1: Nominalizing suffix tone re-association](image)

For originally compound tone verb stems, only the first tone of the tone sequence matters; the second tone is delinked and deleted. The stem tone changes in the nominalized form are entirely analogous to those in possessed forms (see section 4.4 below), except the tone melody is reversed.

<table>
<thead>
<tr>
<th>Stem tone</th>
<th>Nominalized tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>H</td>
<td>HL</td>
</tr>
<tr>
<td>LH</td>
<td>L</td>
</tr>
<tr>
<td>HL</td>
<td>HL</td>
</tr>
</tbody>
</table>

In most cases the vowel of the nominalizing suffix does not surface but is instead realized as voicing of the stem-final consonant.
(4.15) Voicing of stem-final consonant in nominalized verbs

neldze’y ‘it shines’
neldze’y ‘candle, light’

However, following a glottal stop the nominalizing suffix is retained and harmonizes with the preceding vowel.

(4.16) Nominalized forms of stems ending in glottal stop CV?

nač’ëdah?éʔ ‘he looked at something’
náč’ëdah?éʔè ‘watchman’

For open stems and stem ending in a glottal fricative the behavior of the nominalizing suffix depends on whether the stem contains an oral or nasalized vowel. In the first case the nominalized form contains a final y, unless the stem vowel is already a high front vowel. In the second case, the rhyme of the nominalized form contains an oral-nasal sequence.

(4.17) Nominalized forms of open stems (and h-final stems)

keʔdiʔarj ‘ladder’ < keʔ ‘foot’ + -ʔaʔ ‘linear object extends (impf)’
tehʔarj ‘fishtrap’ < teh ‘underwater’
+ -ʔaʔ ‘handle compact object (impf)’

There are some nouns which appear to be nominalizations but which are difficult to analyze as such synchronically. An example is tsukelahdze’y ‘spider’, which in form appears to be related to a verb (perhaps -dze’y ‘shine’ ?), but there is no verb tsukelahdze’y. These nouns may be considered fossilized nominalizations for which no corresponding verb form exists.
Nominalization may be employed very productively as a syntactic device to modify a noun in much the same way as many languages use relative clauses. For expository convenience, this syntactic use of nominalization is discussed in section 5.6.2 below. In addition, non-productive nominalizations may occur as lexicalized nouns, often with unpredictable semantics. For example, voicing of the final lateral of the verb stem -t’él ‘red’ via suffixation of -ɛ may indicate either a syntactic construction modifying a noun form (with predictable semantics) or as a lexicalized form (with unpredictable semantics).

(4.18) Comparison of syntactic and lexical nominalizations

\( \text{lurq delt’el} \) ‘the fish is red’ (verb phrase)
\( \text{lurq delt’el} \) ‘the red fish’ (syntactic)
\( \text{lurq delt’el} \) ‘salmon’ (lexical)

A morphological distinction can be made between nominalizations and verb phrases which are functionally similar to nouns in languages such as English. The former include the nominalizing suffix, while the latter do not. The semantic distinction between nouns and verbs in Tanacross is quite different than in English. In Tanacross verbs are often used to refer to abstract time-stable concepts which in English might be referred to with nouns.

(4.19) Verb phrases sharing semantic properties with nouns

\( \text{sá’ tayin?qa} \) ‘solar eclipse’
\( \text{xáyints’ey} \) ‘storm’

The forms in (4.19) are morphological verbs, not nominalizations, because they do not contain the nominalizing suffix.\(^5\)
As noted above, nominalizations are formally distinguished from noun-verb compounds by the presence of verb prefix morphology in the nominalization. Only the verb stem participates in noun-verb compounding. Nominalization operates on the entire verb word, including prefixes. In many cases both a nominalization and a noun-verb compound can be derived from a single stem, as in (4.20).

(4.20) Nominalization and compound from root -t’oy

\[
\begin{align*}
\text{ta’t’oy} & \quad \text{‘paddle’} \,<\,\text{ta}^-\text{‘water’} + \text{-toy}^\circ\text{‘fin’} \\
\text{ta’c’itt’oy} & \quad \text{‘oar’} \,<\,\text{ta’c’itt’oy}\text{‘it is paddled’} + \text{-e NOM}
\end{align*}
\]

In addition, more than one nominalization may be derived from a single verb stem, as in (4.21).

(4.21) Nominalizations from verb stem -dze’y ‘shine (of a light other than the sun)’

\[
\begin{align*}
\text{nel’dze’y} & \quad \text{‘candle’} \\
\text{yel’dze’y} & \quad \text{‘moon’}
\end{align*}
\]

The examples in (4.21) differ only in the conjugation prefix \(n\)- versus \(y\)- in the underlying verb form.

4.2.3.1 Verb phrase nominalization

Verb phrase nominalizations may be derived from either intransitive or transitive verbs. The resulting noun refers to one of the arguments of the verb, rather than to the action or state described by the verb.\(^6\) The referent may be a core argument or a postpositional object. The referent of the nominalization is usually the
absolutive argument, that is, the object of a transitive verb and the subject of an intransitive verb. However, it is also possible for the nominalization to refer to the subject of a transitive verb (ergative argument). Typically, this occurs when the object argument is less involved with the action or situation described by the verb. These objects are often coded with the indefinite object prefix ę'e-.

Nominalization is possible for subject and postpositional object argument roles. Nominalization is not possible for the direct object argument role, though these arguments may be nominalized if they are first promoted to subject via passive morphology. In addition, just about any semantic role may serve as the pivot for nominalization. In the next two subsections I give examples of subject and postpositional object nominalization.

4.2.3.1.1 Subject nominalization

Subject nominalizations may be formed from either intransitive or transitive verbs. These subjects may be semantic agents, as in (4.22), or semantic patients, as in (4.23).

(4.22) Nominalization of agent subject of intransitive verb

a.  ldatdírtaŋ
    lda-t-de-i-ta'-e
    closing-?-GEN-M-classify.elongated.object-NOM
    ‘door’ lit:‘that which closes off’ <4.73>
(4.23) Nominalization of patient subject of active intransitive

a.  naґtl’êdz
    na-ґtl’êts-ê
    THM-blue-NOM
    ‘beads’ lit. ‘that which is blue’ <3.1>

Subject nominalizations of transitive verbs usually mark the object of the verb via the indefinite object prefix ę’e-.

(4.24) Nominalization of agent subject transitive verb

nač’ėdah?eʔeʔe
    na-č’ė-d-hʔeʔeʔ-ê
    ITER-INDEF-THM-CL-watch:PERF-NOM
    ‘watchman’ lit. ‘one who watches’ <2.35>

While it is not possible to nominalize the direct object of a transitive, object arguments may be nominalized if they are first promoted to subject role via passive morphology. An example of nominalization of the subject of a passive intransitive verb is shown in (4.25).

(4.25) Nominalization of patient subject of passive intransitive

a.  tâč’itt’oy
    tâ-č’ë-t-t’oy-ê
    water-INDEF-M-CL-paddle:PERF-NOM
    ‘oar’ lit. ‘that which is paddled’

b.  sůʔts’itʔary
    suʔ-ts’iʔ-tʔá-ê
    finger-to-CL-handle.compact.object-NOM
    ‘thimble’ lit: that which is put on the finger’ <2.1>
The presence of passive morphology in these examples is indicated by the d-classifier (Tanacross [t]) in the underlying verb form.

4.2.3.1.2 Postpositional object nominalization

Nominalizations of postpositional objects usually refer to semantic instrument roles. The postposition may be bound to the verb as a proclitic or unbound as part of an adjunct postpositional phrase. This object is represented in the nominalization by either the third person postpositional object pronoun u- or the distal demonstrative pronoun Ñey.

(4.26) Postpositional object nominalization

a. ?ey ?el xádeldêð
  ?ey ?el xa-de-l-dêθ-ε
  that with through-THM-CL-twist-NOM
  ‘auger’ lit. ‘that with which something is drilled through’ <3.55>

b. u?êl xunelθuγ
   u-?êl xu-ne-1-tθux-ε
   3SG-with AREA-GEN-CL-stuff-NOM
   ‘chinking’ lit. ‘that with which area is stuffed’ <4.5>

The examples in (4.26) are typical in that the nominalizations are built on a passive derivation of the verb. The presence of passive morphology is evident in the voicing of the classifier (pre-stem syllable) as l- rather than h-.
4.2.3.2 Postpositional phrase nominalization

Though verb phrases provide the source for most nominalizations, nominalizations can also be derived from postpositional phrases by the application of the same nominalizing morphology. The object of a nominalized postpositional phrase may be either a complete noun phrase or a postpositional object pronoun. The postposition governs the semantic relationship between the postpositional object and the referent of the nominalization. Postpositional phrase nominalizations are formally distinguished from noun-postposition compounds by the presence of the nominalizing suffix, as evidenced in the modification of the tone of marked tone postpositions and the voicing of the final consonant of the postposition.

(4.27) Postpositional phrase nominalization

```
  ts’enìn ṭèl
  ts’ením ṭèl-e
```

child with-NOM

‘placenta’ lit. ‘with the child’

4.3 Loanwords

There are in Tanacross a number nouns whose internal morphological structure is not analyzable because they have been borrowed from English, French or Russian. In many cases these words may not have been borrowed directly from the source language but have come into the language via neighboring Athabaskan languages.
(4.28) Loanwords from English

<table>
<thead>
<tr>
<th>English</th>
<th>Tanacross</th>
</tr>
</thead>
<tbody>
<tr>
<td>sugar</td>
<td>sugay</td>
</tr>
<tr>
<td>stockings</td>
<td>sdogen</td>
</tr>
<tr>
<td>rice</td>
<td>zary</td>
</tr>
<tr>
<td>turnip</td>
<td>tanes</td>
</tr>
<tr>
<td>potato</td>
<td>tediz</td>
</tr>
<tr>
<td>milk</td>
<td>milik</td>
</tr>
</tbody>
</table>

There also exist a few Tanacross nouns of French origin which have probably been borrowed from neighboring languages to the north, such as Gwich’in and Hän, or perhaps directly from Slavey Jargon. The original French masculine article *le* is reflected in Tanacross as an initial syllabic lateral approximant.

(4.29) Loanwords from French

<table>
<thead>
<tr>
<th>French</th>
<th>Tanacross</th>
</tr>
</thead>
<tbody>
<tr>
<td>tea</td>
<td>ldr1</td>
</tr>
<tr>
<td>money</td>
<td>lza’z</td>
</tr>
<tr>
<td>salt</td>
<td>lsel</td>
</tr>
</tbody>
</table>

The number of Russian loanwords in Tanacross is much fewer than in Ahtna to the south, which had contact with coastal communities through trade.

(4.30) Loanwords from Russian

<table>
<thead>
<tr>
<th>Russian</th>
<th>Tanacross</th>
</tr>
</thead>
<tbody>
<tr>
<td>chief</td>
<td>däyan</td>
</tr>
<tr>
<td>playing cards</td>
<td>galdas</td>
</tr>
<tr>
<td>tobacco</td>
<td>lesqih</td>
</tr>
<tr>
<td>cross</td>
<td>jelis’</td>
</tr>
</tbody>
</table>

In addition to borrowing from non-Native languages, Tanacross has borrowed from other Native languages of Alaska. In many cases it is difficult to distinguish between loanwords and cognates. Some examples are given below.
4.31 Loanwords from other Alaska Native languages

dzenax ‘fermented whitefish in birch basket’ < Sugpiaq [čna’aq] (probably via Ahtna dzenaax ‘fermented fish’)
nilk’odl ‘Copper River style fermented fish heads’ < Ahtna nelk’ol
tl’ankani ‘needle’ < Ahtna tl’ankaani

The original origin of the word dzenax is not entirely clear, though Tanacross probably borrowed it from Ahtna. The word nilk’odl may not actually be a borrowing at all. I have included it here because it refers to a cultural item not available in Tanacross, namely fermented salmon heads (salmon are not found in the Tanacross area). The word tl’ankani is clearly not Tanacross in origin, as the vowel of the nominalizing suffix is not only retained, but has the quality of the Ahtna nominalizer (i.e., high rather than mid front vowel).

4.4 Possession

Nominal possession is marked on the possessed (head) NP via both a prefix and a suffix. The possessive prefix indexes the person and number of the possessor, though the possessor NP is formally unmarked. A possessor NP may optionally occur as an adjunct to the possessive prefix, immediately preceding the possessive prefix. Two types of possessive suffixes may occur. The alienable possessive suffix reflecting PA *-ə’ is used to mark alienable possession and triggers voicing of stem-final consonants and modification of stem tone. The inalienable possessive suffix reflecting PA *-’ is used to mark inalienable possession and triggers modification of stem tone but does not voice stem-final consonants. For
example, the possessive suffix applied to the noun *kentsiθ* triggers voicing of the stem-final consonant and modification of the low (unmarked) stem tone to a compound rising tone.

(4.32) Possessive construction

a.  kentsiθ  ‘moccasin’
b.  ukentsið?  ‘her moccasin’
c.  Laura ukentsið?  ‘Laura’s moccasin’

The possessive prefix is obligatory. A co-referential NP indexing the possessor may optionally occur as an adjunct immediately preceding the possessed NP.

Possessive constructions containing adjunct NP possessors are in many ways similar to possessive noun-noun compounds (section 4.2.2.1) but are distinguished by the presence of the inflectional prefix.

(4.33) Comparison of possessive compounds and possessive construction

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>liyú?</td>
<td>‘dog tooth’</td>
</tr>
<tr>
<td>li uyú?</td>
<td>‘dog’s tooth’</td>
</tr>
</tbody>
</table>

The possessed noun in both the possessive construction and the possessive compound exhibits inflectional properties associated with possession, including lenition of the initial fricative. However, the possessive construction is necessarily inflected with the prefix *u-*, indexing the person and number of the possessor.
4.4.1 Possessive prefixes

The Tanacross possessive prefixes are formally similar to the verbal object prefixes. The complete chart of possessive prefixes is given in Table 4.2 below:

<table>
<thead>
<tr>
<th>person</th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>š-</td>
<td>ne'-</td>
</tr>
<tr>
<td>2</td>
<td>n-</td>
<td>nuh-</td>
</tr>
<tr>
<td>3</td>
<td>u-/m-</td>
<td>xu'-</td>
</tr>
<tr>
<td>INDEFINITE</td>
<td>č'ε-</td>
<td></td>
</tr>
<tr>
<td>RECIPROCAL</td>
<td>nil-</td>
<td></td>
</tr>
<tr>
<td>REFLEXIVE</td>
<td>de-</td>
<td></td>
</tr>
</tbody>
</table>

The first person singular š- and second person singular n- are syllabic before a consonant. The first person singular possessive prefix assimilates to the alveolar place of articulation preceding alveolar affricates and alveolar fricatives, but not before alveolar sonorants.

(4.34) Assimilation of first person singular possessive prefix

\[
\begin{align*}
stsù & \quad \text{‘my grandmother’} \\
sts’ùs & \quad \text{‘my elbow’} \\
śdzâ’y? & \quad \text{‘my ear’} \\
śzê’y? & \quad \text{‘my knife’} \\
śnà’ & \quad \text{‘my mother’ (no assimilation)}
\end{align*}
\]

The third person singular occurs as u- before a consonant and as m- before a vowel.
(4.35) Alternate forms of third person singular possessive prefix compared with first singular prefix

Consonant initial

\( \text{št} \text{ó}'i' \) ‘his head’
\( \text{ut} \text{ó}'i' \) ‘my head’

Vowel initial

\( \text{ši} \text{n} \text{l} \text{á} \text{?} \) ‘my hand’
\( \text{mi} \text{n} \text{l} \text{á} \text{?} \) ‘his hand’

Singular possessive prefixes block the rule which inserts glottal stop before vowel-initial words. Thus the word /a\text{r}n\text{e}g/, when not possessed, occurs with initial glottal stop as [ʔa\text{r}n\text{e}g]. When possessed the glottal stop appears only with plural possessors. The examples in (4.36) compare singular and plural possessive prefixes.

(4.36) Possessive prefixes with vowel-initial nouns

\[ \text{ša\text{r}n\text{d} \text{é}g} \text{?} \] ‘my language’
\[ \text{n\text{a\text{r}n\text{d} \text{é}g} \text{?} \] ‘your language’
\[ \text{m\text{a\text{r}n\text{d} \text{é}g} \text{?} \] ‘her language’
\[ \text{ne\text{ʔa\text{r}n\text{d} \text{é}g} \text{?} \] ‘our language’
\[ \text{xu\text{ʔa\text{r}n\text{d} \text{é}g} \text{?} \] ‘your (pl.) language’
\[ \text{xu\text{ʔa\text{r}n\text{d} \text{é}g} \text{?} \] ‘their language’

The indefinite possessive \( \text{č} \text{’e} \text{-} \) is used when the possessor is non-identifiable and occurs as the default possessor for many inalienable nouns.

(4.37) Indefinite possessive prefix

\( \text{mi} \text{n} \text{s} \text{ő} \) ‘his nose’
\( \text{č} \text{’i} \text{n} \text{s} \text{ő} \) ‘someone’s nose’

As discussed in section 4.4.4 below, certain Tanacross nouns are obligatorily possessed and always occur with a possessor. When such inherently possessed
nouns are used without explicit reference to the possessor, they occur with the 
indefinite possessive prefix.

(4.38) Indefinite possessive prefix on inherently possessed nouns

\[ \text{č’et’ä-} \] ‘leaf’
\[ \text{č’ëna-} \] ‘mother’

The reflexive prefix \textit{de-} is used to indicate co-reference between a nominal 
possessor and an argument of the verb. The reflexive possessor prefix may 
indicate co-reference between the possessor and either the subject or object of the 
verb.

(4.39) Reflexive possessor \textit{de-}

a. dežax neninžah
de-žax ne-n-i-žah
RFLX-house down-CJ-PERF-go.sg
‘he’s returning to his house’
b. dedzäŋ? ya ninge’t
dezäŋ? ya n-i-ge’t
RFLX-ear:POSS through CJ-PERF-pierce
‘she pierced her ear’ <2.110>
c. dečol nektsaat
de-čol n-ék-tsaat
RFLX-throat GEN-1SG:H-cut.quickly:IMPF
‘I cut his (animal’s) throat’ <2.107>

4.4.2 Voicing of initial fricatives

As noted in section 2.1.4 above, the distribution of voiceless and voiced fricatives 
in stem-initial position is largely governed by phonological and morphological 
criteria. In particular, voiceless fricatives occur stem-initially in unpossessed
nouns, while voiced (i.e., phonetically semi-voiced) fricatives occur stem-initially in explicitly possessed nouns. This alternation is morphologically conditioned: semi-voiced fricatives occur following both voiceless and voiced possessive prefixes.

(4.40) Voicing of initial fricative in simple nouns

\[ \text{xos} \rightarrow \text{γός} \text{θ} \quad \text{‘thorn’} \]

In Slave, which has a similar voicing alternation, the domain of voicing is restricted to simple nouns (Rice 1988). In particular, the voicing rule does not apply to word-initial fricatives in compounds and nominalizations. In Tanacross voicing of initial fricatives applies equally to both simple nouns and complex nouns such as compounds and nominalizations.

(4.41) Lenition of initial fricative in complex nouns

\begin{align*}
\text{λίγαρι} & \rightarrow \text{λίγαρι} \quad \text{‘puppy’} < \text{λί ‘dog’} + \text{γαρ ‘small’} \\
- & \rightarrow \text{λυθθέθ} \quad \text{‘bladder’} < \text{λυθ ‘urine’} + \text{θέθ ‘skin’} \quad (\text{McRoy 1973}) \\
\text{xοστάρι} & \rightarrow \text{χοστάρι} \quad \text{‘rose’} < \text{χοσ ‘thorn’} + \text{τάρ ‘leaf’} \\
- & \rightarrow \text{γολθθέθ χάνι} \quad \text{‘femur’} < \text{χολ ‘leg’} + \text{θθέθ ρη ‘bone’}
\end{align*}

Voicing of initial fricatives also applies in Tanacross but not Slave to nouns which are reflexes of original PA broken stems.

(4.42) Possession of ‘broken stems’ in Tanacross and Slave

<table>
<thead>
<tr>
<th>Tanacross</th>
<th>(\text{χιρό} \rightarrow \text{γύρδι} )</th>
<th>‘raft’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slave</td>
<td>(\text{xενίθ} \rightarrow \text{xενίθ} )</td>
<td>‘raft’ \quad (Rice 1998: 654)</td>
</tr>
</tbody>
</table>

In summary, the internal structure of complex nouns is opaque to Tanacross possessive inflectional morphology.\(^7\)
4.4.3 Possessive suffixes

Tanacross formally distinguishes two types of possessive morphology: alienable and inalienable. Most nouns allow only one of the two types of possessive marking. These two types of possession are distinguished via possessive suffixes. Alienable possession is marked by a vocalic suffix -ɛʔ, and inalienable possession is marked by a non-vocalic suffix -ʔ. The latter consists of glottal stop together with high tone. In addition to this morphological distinction between alienable and inalienable possession, there exists a similar but not entirely congruent lexical distinction in inherent possession. Nouns which are inherently possessed may or may not include a possessive suffix, but when they do they always mark possession via the inalienable suffix. Most nouns which are not inherently possessed mark possession via the alienable suffix, though a limited number of not inherently possessed nouns may marked possession via either suffix.

4.4.3.1 Alienable possessive suffix

Alienable possession is marked via a type of stem modification which can be analyzed as a vocalic suffix -ɛʔ, the reflex of the PA *-oʔ suffix. Unlike in neighboring languages such as Lower Tanana, the vowel of this suffix in Tanacross is realized indirectly via voicing and lengthening of stem rhyme. This voicing/lengthening is what distinguishes the alienable possessive suffix from the inalienable possessive suffix.
Since the vowel of the possessive suffix does not surface, the associated high tone delinks and re-associates with the preceding tone bearing unit, that is, the noun stem. This is shown in Figure 4.2.

**Figure 4.2: Possessive suffix tone re-association**

```
X L X X L
V V
```

In contrast to neighboring tonal languages such as Upper Tanana, the stem tone does not subsequently delink. In other words, the stem tone does not assimilate to the marked tone of the possessive suffix. Instead, both stem and suffix tones combine, forming a compound tone when the two tones are dissimilar. The complete set of possessive stem tone changes is listed in the table below.

**Table 4.3: Stem tone changes in possessed nouns**

<table>
<thead>
<tr>
<th>Stem tone</th>
<th>Possessed tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>LH</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>LH</td>
<td>LH</td>
</tr>
<tr>
<td>HL</td>
<td>H</td>
</tr>
</tbody>
</table>

When an unpossessed stem contains a compound tone, the possessed form ignores the second tone of the sequence of tones associated with the original stem. Thus only level high and compound rising tones are possible in possessed forms.

(4.43) Possession of noun stems with compound tone

| jēg   | -jēgʔ | ‘berry’ |
| xîʔθ  | -xîʔθ | ‘raft’  |
The unpossessed and possessed stem forms are sometimes also referred to as a ‘light’ and ‘heavy’ stems, respectively (cf. Leer 1977; Scollon 1978). The term ‘heavy’ refers to the presence of a metrically heavy rhyme in possessed forms.

The light/heavy alternation for nouns stems is much simpler than that described for verb stems below. For noun stems ending in an obstruent (other than glottal stop), the heavy form of the stem replaces the final consonant with its voiced counterpart and adds a glottal stop.

(4.44) Possessed forms of nouns ending in voiceless obstruents

<table>
<thead>
<tr>
<th>Noun</th>
<th>Possessed Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>let</td>
<td>-lêd?</td>
<td>‘smoke’</td>
</tr>
<tr>
<td>xetl</td>
<td>-yêdl?</td>
<td>‘sled’</td>
</tr>
<tr>
<td>žeθ̂</td>
<td>-žêð?</td>
<td>‘snow’</td>
</tr>
<tr>
<td>tsêts</td>
<td>-tsêdz?</td>
<td>‘wood’</td>
</tr>
<tr>
<td>tθ’á:k</td>
<td>-tθ’âq̩?</td>
<td>‘plate’</td>
</tr>
<tr>
<td>turtl</td>
<td>-turt'l?</td>
<td>‘cup’</td>
</tr>
<tr>
<td>kentsiθ̂</td>
<td>-kentsið̩?</td>
<td>‘mocassin’</td>
</tr>
<tr>
<td>t’e:s</td>
<td>-t’e:z̩?</td>
<td>‘charcoal’</td>
</tr>
<tr>
<td>sáx</td>
<td>-záŷ?</td>
<td>‘gaff hook’</td>
</tr>
</tbody>
</table>

For the most part, unpossessed nouns do not end in voiced obstruents. For those nouns which do, the stem-final consonant in the possessed form remains unchanged and a glottal stop suffix is added. In addition the stem tone is modified as described above.

(4.45) Possessed forms of nouns ending in voiced consonants

<table>
<thead>
<tr>
<th>Noun</th>
<th>Possessed Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>luq</td>
<td>-l̥u?q̩</td>
<td>‘fish’</td>
</tr>
<tr>
<td>ld‘l</td>
<td>-ld‘l?</td>
<td>‘tea’</td>
</tr>
<tr>
<td>lza‘z</td>
<td>-lζa‘z?</td>
<td>‘money’</td>
</tr>
<tr>
<td>ts‘öγ</td>
<td>-ts‘öγ̂?</td>
<td>‘spruce’</td>
</tr>
</tbody>
</table>
In these nouns, a short vocalic segment is often produced preceding the glottal stop in the possessed form of the stem.

(4.46) Vocalization following final voiced stop in heavy stems

/šlʊ̂rgʔ/  [šlʊ̂rg⁰ʔ]  ‘my dog’

For noun stems ending in a sonorant consonant (y, yh, n, nh), the possessed forms have a lengthened sonorant (written double in the practical orthography).

(4.47) Possessed stem forms for sonorant-final stems

se’y  -zê’yʔ  ‘knife’
θaʔy  -ðaʔyʔ  ‘sand’
kônʔ  -kônʔ  ‘fire’
meŋ  -mënʔ  ‘lake’

For noun stems which end in a vowel, the heavy forms have a lengthened stem vowel in addition to final glottal stop. For noun stems which end in a glottal stop, the heavy forms either follow the pattern of the vowel-final stems or occur with an echo vowel following the glottal stop. For some glottal-final nouns both forms of the heavy stem are possible.

(4.48) Possessed stem forms for open and glottal-final stems

tur  -tũʔ  ‘water’
šiʔ  -šiʔi  ‘food’
máʔ  -máʔ, -máʔa  ‘dry fish’

For some common nouns the heavy stem form is irregular. These include

(4.49) Irregular possessed stem forms

tir  -tirgʔ  ‘dog’
4.4.3.2 **Inalienable possessive suffix**

Inalienable possession is marked by a non-vocalic suffix [-ʔ]. The realization of this suffix is very similar to that of the alienable possessive suffix, except it does not voice or lengthen stem consonants. Stem tone modifications follow the same pattern described for the alienable possessive suffix in section 4.4.3.1 above. The distinction between the alienable and inalienable possessive suffix is most readily apparent with nouns for which both suffixation patterns are possible. However, there exist very few such nouns. An example is given in (4.50) below.

(4.50) Distinctions between alienable and inalienable possession

```
  tu  ‘water’ (unpossessed)  
  jèg túʔ  ‘wine’ (inalienably possessed)  
  štūʔ  ‘my water’ (alienably possessed)  
```

Inherently possessed nouns do not exhibit a contrast between possessed and unpossessed forms, so it can be difficult to distinguish whether the inalienable possessive suffix is present in such forms.

4.4.4 **Inherently possessed nouns**

Certain Tanacross nouns are obligatorily possessed. These nouns do not exhibit an alternation between possessed and unpossessed forms. Most prominent among these inherently possessed nouns are kin terms and most body parts. Inherently possessed nouns may or may not include a possessive suffix. Lack of the possessive suffix is evident in the inherently possessed forms which exhibit low
tone, such as -naa ‘mother’. Recall that regardless of underlying stem tone, possessed forms which include a possessive suffix may only surface with high or rising tone (see (2.84) on p. 77). When a possessive suffix is present on an inherently possessed noun it is usually the inalienable suffix, as evidenced by the lack of voicing of the stem-final consonant.

A partial list of Tanacross kinship nouns is given below.

(4.51) Inherently possessed kinship nouns

-naa  ‘mother’
-kəy?  ‘husband’
-taʔ  ‘father’
-aʔdeh  ‘older sister’
-ʔat  ‘wife’
-unaʔ  ‘older brother’
-če?l  ‘younger brother’
-tsəy  ‘grandfather’, ‘mother’s brother’
-tsəʔ  ‘grandmother’, ‘father’s sister’
-déʔdzʔ  ‘younger sister’
-yaʔtsʔʔiʔ  ‘woman’s daughter’
-tšeʔe  ‘man’s daughter’
-leʔ  ‘brother-in-law’

To my knowledge, all kinship term are inherently possessed. In addition, most body part term are inherently possessed. Some examples are given below.
Inherently possessed body part nouns

- ꝱ工程质量?? ‘leg’
- ꝱ工程质量?? ‘knee’
- ꝱ工程质量?? ‘arm’
- ꝱ工程质量?? ‘back’
- ꝱ工程质量?? ‘tooth’
- ꝱ工程质量?? ‘eye’
- ꝱ工程质量?? ‘stomach’
- ꝱ工程质量?? ‘belly’
- ꝱ工程质量?? ‘throat’
- ꝱ工程质量?? ‘head’

Some body part nouns also appear to have an alienable possessive suffix, as in - ꝱ工程质量? ‘eye’, which has a voiced final consonant; others appear to have an inalienable possessive suffix, as in - ꝱ工程质量? ‘tooth’, which has a short vowel. Still other body part nouns appear unsuffixed, such as - ꝱ工程质量? ‘knee’.

In addition to body part and kinship terms, several other Tanacross nouns are inherently possessed. These include especially nouns which are considered to be inseparable properties of another noun.

Other inherently possessed nouns

- ꝱ工程质量?? ‘shadow’
- ꝱ工程质量?? ‘friend’
- ꝱ工程质量?? ‘leaf’

Inherently possessed nouns may have an incorporating form (see section 5.4.1 below) which is not possessed and does not include a possessive prefix. For example, the incorporating form of ꝱ工程质量? ‘eye’ is ꝱ工程质量, which is the form we
would expect if this noun occurred in unpossessed form. However, this word does not occur unpossessed in an unbound form.

(4.54) Unpossessed incorporating form of inherently possessed noun

^-dax- -^dav ‘eye’

Other body part nouns are not inherently possessed. These include but are not limited to nouns pertaining to body products such as bodily fluids. When these nouns are possessed they occur with the alienable possessive suffix; in particular, stem-final consonants are voiced in the possessive form. Unlike the inherently possessed body part nouns, these nouns may also occur in an unpossessed form.

(4.55) Not inherently possessed body part nouns

del -del? ‘blood’
tø’øn? -tø’øn? ‘bone’
se’k’ -zë’g’? ‘saliva’

Inherently possessed nouns may occur without explicit reference to an identifiable possessor. In this case these nouns occur with the indefinite possessive prefix è’e-.

(4.56) Use of indefinite è’e- with inherently possessed nouns

è’eøn ‘mother’, ‘one’s mother’
è’eØØ ‘liver’, ‘one’s liver’

Some inherently possessed nouns may also be alienably possessed. This is indicated by compounding the the possessive prefix to the indefinite possessor prefix.
4.5 Number

Most nouns are not morphologically marked for number. Noun phrases may be optionally marked for plural number via the plural enclitic =ʔin.

(4.58) Plural enclitic with animate nouns

<table>
<thead>
<tr>
<th>Noun</th>
<th>Enclitic</th>
</tr>
</thead>
<tbody>
<tr>
<td>naʔeɬeːɣ=ʔin</td>
<td>‘hunters’</td>
</tr>
<tr>
<td>deneɣ=ʔiin</td>
<td>‘people’</td>
</tr>
<tr>
<td>deneɣ gaʔe=ʔin</td>
<td>‘boys’ lit: ‘little men’</td>
</tr>
<tr>
<td>li=ʔin</td>
<td>‘dogs’</td>
</tr>
</tbody>
</table>

In modern speech the use of the plural enclitic is restricted to animate nouns.

However, older texts contain many examples of the use of the plural enclitic with inanimate nouns. It is even possible to find examples of the use of the plural enclitic with nouns serving as objects of verbs which require plural object, as with the verb -ɣə- ‘make plural objects’ in (4.58).

(4.59) Plural enclitic with inanimate nouns

<table>
<thead>
<tr>
<th>Noun</th>
<th>Enclitic</th>
</tr>
</thead>
<tbody>
<tr>
<td>k’intθάk ʔiin</td>
<td>t’eɣ x’aɣə</td>
</tr>
<tr>
<td>k’intθák=ʔiin t’eɣ x-a’-ɣə</td>
<td></td>
</tr>
<tr>
<td>basket=PL also HUM.PL-M-make.pl</td>
<td></td>
</tr>
</tbody>
</table>

‘they also made baskets’ (Charlie & McRoy 1972)

In addition to the plural enclitic, which is fairly productive, there is a less productive plural suffix -y which is restricted to human nouns.
(4.60) Human plural suffix -y

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>deneh</td>
<td>deneh ‘man’</td>
<td></td>
</tr>
<tr>
<td>ts’ehxeh</td>
<td>ts’ehxey ‘woman’</td>
<td></td>
</tr>
</tbody>
</table>

The human plural suffix is not productive and is restricted to a very few common nouns. These nouns with the lexicalized human plural suffix are thus inherently plural. Note that both the human plural suffix and the plural enclitic may co-occur, as shown in (4.58). There is also at least one other noun, ts’enên ‘children’, which is inherently plural.

But for most nominal referents, no number marking is present on the noun. If number is marked at all it is on the verb, either via pronominal argument prefixes or lexically via inherently plural verbs. For example, the third person plural prefix xe- can be used to indicate plural number.

(4.61) Plural subject marked via verbal prefix xe-

<table>
<thead>
<tr>
<th></th>
<th>xdeļxos</th>
</tr>
</thead>
<tbody>
<tr>
<td>deneh</td>
<td></td>
</tr>
<tr>
<td>deneh</td>
<td>x-de-l-xos</td>
</tr>
<tr>
<td>person</td>
<td>3PL-THM-CL-play</td>
</tr>
<tr>
<td></td>
<td>‘they are playing’</td>
</tr>
</tbody>
</table>

First person singular, second person singular and second person plural subjects obligatorily mark number via the inner subject prefixes on the verb (see section 5.3.2 below). Number of non-third person direct object and postpositional object nouns is marked via pronominal prefixes (see section 5.3.5.2 below).
It is also possible for nominal number to be marked on the verb stem itself. Many Tanacross verb stems distinguish either subject or object number lexically. In addition to several verbs of motion, these include classificatory verbs such as those below:

(4.62) Nominal number distinctions in classificatory verb stems

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tset</td>
<td>yihti'</td>
</tr>
<tr>
<td>tset</td>
<td>y-ih-ti</td>
</tr>
</tbody>
</table>

And some stative verbs:

(4.63) Nominal number distinctions in stative verb stems

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>didihdah</td>
<td>THM-M-1S-sg.sit</td>
</tr>
<tr>
<td>didi-ih-dah</td>
<td>‘I’m sitting’</td>
</tr>
</tbody>
</table>

Notice in (4.63b) that when a plural stem is used with a third person referent the third person plural marker xe- is not required.

Some other common verb stems which lexically distinguish number are listed below. The plural verb stem refers to the number of the most closely
affected participant, usually the absolutive argument, i.e., subjects of intransitive verbs (4.64) and objects of transitive verbs (4.65).

(4.64) Intransitive verb which distinguish subject number

<table>
<thead>
<tr>
<th>Verb</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘compact object lies’</td>
<td>Ø-ʔʔa</td>
<td>Ø-dlah</td>
</tr>
<tr>
<td>‘go’</td>
<td>Ø-ha·</td>
<td>Ø-deʔt</td>
</tr>
<tr>
<td>‘stand’</td>
<td>na-Ø-deʔt</td>
<td>na-Ø-deʔk</td>
</tr>
<tr>
<td>‘fly’</td>
<td>n-Ø-teʔk</td>
<td>n-Ø-deʔt</td>
</tr>
<tr>
<td>‘run’</td>
<td>l-teʔl</td>
<td>Ø-deʔt</td>
</tr>
<tr>
<td>‘sit, stay’</td>
<td>Ø-daʔ</td>
<td>d-l-teʔi’</td>
</tr>
<tr>
<td>‘lie prone’</td>
<td>Ø-teʔ</td>
<td>h-teʔts</td>
</tr>
</tbody>
</table>

(4.65) Transitive verbs which distinguish object number

<table>
<thead>
<tr>
<th>Verb</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘make’</td>
<td>h-tsɨ</td>
<td>Ø-xaʔ</td>
</tr>
<tr>
<td>‘kill’</td>
<td>ð-h-xeʔ</td>
<td>Ø-xaʔ</td>
</tr>
</tbody>
</table>

4.6 Chapter summary

The morphological structure of underived nouns is relatively simple. The overwhelming majority of underived nouns are monosyllabic. In addition, just about any verb can be used nominally via an extremely productive derivational process of nominalization. Complex nouns may also be formed via compounding, especially noun-noun and noun-verb compounding, though this process is less productive than nominalization. Possessive constructions are head-final, and possession is marked via a suffix on the head noun. Possessive suffixes distinguish alienable and inalienable possession. Number is generally not distinguished on nouns, though plural may be optionally marked on nouns.
referring to humans via an enclitic. Noun number is much more commonly encoded lexically via verbs which subcategorize for singular or plural arguments.
Notes to chapter 4

1 The concept of basic noun exists throughout Athabaskan. Equivalent terms include ‘primary’ (Moric 1932; Hoijer 1971) and ‘stem noun’ (Rice 1989).

2 Some inherently possessed nouns, such as kin terms, do not include the possessive suffix, but I include them under the derived category.

3 Numbers in angle brackets following example glosses refer to the author’s field notes, available in the Alaska Native Language Center archives.

4 The Robertson River is a major tributary of the Tanana River, which joins the Tanana from the west approximately halfway between Tanacross and Dot Lake.

5 Some authors analyze such forms as nominalizations which lack overt nominalizing morphology.

6 Abstract actions or events are usually referred to using a true verb rather than a nominalization. For example, consider *mexdatdiik*, which means literally ‘she had a miscarriage’ but which is used to refer to the event of ‘miscarriage’. The voiceless final consonant indicates that no nominalizing morphology is present.

7 Rice formalizes the domain of voicing in Slave in terms of prosodic constituency. Thus, different treatment of possessive inflection in Slave and Tanacross may represent differences in the structure of the minimal word in the two languages. See Rice (1988; 1998) for details.

8 For more on Athabaskan kinship terminology see Krauss (1977b).
Chapter 5  Verb morphology

The Tanacross verb consists of a mono-syllabic stem and a string of one or more prefixes. Prefix morphemes are generally mono-syllabic but may consist of more than one discontinuous syllable. In this chapter I discuss morphology of the Tanacross verb, focusing on three distinct regions: the conjunct prefixes, the disjunct prefixes, and the verb stem and suffixes.

The verb is the most complex lexical element of Athabaskan grammar and carries much of the functional load of the Athabaskan communicative system. The verb alone may serve as a complete utterance, without additional nominal arguments.

The lexical category of verb in Tanacross can be morphologically delimited as the class of lexemes whose members must be obligatorily inflected for one of four ‘modes’: imperfective, perfective, future and optative. The verb lexeme may consist of a discontinuous string of morphemes, and morpheme order within the verb complex is quite rigid. First singular, second singular, and second plural person are marked on the verb via pronominal prefixes.
5.1 Models of verb structure

Verb structure exhibits a high degree of uniformity across the Athabaskan languages, thus a model of Tanacross verbal morphology is implicitly a model of Athabaskan verbal morphology. In this chapter I follow the templatic model, exemplified in the work of Kari (1976; 1989b; 1990), which assigns each verb morpheme a position within a verb template. This model offers little in the way of explanation for existing prefix order but merely states for each verb prefix (or category of prefix) a position in the template with which it is associated. Recently, several attempts have been made to address the theoretical shortcomings of the templatic model. Some of these alternatives are phonologically driven (cf. Sharon. Hargus 1988; Sharon Hargus & Tuttle 1997; McDonough 1990), while others are semantically driven (cf. Rice 2000b). The phonological approach is often successful in predicting morpheme order but fails to explain why morphemes are ordered as they are. The semantic approach can predict underlying prefix order based on semantic principles of scope, but movement rules are required to derive actual surface order so that in effect a template is still required. While both approaches have theoretical merit, the templatic model remains an effective descriptive heuristic, and I employ it here without necessarily endorsing its theoretical implications.

Before beginning a discussion of verb structure, a few remarks regarding Athabaskan linguistic terminology are in order. Verb structure exhibits a high
degree of uniformity across the Athabaskan languages, and out of this uniformity has grown a specialized technical vocabulary for describing Athabaskan verb morphology. While phonological and semantic properties of the verb may vary across languages, structural properties are often shared. Thus, terminology developed for one Athabaskan language has tended to be applied to all languages. Consistency in terminology has greatly facilitated cross-language comparisons but has also contributed to the preservation of opaque and often misleading terms. As we approach an Athabaskan language for which very little descriptive material exists, we are immediately faced with a choice between innovation and conservation with regard to descriptive terminology. To as large an extent as possible I have chosen the latter, believing with Faltz (1998) that terminological innovation complicates access to existing reference materials.

Most of this specialized terminology, while perhaps obscure or inappropriate, will hopefully not be misleading. For example, it is quite obvious that the ‘classifier’ does not have a classificatory function. However, in other areas the differences between standard linguistic terminology and Athabaskan conventions can be more subtle, increasing the likelihood of confusion. This is particularly true of the terminology used to describe the morphological structure of the verb word. The terms ‘root’ and ‘stem’ are used in a highly specialized sense here. Phonologically, the verb root carries primary stress and is the locus of
the greatest amount of phonemic contrast. Semantically, the root usually carries
the main meaning of the verb, though in many cases the root itself is meaningless
unless accompanied by one or more lexical prefixes. In Tanacross the root is an
abstract unit which is not realized in the surface form because the root must occur
together with an inflectional mode/aspect suffix which is realized via ablaut of the
root.¹ The term ‘stem’ is used to refer to the root together with obligatory mode
inflection. (Verb stems thus come in ‘stem sets’, each member of the set
corresponding to a particular mode and each set corresponding to a particular
aspect — see section 5.5.)

The terms ‘theme’ and ‘base’ are used to refer to what would
conventionally be thought of as root and stem, respectively. Thus, the verb theme
is a minimal string of morphemes which together with subject and mode/aspect
inflection may form a verb word. For a given verb theme, it may be possible to
derive several verb ‘bases’ via additional affixation. Those prefixes which occur
in all bases derived from a given verb theme are referred to as ‘thematic’ prefixes.
In addition, a verb theme may contain a ‘classifier’, which behaves similarly to
the thematic prefixes but may have a derivational function as well. The classifier
immediately precedes the stem. The meaning of verb themes containing thematic
prefixes is often not compositional; rather, meaning can be assigned only to the
entire string of thematic prefixes, classifier, and root.
This various terminology is exemplified in (5.1). The root -ʔε ‘has the
basic meaning ‘see’ or ‘do’, but it only gets the specific meaning ‘see’ when
combined with the classifier h- and the thematic prefix n- to form a verb theme.
Finally after inflecting the stem for mode an aspect and adding subject and object
inflection it is possible to form the verb word.

(5.1)  Example of verb structure terminology
root       -ʔε   ‘see, do’
classifier h-  
the thematic n-
theme       n-h-ʔε   ‘see’
stem        -ʔeh   ‘see, do’ (imperfective mode, durative aspect)
word        šniʔeh  ‘you see me’ (ʔ- 2SG SUBJ, š 1SG OBJ)

A more complex example might include inflectional prefix corresponding to
conjugation and mode as well. In this example the imperfective mode does not
require a conjugation or mode prefix.

5.2  Domains of verb morphology
Verb morphology is primarily prefixing; only two suffixes may attach to the verb
stem. Thus the major domains of verb morphology occur to the left of the stem.

Four major domains verb morphology are generally recognized within the
Athabaskan verb template: disjunct, conjunct, stem, and suffixal. These domains
are outlined in the figure below.
The disjunct domain consists of bound postpositional phrases and adverbials. Disjunct morphemes may be either derivational or lexical but are not usually inflectional. They are less tightly bound to the verb phonologically, and there is less fusion between the disjunct morphemes. Morphemes in the disjunct domain are phonologically verbal proclitics but within Athabaskan linguistics are usually referred to as prefixes, distinguished from true prefixes by the label ‘disjunct prefixes’. The boundary between the disjunct and conjunct domains occurs immediately to the left of the direct object position. This boundary is often referred to as the ‘disjunct boundary’ and is indicated by the hash symbol (#).

The conjunct domain consists primarily of inflectional prefixes but may also include lexical and derivational material. Obligatory pronominal and mode inflection occurs in the conjunct domain, as does some lexical information in the form of thematic prefixes. Derivational material may also occur in the conjunct domain, such as the derivational use of voice/valence prefixes to form causative or passive constructions. Conjunct morphophonology tends to be much more complex and fusional than in the disjunct domain. The ‘disjunct boundary’
between the disjunct and conjunct domains thus plays a significant role in Athabaskan verb morphophonemics.

5.3 Conjunct verb morphemes

The conjunct domain is closest to the verb stem and consists primarily of inflectional and thematic prefixes. These include the classifier, the subject, the mode and conjugation markers, the qualifier prefixes, and the direct object and outer subject prefixes. The conjunct portion of the verb template is repeated in the figure below.

![Figure 5.2: Conjunct prefix template](image)

Conjunct morphemes are tightly bound to the verb stem, and conjunct verb morphology is extremely fusional. Due to the interaction between conjunct morphemes, it is in many cases it is not possible to discuss one conjunct morpheme without reference to another. Thus, there is some overlap in coverage in the subsections below.

5.3.1 Classifier (voice/valence)

The term ‘classifier’ refers to the verb template position immediately preceding the verb stem. One of three prefixes may occur in this position: d, h, or l. This position may also be empty. Because of the morphological alternations possible between the presence and absence of these classifiers, the absence of a classifier
represents a meaningful zero and is usually referred to as a fourth classifier, known as zero-classifier (Ø-classifier). The Tanacross $h$-classifier is a reflex of PA *l and is thus sometimes referred to loosely as the barred-l classifier. The voiced $l$ classifier is a morphologically complex portmanteau morpheme, being the surface reflex of the combined $d$ and $h$ classifiers.

As is well known in Athabaskan linguistics, the term ‘classifier’ is a gross misnomer, for the classifiers have no classificatory function (Krauss 1969). Recent alternatives to the term classifier include “transitivity indicator” (Kibrik 1993; 1996) and “voice/valence marker” (Rice 2000a). These alternative terms better reflect the derivational function of the classifiers as they affect verbal argument structure. However, the term classifier is deeply entrenched in the literature and is retained here for ease of exposition.

Every verb must be lexically specified as having one or none of these classifiers. It is not possible to assign a specific meaning to a classifier which is present in the underlying lexical form of a verb (though there is a very loose correlation with transitivity). In that sense, the classifiers can be considered part of the thematic verb morphology. Meaning must be assigned to the entire assemblage of verb stem, classifier and other thematic verb prefixes.

The classifiers also participate in extremely productive derivational processes which alter verbal argument structure. These processes are signaled not
by the classifiers themselves, but by changes in the classifier. In other words, while the d-classifier itself has no particular meaning associated with it, when a verb which otherwise occurs with a Ø-classifier is used with a d-classifier, this change in classifier is associated with specific semantic and grammatical meaning. So it is the change of classifier, not the classifier itself, to which a meaning can be assigned.

In the following subsections, I discuss first the morphology of the classifiers (section 5.3.1.1) and then their derivational functions (section 5.3.1.2).

### 5.3.1.1 Morphology of the classifiers

The classifier morpheme may interact phonologically with a preceding subject morpheme or with the initial consonant of the verb stem. However, the underlying form of the classifier always remains recoverable. In this section I discuss only the interaction with the verb stem; interactions between the classifiers and subject prefixes are discussed in section 5.3.2. For each classifier I discuss its morphophonemic properties and cite examples of verbs occurring with that classifier.

#### 5.3.1.1.1 Ø-classifier

The Ø-classifier has no phonetic reflex; the term Ø-classifier is a structural term used to represent the absence of a classifier. The presence of the Ø-classifier in a verb word is detectable by the absence of a phonetic segment intervening between
the subject marker and the verb stem and by the existence of a conditioned voicing alternation in stem-initial fricatives following the Ø-classifier. Stem-initial fricatives assimilate the voicing status of the preceding segment. Thus, when no classifier is present, stem-initial fricatives occur voiceless following the first person singular subject prefix *ih*—(5.2a) and voiced (hence semi-voiced) following the second person singular subject prefix *in*—(5.2b).

(5.2) Fricative voicing alternations following Ø-classifier

a. náʔihθet  (voiceless stem-initial fricative)
   ná-ih-θet
   THM-1SG-stand
   ‘I am standing’

b. náʔínθet  (semi-voiced stem-initial fricative)
   ná-ín-θet
   THM-2SG-stand
   ‘you are standing’

Both intransitive (5.3) and transitive (5.4) verbs occur with the Ø-classifier.

(5.3) Intransitive Ø-classifier verbs

a. Fairbanks  tsˈʔiʔ yíẖaɬ
   Fairbanks  tsˈʔiʔ y-ih-ʰaɬ
   F.           to       PROG-1SG-sg.go
   ‘I’m on my way to Fairbanks’

b. eɬlók
   e-ɬlók
   PROG-laugh
   ‘he’s laughing’

c. ts’vedɛɬ
   ts’-a-ɬɛɬ
   IMP-PROG-pl.go
   ‘we’re going’
d. ih 
   ih 
   1SG-cry
   ‘I’m crying’

(5.4) Transitive Ø-classifier verbs

a. nač’iháľ
   načε-iháľ
   ITER-INDEF-1SG-eat
   ‘I’m eating (something)’

b. yiš’tét
   yiš’tét
   4OBJ-M-scratch
   ‘he scratched it’

c. ?a’y útláγihʔa’
   ?a’y u-tlα-γ-ihʔa’
   snowshoes 3SG-to-CJ-1SG-handle.compact.object:PERF
   ‘I gave him a snowshoe’

d. k’áʔ nihta’
   k’áʔ n-ih-ta’
   gun CJ-1SG-handle.sticklike:PERF
   ‘I brought a gun’

5.3.1.1.2 d-classifier

The d-classifier actually never surfaces as phonetic d- in Tanacross but is
represented here as such because of the voicing effect it has on stem-initial
consonants.

The d-classifier triggers voicing of stem-initial fricatives, even though the
d-classifier surfaces as phonetically voiceless.
(5.5) Fricative voicing following d-classifier

náʔitđet
na-ná-in-t-đet
ITER-THM-2SG-D-stand
‘you are standing again’

The d-classifier merges with a stem-initial glottal fricative to yield a prenasalized alveolar stop. The verb stem meaning ‘singular walks’ occurs with Ø-classifier and initial glottal fricative in (5.6a). However, when this verb stem occurs with the na- iterative prefix in (5.6b), the d-classifier is required (see section 5.3.1.2.1 below). The classifier morpheme does not surface but is instead realized as a strengthening of the stem-initial consonant. That is, the d- merges with the stem -hârk to yield -ʔdârk.

(5.6) Merger of d-classifier and glottal fricative

a. yihâl
   y-ih-hâl
   PROG-1SG-walk
   ‘I’m walking along’

b. tâmâgy  natîhdark
   tâmâγ   na-ṭé-ih-d-hârk
   riverbank  ITER-INC-1SG-D-walk
   ‘I’m walking along the river bank’  <2.65>

Most verbs with d-classifier are intransitive. Some examples are given below.
(5.7) Intransitive d-classifier verbs

a. ɛtną́
    ɛ-t-ńą́
PEG-D-drink
‘he is drinking’

b. detsën ɛtčot
detsën ɛ-t-čot
duck  PEG-D-shed.down.feathers
‘the ducks are loosing their feathers’ <4.99>

5.3.1.1.3 h-classifier

The h-classifier is the Tanacross reflex of PA *l-. Except following the first
person singular subject prefix, the h-classifier is realized phonetically as h-. The
h-classifier merges with the first person singular subject prefix to form the
portmanteau prefix ɛk- (see section 5.3.2.1 below). The h-classifier also affects
voicing of stem-initial fricatives, which are consistently voiceless following the
h-classifier.

Most h-classifier verbs are transitive, but intransitive h-classifier verbs
also occur.

(5.8) Transitive h-classifier verbs

a. yihtsį́
yi-h-tsį́
4OBJ-H-make:PERF
‘he made it’

b. łurg ɛht’ɛθ
łurg ɛ-h-t’ɛθ
fish  PEG-H-fry:IMPF
‘he’s frying the fish’
Intransitive verbs occurring with the l-classifier include several verbs relating to weather phenomena.

(5.9) Intransitive h-classifier weather verbs

a. ehča’
   e-h-ča’
   PEG-H-rain
   ‘it’s raining’

b. ehts’e’y
   e-h-ts’e’y
   PEG-H-windy
   ‘it’s windy’

c. ehžá’tθ
   e-h-žá’tθ
   PEG-H-snow
   ‘it’s snowing’

5.3.1.1.4 l-classifier

The l-classifier is both historically and synchronically analyzable as a portmanteau morpheme consisting of both d- and h-classifiers. Historically, d- and h- (PA *l-) could co-occur. Synchronously, we see that the same derivational process which derives d-classifier verbs from Ø-classifier verbs also derives l-classifier verbs from h-classifier verbs. The l-classifier merges with the first person singular subject prefix to form the portmanteau prefix eɡ- (see section 5.3.2.1 below).
In any case, verbs may occur with lexically specified l-classifier (glossed L below), with no synchronic derivational morphology. Both intransitive and transitive verbs may occur with the l-classifier.

(5.10) Intransitive l-classifier verbs

a. niljet
   ni-l-jet
   THM-L-afraid
   ‘she’s afraid’

b. γεγοθεί
   γ-εγ-θεί
   PROG-1SG:1-run
   ‘I’m running’

c. xuγεγθετ’ετ
   xu-γ-εγ-θ’ετ
   AREA-M-1SG:1-moves(non-control)
   ‘I fell down’

(5.11) Transitive l-classifier verbs

ċ’eldzes
ċ’e-l-dzes
INDEF-L-dance
‘she’s dancing (something)’

Verbs with the l-classifier include a number of intransitive verbs referring to properties.

(5.12) Property words with l-classifier

a. ɛlk'])?y
   ɛl?k’y
   PEG-L-tasty
   ‘it’s tasty’
b. \text{de\l-ge\=y}  
\text{GEN-L-white}  
\text{‘it’s white’}

Many of the color words consist of verbs which occur with the l-classifier.

(5.13) Color term verbs with l-classifier

\begin{itemize}
  \item \text{delt’e\=l} \quad \text{‘it is red’}
  \item \text{delt\=ox} \quad \text{‘it is brown’}
  \item \text{deldl\=e\=ts} \quad \text{‘it is blue’}
  \item \text{delge\=y} \quad \text{‘it is white’}
\end{itemize}

But compare \text{datze\=y} ‘it is black’, which occurs with the d-classifier.

The l-classifier also appears in middle voice constructions as the portmanteau reflex of h- and d-classifiers. Verbs which occur lexically with the h-classifier occur with the l-classifier in middle voice constructions, as described in the following section.

5.3.1.2 Derivational function of the classifiers

In addition to their lexical functions, the classifiers participate in highly productive derivational processes which are marked via changes in the classifier. The exact nature of these functions remains controversial, though many involve a rearrangement of verbal argument structure. This rearrangement has been described in terms of voice and valence (Rice 2000a) and in terms of transitivity (Kibrik 1993; 1996). The classifiers themselves cannot be assigned a particular
meaning or function; however, changes in the classifier are associated with changes in voice/valence or transitivity.

(5.14) Derivational function of the classifiers (after Kibrik 1993: 50)

```
+trans
Ø  h
-trans
  ↓  ↓
  d  l
```

Movement along the vertical axis in (5.14) corresponds to decreased transitivity or middle voice. Movement in the horizontal axis corresponds to increased transitivity or causativization. I discuss each of these two functions in turn.

### 5.3.1.2.1 Middle voice D-

In Tanacross (and other Athabaskan languages) the d-classifier is associated with a number of constructions all of which can be characterized as middle voice, constructions involving a relatively low level of elaboration of events and low differentiation of participants (cf. Rice 2000a). Middle voice constructions often fall somewhere between prototypical two-participant events and prototypical one-participant events. An example is a reflexive construction. Reflexives are like prototypical two-participant events in having two notional participants, but reflexives are also like one-participant events in that the two notional participants are co-referential.
In Tanacross the reflexive and several other constructions which may be characterized as middle voice require the derivational use of the d-classifier. There are also some aspectual prefixes which require the d-classifier. The derivational use of the d-classifier has the effect of voicing the lexical classifier. Regardless of the underlying classifier present in the underived verb, the derived middle voice form always has a voiced (d or l) classifier. The classifier changes associated with middle voice are shown below.

(5.15) Middle voice classifier changes

\[
\begin{array}{c@{}c@{}c}
\emptyset & \rightarrow & d \\
\text{d} & \rightarrow & \text{d} \\
\text{h} & \rightarrow & \text{l} \\
\text{l} & \rightarrow & \text{l}
\end{array}
\]

The surface form of the classifier in such derived middle voice constructions depends on the original lexically-specified classifier. If a verb theme is lexically specified as having a voiced (d or l) classifier, the derivational use of the d-classifier is not detectable. If a verb theme is lexically specified as having an h-classifier, the derivational use of the d-classifier is reflected as portmanteau l-classifier. In order to distinguish the d-classifier itself from the morphological operation which voices the classifier, I refer to the latter with a capital letter D-.

Middle voice constructions which require D- include those which affect argument structure and those which affect verb aspect.
5.3.1.2.1.1 Argument-affecting middle voice constructions

A variety of middle voice constructions affect verbal argument structure. Some of these completely remove an argument, as with the passive. Others decrease transitivity by co-indexing two verbal arguments.

5.3.1.2.1.1 Passive middle

The passive middle construction, or simply passive, is extremely productive and may apply to nearly all agentive transitive verbs. The term 'passive' is potentially misleading, as the Tanacross passive is clearly not a prototypical Indo-European passive. The Tanacross passive suppresses the active subject and requires D-classifier morphology. The passive is a non-promotional construction in that the active object remains coded as the object of the passive verb. The passive is thus more of an impersonal construction which suppresses the subject argument but does not alter the case role of the object argument. It is functionally similar to the English impersonal ‘they’ construction (e.g., ‘they found the body on the beach’).

The non-promotional passive is morphologically transitive but semantically intransitive. The object argument of the active verb remains the object of the passive verb. The presence of the D-morpheme in the passive construction is only detectable with verbs whose active forms occur with voiceless classifiers. For example, the verb ‘to shoot’ occurs with h-classifier in the active form (5.16a) and l-classifier in the passive form (5.16b).
(5.16) Tanacross active and passive compared

a. šké? déðįįh'á? (active without D-)
   š-ké? de-đ-i-h-k'á?
   1SG-foot THM-CJ-2SG-H-shoot
   ‘you shot my foot’

b. šdelk’á? (active without D-)
   š-de-l-k’á?
   1SG-THM-L-shoot
   ‘I am shot’

c. šnéůįįh'ę'? (passive with D-)
   š-né-đ-i-h-řé'?
   1OBJ-THM-CJ-2SG-H-saw
   ‘you saw me’

d. šněřé'? (passive with D-)
   š-n-đ-l-řé'?
   1OBJ-THM-CJ-L-saw
   ‘I was seen’

While the agent argument is usually suppressed in the passive construction, it may also occur as a full noun phrase, as in (5.17). However, the agent argument is never cross-referenced on the passive verb, and the D- morpheme is always present in the passive construction.

(5.17) Tanacross passive with overt agent

<table>
<thead>
<tr>
<th>t0’ęy</th>
<th>šetgot</th>
</tr>
</thead>
<tbody>
<tr>
<td>t0’ęy</td>
<td>š-ėt-got</td>
</tr>
</tbody>
</table>
mosquito 1SG-D-pierce
‘I was bit by a mosquito’

5.3.1.2.1.1.2 Reflexive

The reflexive construction is used when the subject and (direct or postpositional) object are co-referential. The object is usually marked via a reflexive pronoun, but
not always. In any case the D- morpheme is required. Direct reflexives have co-
referential subject and object and occur with the reflexive object pronoun ?ede-.
The examples in (5.18) compare non-reflexive forms and direct reflexives with
the same verb stem.

(5.18) Direct reflexives (with ?ede- reflexive prefix)
a. šits’ět (transitive without D-)
ś-i-ts’ět
1SG-M-scratch
‘he scratched me’
b. ?edetts’ět (reflexive with D-)
?ede-t-ts’ět
RFLX-D-scratch
‘he’s scratching himself’ <4.97>
c. šdeḍilk’á? (l-classifier transitive)
ś-de-Ḍ-i-l-k’á?
1SG-THM-CJ-2SG-L-shoot
‘you shot me’ <3.81>
d. ?edeḍegk’á? (reflexive with D-)
?ede-de-Ḍ-e-g-k’á?
RFLX-THM-CJ-1SG:L-shoot
‘I shot myself’ <3.81>
e. ?edeḍegt’ih (reflexive with D-)
?ede-Ḍ-e-g-t’ih
RFLX-CJ-1SG:L-classify.fire
‘I burned myself’ <3.117>

Indirect reflexives have co-referential subject and postpositional object. The
postpositional object is marked by the reflexive postpositional object pronoun de-.
(5.19) Indirect reflexives with D-

\[
\begin{align*}
d\-\hat{\gamma}a & \quad yihts\dot{i}^i \\
d\-\hat{\gamma}a & \quad y-i-h-ts\dot{i}^i \\
\text{RF} \text{-for} & \quad 4\text{OBJ-}M-H\text{-make:PERF} \\
& \text{‘he made it for himself’}
\end{align*}
\]

The object in a reflexive construction may not always be explicitly marked via the 
reflexive object pronoun. In these covert reflexives (or middles) the object is 
understood as being co-referential with the subject.

(5.20) Covert reflexives (middles)

a. \[t\theta'\acute{a}k \quad k'\acute{e}\acute{c}e\acute{kts\acute{e}l} \quad \text{(transitive without D-)}
   \]
   \[t\theta'\acute{a}k \quad k'\acute{e}-\acute{c}\acute{e}-\acute{e}k-tse\acute{l} \\
   \text{dishes} \quad \text{THM-INDEF-1SG:H-wash} \\
   ‘I’m washing the dishes’ <3.109>
\]

b. \[k'\acute{e}c'\acute{gts\acute{e}l} \quad \text{(reflexive with D-)}
   \]
   \[k'\acute{e}-\acute{c}\acute{e}-\acute{e}g-tse\acute{l} \\
   \text{THM-INDEF-1SG:L-wash} \\
   ‘I’m washing (myself)’ <3.109>
\]

The D- is not used when the possessor of a postpositional object is co-referential 
the subject. Instead the possessor is marked by the \textit{de}- possessor prefix (see 
section 4.4.1).

5.3.1.2.1.3 Reciprocal

Reciprocal constructions also require D-. When two or more semantic arguments 
of a verb act on each other, the object is marked with the reciprocal object 
pronoun \textit{ni} and the D- occurs.
(5.21) Direct reciprocal with D-

a. xuni\text{xnat}del
   xu-nil-x-n-y-t-del
   AREA-RECIPE-HUM.PL-THM-CJ-D-pl.go
   ‘they are running together’
   \textit{lit.} ‘they are following each other’ <2.103>

b. nil\text{xnel}{\text{	extregistered}}?\text{	extregistered}\text{?}
   nil-x-n-l-{\text{	extregistered}}?\text{	extregistered}
   RECIP-HUM.PL-THM-L-see:PERF
   ‘they saw each other’ <3.141>

The middle voice construction is also used when the subject and postpositional
object are co-referential. The object of the postposition is marked by the
reciprocal object pronoun \textit{ni}-\text{I}. This construction is sometimes called an indirect
reciprocal.

(5.22) Indirect reciprocal

a. \textit{n\text{\textregistered}a} tihtzî (Ø-classifier transitive)
   n-ya t-ih-sî
   2SG-for THM-1SG-like
   ‘I love you’

b. nil\text{\textregistered}atts’etzî (reciprocal with D-)
   nil-ya t-ts’e-t-zî
   RECIP-for THM-1PL-D-like
   ‘we love each other’ <3.53>

5.3.1.2.1.1.4 Incorporated body part

The D- morpheme also occurs when the possessor of an incorporated noun
referring to a body part is co-referential with the subject of verb into which the
body part noun is incorporated. This can be viewed as a type of middle voice
construction.
(5.23) Incorporated body part verbs with D-

ma’ narxnedišžah
m-a’ na’x-ne-δ-iš-žah
3SG-for eye-THM-CJ-1SG:D-go
‘I’m staring at him’ lit: ‘I’m going with my eye on him’ <4.37>

5.3.1.2.1.5 Self-benefactives

Another type of middle voice construction occurs when the beneficiary of an action is co-referent with the subject. Usually the beneficiary is coded as the object of the benefactive postposition a; and co-reference is signaled via the use of the reflexive postpositional object pronoun de-. The self-benefactive construction requires the D- morpheme. Thus compare the non-self-benefactive form in (5.24a), which occurs without the D-, with the self-benefactive form in (5.24b), which requires the D-.

(5.24) Comparison of self-benefactive and non-self-benefactive

a. ší? ša’ diht’éθ
ší? š-a’ di-h-t’éθ
meat 1SG-for GEN-2SG-H-fry:IMPF
‘(you) fry meat for me’

b. ší? d’a’ degt’éθ
ší? d-a’ d-ēg-t’éθ
meat RFLX-for GEN-1SG:L-fry:IMPF
‘I frying meat for myself’ <5.25>

5.3.1.2.1.2 Aspectual middle voice constructions

There are several aspectual verb prefixes which require the D- morphology. These include the iterative prefix, the perambulative prefix and the errative prefix.

Constructions involving these aspectual prefixes differ from the middle voice
constructions described above in that they do not alter the argument structure of
the verb. However, following Rice (2000a) it is possible to classify these
aspectual constructions as middles based on their relatively low elaboration of
events (see Kemmer 1993 for more on this approach to middle voice). All of these
constructions refer to complex events, rather than to particular subevents.

5.3.1.2.1.2.1 Iterative

The iterative (ITER) aspect indicates a repeated or returning action, often glossed
in English with ‘again’ or ‘back’. This construction is extremely common in
Tanacross. The iterative is marked by the disjunct prefix *na-* and requires the D-
morpheme. The iterative prefix is discussed further in section 5.4.1 below.

(5.25) Intransitive iterative with D-

a.  ts’eý źír naʔatke:l
    ts’eý źír na-ʔ-it-ke:l
    boat in ITER-PROG-D-travel.by.boat
    ‘he’s coming back (down the river) in a boat’ <3.77>

b.  naʔitžah
    na-i-t-žah
    ITER-M-D-sg.go
    ‘he returned’

Sometimes the iterative prefix may be dropped, resulting in an iterative
construction which is marked only by the D- morpheme.
(5.26) Omission of *na-* prefix in iterative construction

a. áz níxyitdetl
   áz ní-x-y-i-t-del
   away:ABL TERM-HUM.PL-CJ-M-D-pl.go
   ‘they came back’

b. dekey ts’į? xuxatdel
   de-key ts’į? xu-x-a-t-del
   RFLX-village to AREA-HUM.PL-CJ-D-pl.go
   ‘they went back to their village’ <5.35>

Note that in Tanacross the D- morpheme may occur with both transitive
and intransitive verbs. This is in contrast to some other languages which require
the D- only with intransitive verbs (cf. Rice 2000a).

(5.27) Transitive iterative with D-

našneIʔɛʔ
na-š-n-elʔɛʔ
ITER-1SG-THM-L-see:PERF
‘he saw me again’ <5.11>

(5.28) Transitive iterative without D-

a. díneđeklätl’u’
dí-na-ne-d-e-k-tl’u’
ADV-ITER-THM-M-1SG:H-tie:PERF
‘I tied it (dog) up again’

b. nach’enih’ětθ
na-ch’e-n-ih’-ětθ
ITER-INDEF-M-1SG-step:PERF
‘I stepped on it again’

One semantic property which appears to distinguish the transitive iterative
constructions without D- from those with D- is the affectedness of the agent
argument. With transitive motion verbs the D- appears only when the object is
returned to the source with the subject. Thus the contrast between (5.29) and
(5.30). The D- occurs only with the meaning that the object is returning with the
agent.

(5.29) Transitive iterative without D-, unaffected agent

ežeg mënih?a’
ežeg ní-na-n-ih-?a’
there TERM-ITER-M-1SG-handle.cpt.object:PERF
‘I brought it back there’

(5.30) Transitive iterative with D-, affected agent

jah naniš?a’
jah na-n-iş-?a’
here ITER-M-1SG:D-handle.cpt.object:PERF
‘I brought it back here’

This semantics of the affected agent parameter can be schematized as in the
following diagram (suggested by Krauss, p.c.). The bold arrows represent
presence of the object; dashed arrows represent absence of the object. Thus the
first situation represents bringing an object to another location, leaving the object
there, and then returning to the original location.
Figure 5.3: Representation of transitive iterative

An additional example of the alternation between transitive iterative with and without D- is found in (5.31). The first example (a) is the standard way of saying ‘goodbye’ in Tanacross. It includes the iterative and the D- morpheme. The second example (b) is nearly identical but lacks the D-. It differs from (a) in that there is an expectation that although the speaker will see the hearer again, the hearer will not see the speaker. In other words, the agent (speaker) is less affected in (b) than in (a).

(5.31) Transitive iterative with and without D-

a. nantnegʔiɬ (with D-)
   na-n-t-n-egʔiɬ
   ITER-2SG-INCP-THM-1SG:L-see:FUT
   ‘I’ll see you again’

b. nantnekʔiɬ (without D-)
   na-n-t-n-ekʔiɬ
   ITER-2SG-INCP-THM-1SG:H-see:FUT
   ‘I’ll see you again [but you won’t see me]’

Similar alternations between transitive iteratives with and without D- have been reported for Koyukon as well (Eliza Jones & Michael Krauss, p.c.).
5.3.1.2.1.2.2 Perambulative

The perambulative (PRMB) aspect indicates an action or activity carried out in a wandering, aimless or directionless manner. The perambulative is marked by either the prefix *lo-* or the prefix string *na#t-. The latter prefix requires the D-marker. It is not clear what governs the choice between the *lo-* and *na#t-* prefixes in Tanacross. Cognate prefixes also occur in the Mentasta dialect of Ahtna, where the alternation is conditioned by aspect: *na#t-* occurs in the imperfective and *lo-* occurs elsewhere (Kari 1990: 284).

(5.32) Perambulative marked by *lo-* (without D-)

\[
\begin{align*}
\text{lóʔa-ha:l} \\
\text{ló-ʔ-\text{-}ha:l} \\
\text{PRMB-PROG-walk} \\
\text{‘he’s walking around’}
\end{align*}
\]

(5.33) Perambulative marked by *na#t-*(with D-)

a. nayitetlurk
   na-\text{-}yi-t-et-lurk
   PRMB-4OBJ-PRMB-D-drag
   ‘a bear is dragging him around’ <3.109>

b. nah?ōg nūrn naṭeʔős
   nah?ōg nūrn na-t-ɛlʔês
   outside animals PRMB-PRMB-L-animal.walk
   ‘animals are walking around outside’ <3.28>

The perambulative aspect is discussed in more detail in section 5.4.3 below.

5.3.1.2.1.2.3 Errative

The errative (ERR) aspect is marked by the prefix *n-* and requires the D-morpheme. The errative indicates that a mistaken or unintentional action with
unintended consequences (cf. Morice 1932). It is less productive than the iterative and perambulative constructions.

(5.34) Errative prefix n-

a. yah’ts’ok (non-errative without D-)
y-γ-h-ts’ok
4OBJ-PROG-H-poke
‘he’s poking him’ <2.47>

b. inelts’ok (errative with D-)
y-n-δ-l-ts’ok
4OBJ-ERR-CJ-L-poke
‘he accidentally poked him’ <2.47>

c. č’etėdēgnek (non-errative without D-)
č’-e-t-δ-e-εg-nek
INDEF-THM-CJ-PERF-1SG:L-swallow
‘I swallowed (something)’

d. č’etnėdēgnek (errative with D-)
č’-e-t-n-δ-e-εg-nek
INDEF-THM-ERR-CJ-PERF-1SG:L-swallow
‘I choked (on something)’
lit: ‘I swallowed something unintentionally’ <3.139>

The errative construction is discussed further in section 5.3.4.5 below.

5.3.1.2.2 Causative h-

The second major derivational function in which the classifiers participate is the causative construction. A morphological causative is encoded via a change of lexically specified classifier to h-. All morphological causatives require the h-classifier (though a middle voice construction built on a causative has the l-classifier; see section 5.3.1.3 below). Thus, it is also possible to label the
h-classifier as a “causativizer” morpheme, though as noted above, many verbs occur lexically with the l-classifier even though they are not causatives.

(5.35) Causative classifier changes

\[
\begin{align*}
\emptyset & \rightarrow h \\
d & \rightarrow h \\
h & \rightarrow h \\
l & \rightarrow h
\end{align*}
\]

The causative construction is moderately productive, though many verb stems have a lexicalized alternation between non-causative and causative forms.

Causatives may be derived from both intransitive and transitive verbs.

5.3.1.2.2.1 Causatives of intransitives

Many intransitive verbs can participate in the causative construction. The derived causative verb is transitive. The subject of the causative construction refers to the causer, and the direct object of the causative construction refers to the causee.

Semantically, the causee may be patient or agent. In the causative construction intransitive verbs referring to actions and events generally have the meaning ‘cause Obj to V (action)’ or ‘cause V (event) to happen to Obj’. In each of the following examples a non-causative form is followed by a causative form of the same verb stem.
(5.36) Causatives of active intransitives

a. i) nếža
    n-é-ža
    THM-M-grow
    ‘he grew up’ (Ø-classifier)

ii) neɗekža
    ne-ɗ-ekža
    THM-CJ-1SG:H-grow
    ‘I raised him/her’ <3.107>

b. i) ēmets
e-ṃets
PEG-boil
‘it’s boiling’ (Ø-classifier)

ii) yihmets
    yi-h-ṃets
    4OBJ-H-boil
    ‘he is boiling it’

c. i) kōn? néldezey
    kōn? n-ɛl-dzey
    fire GEN-L-shine
    ‘the fire is lit’ (l-classifier)

ii) kōn? nlhdzey
    kōn? n-in-h-dzey
    fire GEN-2SG-H-shine
    ‘(you) light the fire’ <3.57>

d. i) e'gey
    e'-gey
    M-dry
    ‘it is dry’ (Ø-classifier)

ii) č’eɗéθ yókgey
    č’e-ɗéθ yo-ek-gey
    INDEF-skin OPT-1SG:H-dry
    ‘I’m gonna dry the skin’ <3.5>
Intransitive verbs referring to states may also participate in the causative construction. In the causative construction these verbs are transitive and generally have the meaning ‘keep Obj in V (state)’.

(5.37) Causatives of stative intransitives

a. yinda?  
y-in-dá?  
CJ-M-stay  
‘he stayed’ (Ø-classifier)

b. jeý yihdá?  
jeý y-i-h-dá?  
mittens CJ-M-H-stay  
‘he left his mittens’ <3.75>

There appears to be no restriction on the semantic role of the causee in the causative construction. Tanacross differs in this respect from other Athabaskan languages which do not permit causatives of agentive intransitive verbs (e.g., Slave, see Rice 2000a).

5.3.1.2.2 Causatives of transitives

Transitive verbs may also participate in the causative construction. The resulting causative is transitive. The subject of the causative verb refers to the causer, and...
the oblique postpositional object refers to the causee. The referent of the direct object is unchanged.

(5.38) Causatives of transitives

a. č’ih-ʔál
   č’e-ih-ʔál
   INDEF-1SG-eat
   ‘I am eating (something)’ (Ø-classifier)

b. me č’e:kál
   m-e č’e-ek-ʔál
   3SG-to INDEF-1SG:H-eat
   ‘I am feeding (something) to him’ (h-classifier)

c. k’ée’edégtsel
   k’é-č’e-ð-égtsel
   THM-INDEF-CJ-1SG:L-wash
   ‘I’m taking a bath’ (l-classifier)

d. ts’ēn’n gay k’éeδéktšel
   ts’ēn’n gay k’é-č’e-ð-ék-tšel
   baby THM-INDEF-CJ-1SG:H-wash
   ‘I’m giving the baby a bath’ (h-classifier)

5.3.1.3 Interaction between middle voice and causative

It is possible for the middle and causative voice constructions to co-occur. When a middle is built from a causative construction, the resulting verb occurs with the l-classifier. This can be explained as a case of successive derivation. The underlying causative construction requires an h-classifier. The middle requires the D-morpheme, which when applied to a form with the h-classifier results in an l-classifier verb. The example in (5.39) shows this process for a passive built upon a passive construction.
(5.39) Passive of causative

a. teyišdekw (d-classifier)
te-γ-ış-dekw
THM-CJ-1SG:D-tired
‘I’m tired’

b. tenderedkekw (h-classifier causative)
te-n-γ-ek-dekw
THM-2SG-CJ-1SG:H-tired
‘I tired you out’

c. tenyeldekw (l-classifier passive of causative)
te-n-γ-el-dekw
THM-2SG-CJ-L-tired
‘you got tired out’

5.3.1.4 Classifier summary

The general properties of the Tanacross classifiers appear to be much the same as those described for other Athabaskan languages. Every verb is lexically specified for one of four classifier morphemes (including Ø) which occur immediately preceding the verb root. Verbs can thus be divided into four classes according to which classifier they occur with. However, these classes have little if any semantic correlates. In Tanacross there is a major phonological distinction between voiced (d- and l-) and voiceless (h-) classifiers. The voiceless h-classifier consistently blocks voicing of stem-initial fricatives.

In addition to their lexical properties, the classifier morphemes function derivationally to mark voice/valence. The d-classifier occurs with transitivity-decreasing middle voice constructions, including passives, reciprocals, reflexives, body-part incorporates, self-benefactives, and the iterative, perambulative and
errative aspectual constructions. The h-classifier occurs with valence-increasing causative constructions.

### 5.3.2 Subject

Immediately preceding the classifier is the subject position. Morphemes in this position are sometimes referred to as ‘inner subjects’ to distinguish them from other subject-like morphemes occurring in the pronominal position, among the leftmost of the conjunct verb prefixes. However, only the inner subjects are true subject pronominals, obligatorily cross-referencing both person and number of the subject argument.

Three prefixes may occur in this position, corresponding to first person singular, second person singular, and second person plural. Any verb which has a first person singular, second person singular, or second person plural subject argument is obligatorily inflected with one of these subject prefixes. Conversely, verbs which lack a first person singular, second person singular, or second person plural subject argument do not include a prefix in the subject position and are thus said to have Ø-subject (see section 5.3.2.4 below).

The subject prefixes combine with the following classifier prefix to form portmanteau subject-classifier prefixes, as shown in Table 5.1.
Table 5.1: Subject-classifier prefixes

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CLASSIFIER</th>
<th>Ø-</th>
<th>d-</th>
<th>h-</th>
<th>l-</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>ih-</td>
<td>iš-</td>
<td>ēk-</td>
<td>ēg-</td>
<td></td>
</tr>
<tr>
<td>2SG</td>
<td>in-</td>
<td>it-</td>
<td>īh-</td>
<td>īl-</td>
<td></td>
</tr>
<tr>
<td>2PL</td>
<td>ah-</td>
<td>at-</td>
<td>āh-</td>
<td>āl-</td>
<td></td>
</tr>
</tbody>
</table>

As with all eleven Alaska Athabaskan languages, Tanacross does not exhibit a reflex of the PA *i’-D first person duoplural subject prefix.² Instead, first person plural is marked via the impersonal prefix ts’ē- (see section 5.3.5.1.1 below). Third person is not marked on the verb, though third plural may be indicated via the human plural number prefix xē-.

5.3.2.1 First person singular ih-

The first person singular pronominal prefix is ih-. This prefix takes on irregular forms preceding non-zero classifiers. As discussed in section 5.3.1.1.3, the first person prefix combines with the h-classifier to form the portmanteau ēk subject-classifier prefix. The origins of this rather odd first person singular form are discussed at length by Krauss (1977a). With the compound l-d-classifier the first person singular has the form ēg-.

(5.40) First person singular subject-classifier prefixes

a. ih-tsx
   ih-tsx
   1SG-cry
   ‘I’m crying’
b. ḳšn’a
 ḳš-n’a
 1SG:D-drink
 ‘I’m drinking’

c. ḳrg ᴱk’t’éθ
 ḳṛg ᴱk-t’éθ
 fish 1SG:H-fry
 ‘I’m frying fish’

d. náʔegzéx
 ná-eg-zéx
 THM-1SG:L-hunt
 ‘I’m hunting’

The first person singular prefix blocks voicing of stem-initial fricatives when the stem immediately follows the subject prefix (i.e., with the Ø-classifier).

(5.41) Blocking of fricative voicing with first person singular

ihṣu’
 ih-su’
 1SG-fine
 ‘I’m fine’

5.3.2.2 Second person singular in-

The second person singular pronominal prefix is in-. The final n of the second person singular is absorbed preceding a non-zero classifier. Nasalization is retained preceding the h-classifier but not preceding the voiced (d- and l-) classifiers.

(5.42) Second person singular subject prefix

a. in’tsax
 in-tsax
 2SG-cry
 ‘you’re crying’ (Ø-classifier)
b. itna'
in-t-na'
2SG-D-drink
‘you’re drinking’ (d-classifier)

c. šrug  ihtéθ
šrug  in-h-téθ
fish  2SG-H-fry
‘you’re frying fish’ (h-classifier)

d. náʔilzéx
ná-in-l-zéx
THM-2SG-L-hunt
‘you’re hunting’ (l-classifier)

When no classifier is present the second person singular subject prefix consonant-final form of the second person subject prefix may alternate with a long nasalized vowel ŗ-. This is especially true preceding alveolar consonants, as in (5.43).

(5.43) Nasalization of second person singular subject prefix

ntsé  tít'éh
ntsé  t'j-t'éh
what  THM-2SG-be
‘how are you?’

Also, iṭsax ‘you’re crying’ is an acceptable alternate form of (5.42a) above. The following are some additional examples of the second person singular subject prefix with Ø-classifier verbs.

(5.44) Second person singular subject (Ø-classifier)

a. uθóʔi?  ínket
u-tóʔi?  in-két
3SG-head-POSS  2SG-pat
‘(you) pat his head!’
b. náʔinθet
   ná-in-θet
   THM-2SG-stand
   ‘(you) stand up!’

The following are some additional examples of the second person singular subject prefix with non-zero classifier verbs.

(5.45) Second person singular subject (non-zero classifiers)

a. č’itna’
   (d-classifier)
   č’e-in-t-na’
   INDEF-2SG-D-drink
   ‘you’re drinking’

b. žax xnjhtθux
   (h-classifier)
   žax x-n-in-h-θux
   house AREA-M-2SG-H-chink
   ‘you’re chinking the house’

c. néδilts’etl
   (l-classifier)
   né-ð-in-l-ts’etl
   THM-CJ-2SG-L-shut.eyes
   ‘shut your eyes!’

The second person singular prefix triggers voicing of stem-initial fricatives when the stem immediately follows the subject prefix (i.e., with the Ø-classifier).

(5.46) Fricative voicing with second person singular

    inzu’
    in-ṣu’
    2SG-fine
    ‘you’re fine’

5.3.2.3 Second person plural ah-

The second person plural subject prefix is ah-. The consonant of this prefix is deleted before a non-zero classifier. The morphophonemics of this prefix are
entirely parallel to those of the second person singular, except there is no

nasalization in preceding the h-classifier.

(5.47) Second person plural subject prefix

a. ahtsax
   \textbf{ah}-tsax
   2PL-cry
   ‘y’all are crying’ (Ø-classifier)

b. atna’
   \textbf{ah}-t-na’
   2PL-D-drink
   ‘y’all are drinking’ (d-classifier)

c. \textit{turg} aht’éθ
   \textit{turg} \textbf{ah}-h-t’éθ
   fish 2PL-H-fry
   ‘y’all are frying fish’ (h-classifier)

d. náʔalzé’x
   ná-\textbf{ah}-l-sé’x
   THM-2PL-L-hunt
   ‘y’all are hunting’ (l-classifier)

Due to the deletion of the final consonant preceding non-zero classifiers, there is

no distinction between Ø-classifier and h-classifier forms with the second person

plural subject prefix.

The second person plural prefix blocks voicing of stem-initial fricatives

when the stem immediately follows the subject prefix (i.e., with the Ø-classifier).
5.3.2.4 Ø-subject

The absence of an inner subject (first person singular, second person singular, or second person plural) prefix is often referred to in Athabaskan linguistics as a Ø-subject or third person subject. However, there is no morpheme which explicitly cross-references third person singular subject. Third person referents are not obligatorily marked on the verb, and both the impersonal marker \( ts'è- \) and the human plural marker \( xe- \) can co-occur with the Ø-subject. Nor can third person be considered a true morphological zero, in that it does not correspond to a meaningful absence of another morpheme.

However, the concept of Ø-subject serves as a useful heuristic for describing the morphophonemic interaction between conjugation/mode prefixes and the classifier. When no subject prefix is present, the conjugation/mode prefixes occur immediately adjacent to the classifier prefix, which often leads to modifications of the mode prefix. These modifications are most easily described by referring to this absence paradigmatically, thus the label Ø-subject.
The minimal verb word requires two syllables, yet most Tanacross verb stems consist of only a single syllable. When no other conjunct prefixes are present, a prothetic ‘peg’ prefix occurs in subject position in Ø-subject forms.\(^3\)

(5.49) Prothetic \(e\)- with Ø inner subject prefix

<table>
<thead>
<tr>
<th>Ø-classifier</th>
<th>(e)-Ø-tsax</th>
<th>‘he’s crying’</th>
</tr>
</thead>
<tbody>
<tr>
<td>d-classifier</td>
<td>(e)-t-na’</td>
<td>‘he’s drinking (object)’</td>
</tr>
<tr>
<td>h-classifier</td>
<td>(e)-h-ts’eį</td>
<td>‘it’s windy’</td>
</tr>
<tr>
<td>l-classifier</td>
<td>(e)-l-keį</td>
<td>‘it’s sweet’</td>
</tr>
</tbody>
</table>

The Ø-subject may co-occur with outer subject prefixes. Phonologically, there is no difference between the ‘zero’ present before the classifier in third person subjects and that present with outer subjects such as human person plural \(xe\)-.

(5.50) Zero-subject with and without outer subject prefix

a. \(e\)tsax
   \(e\)-tsax
   PEG-cry:IMPF
   ‘s/he cries’

b. \(xe\)tsax
   \(xe\)-tsax
   HUM.PL-cry:IMPF
   ‘they cry’

Cross-referencing of non-human third person plural subject is also not obligatory.

(5.51) Non-human plural subject not cross-referenced

a. \(yart\)tɛn\(dən\)ŋ \(ah\)lɛs
   \(yart\)tɛn\(de\)n\(g\) \(y\)-h-\(l\)ɛs
   down.there moose \(PROG-H\)-animal.walk:IMPF
   ‘moose are walking around down there’
5.3.2.5 Syntactic status of subject prefixes

The syntactic status of subject prefixes is a matter of some debate within Athabaskan linguistics. One point of view represents subjects as agreement, interpreting the lack of co-indexed nominals as instances of pro-drop (cf. Rice & Saxon 1994). An alternate point of view considers the subject prefixes themselves to be arguments of the verb, with co-indexed nominals occurring as adjuncts (cf. Sandoval & Jelinek 1989). It is of course possible that both patterns occur in different members of the language family. The facts of Tanacross appear to be more consistent with the pronominal argument interpretation. While not wishing to argue explicitly for their interpretation, I cite the relevant data below.

In Tanacross there are independent subject pronouns in addition to the subject prefixes. These subject pronouns always have a contrastive or emphatic reading.

(5.52) Independent pronouns with contrastive/emphatic reading

b. čet’āʔ dēltθox
c. č’e-t’a-ʔ d-ē-l-tθox
INDEF-leaf-POSS GEN-M-L-yellow
‘the leaves are yellow’

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b. čet’āʔ dēltθox
c. č’e-t’a-ʔ d-ē-l-tθox
INDEF-leaf-POSS GEN-M-L-yellow
‘the leaves are yellow’
b. ši’ ekt’ēθ
   ši’ ekt’ēθ
   I 1SG:H-cook:IMPF
   ‘I’m cooking’

In particular, sentences with two independent pronouns are not possible, since it is not possible to contrastively focus both subject and object arguments. Thus, phrases such as that in (5.53) are not possible.

(5.53) Two independent pronouns not possible

*ši’ nén nēkʔēh
ši’ nén n-e-kʔēh
1SG 2SG THM-1SG:H-see:IMPF
‘I see you’

Also, there is no pleonastic subject pronoun in Tanacross. Verbs with impersonal subjects cannot occur with an independent pronoun.

(5.54) No pleonastic subject pronoun

*dī’ ehčq’
dī’ e-h-čq’
3SG PEG-H-rain
*‘it’s raining’, ?? ‘he’s raining’

Were Tanacross subject prefixes mere agreement markers we would expect forms such as (5.53) and (5.54) to be possible. In contrast, the unacceptability of such forms is readily explained if the subject prefixes themselves are interpreted as pronominal arguments. Addition of an independent pronoun in these contexts is then syntactically redundant and hence unacceptable.
5.3.3 Conjugation and mode

The two prefix positions immediately to the left of the subject prefix together mark mode. The conjugation prefix may have one of three values: n-, δ-, γ-.

Absence of a conjugation prefix is usually referred to as a Ø- conjugation prefix. The mode prefix may have one of three values: i-, γu-, í-, corresponding to perfective, optative, and negative mode, respectively. Absence of a mode prefix, usually denoted by Ø-, corresponds to imperfective mode (though see Sharon Hargus & Tuttle 1997 for an alternate view). Conjugation and mode prefixes are usually tightly fused but in most cases remain synchronically analyzable as two morphemes.

<table>
<thead>
<tr>
<th>conjugation</th>
<th>mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø-</td>
<td>Ø-</td>
</tr>
<tr>
<td>n-</td>
<td>i-</td>
</tr>
<tr>
<td>δ-</td>
<td>γu-</td>
</tr>
<tr>
<td>γ-</td>
<td>í-</td>
</tr>
</tbody>
</table>

Not all combinations of the conjugation and mode prefixes occur, due to the fact that the optative and negative modes do not distinguish between conjugation markers. The ten conjugation and mode prefix combinations which do occur are list in Table 5.3 below.
Table 5.3: Combinations of conjugation and mode prefixes

<table>
<thead>
<tr>
<th>conjugation prefix</th>
<th>mode prefix</th>
<th>name of mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø-</td>
<td>Ø-</td>
<td>Ø-imperfective</td>
</tr>
<tr>
<td>n-</td>
<td>Ø-</td>
<td>n-imperfective</td>
</tr>
<tr>
<td>δ-</td>
<td>Ø-</td>
<td>δ-imperfective</td>
</tr>
<tr>
<td>γ-</td>
<td>Ø-</td>
<td>progressive/future</td>
</tr>
<tr>
<td>Ø-</td>
<td>i-</td>
<td>Ø-stative imperfective</td>
</tr>
<tr>
<td>n-</td>
<td>i-</td>
<td>n-perfective/n-stative imperfective</td>
</tr>
<tr>
<td>δ-</td>
<td>i-</td>
<td>δ-perfective/δ-stative imperfective</td>
</tr>
<tr>
<td>γ-</td>
<td>i-</td>
<td>γ-perfective</td>
</tr>
<tr>
<td>Ø-</td>
<td>yu-</td>
<td>optative</td>
</tr>
<tr>
<td>Ø-</td>
<td>i-</td>
<td>negative</td>
</tr>
</tbody>
</table>

The conjugation and mode prefixes comprise one of the most complex areas of verb prefix morphology in Athabaskan languages. As used in Athabaskan linguistics, mode is a purely structural term, not to be confused with notional mode. The prefixes occurring in this position include markers of aspect, tense and negation, though Axelrod (1990a) notes that all mode markers can be conceived of as modal, in the sense that they distinguish between realis and irrealis. For the purposes of description, I will continue to use the term mode in the structural sense.

Mode prefixes do in general function to indicate notional mode, though this is not always the case. For example, stative verbs use the perfective mode marker in both imperfective and perfective modes (see section 5.3.3.3). Even within Athabaskan linguistics, the term mode is used in two senses to refer both to structural mode and notional mode.
While it is clear that the conjugation prefix is separable from the mode prefix, it can be difficult to assign a meaning to the conjugation prefix independent of the mode prefix. The choice of conjugation marker is governed by the lexical semantics of the verb, and certain verb prefixes and verb aspects require a particular conjugation marker. In this respect conjugation prefixes do indeed function to demarcate conjugation classes. However, in some cases the choice of conjugation prefix corresponds to an aspectual meaning. Krauss (1969) describes these meanings in PA:

“ni- has the marked meaning ‘to a point, completive,’ ghi-[Tanacross γ-] has the marked meaning ‘from a point, inceptive,’ and si- [Tanacross δ-] is unmarked in this respect, ‘static’.”

The presence of a particular combination of conjugation and mode prefix is reflected maximally in the morphology as a single syllable; sometimes only a single phoneme; and sometimes only via phonological modification of adjacent morphemes. Conjugation and mode prefixes together form what are loosely referred to a modes, denoted by hyphenated labels such as ‘n-imperfective’, referring to the n- conjugation marker with the imperfective mode marker (see Table 5.3). It is these (historically) poly-morphemic conjugation-mode prefixes which I discuss in this section.

Mode prefixes by themselves do not encode mode or aspectual information but rather must occur together with a particular form of the verb stem.
Thus, imperfective aspect is doubly marked by an imperfective mode marker and an imperfective form of the stem. For example, the Tanacross verb meaning ‘to fry’ has an imperfective stem variant -t’eθ and a perfective variant -t’eh.

Furthermore, for a given verb, different conjugation markers may occur with the imperfective and perfective forms. In the case of ‘to fry’, the imperfective occurs with the Ø-conjugation marker, and the perfective occurs with the δ-conjugation marker.

(5.55) Comparison of imperfective and perfective conjugations of ‘to fry’

a. Ṽuŋ jht’eθ
   Ṽuŋ in-h-t’eθ
   fish 2SG-H-fry:IMPF
   ‘you’re frying the fish’

b. Ṽuŋ dįh’t’eh
   Ṽuŋ δ-in-h-t’eh
   fish M-2SG-H-fry:PERF
   ‘you fried fish’

The patterning of conjugation markers and aspects for a particular verb is often diagnostic of membership in larger aspectual categories.

With respect to mode morphology, Tanacross verbs can be divided into two major categories: active and stative. As the labels suggest, these categories also reflect differences in lexical aspect. Active verbs refer to events; stative verbs refer to states or properties. Stative verbs are discussed separately as they behave somewhat differently than do active verbs with respect to conjugation and mode marking. In particular, while active verbs use the t- perfective mode prefix to
mark the perfective mode, stative verbs use the $\iota$- prefix in both perfective and
imperfective modes. The stative imperfective form is structurally identical to the
active perfective form.

5.3.3.1 Imperfective mode
The active imperfective mode denotes an activity which is ongoing and not
completed. Speakers most often translate this mode with English present tense.
The imperfective mode is marked by a combination of the imperfective stem
variant and the absence of the perfective mode prefix $\iota$, treated here as a
meaningful zero. In addition, one of the three conjugation prefixes may be
present.

5.3.3.1.1 The Ø-imperfective
The Ø- (zero) conjugation marker is by far the most common conjugation marker
occurring with the imperfective mode. The Ø-imperfective mode is marked by the
absence of both a conjugation prefix and a perfective prefix, thus in most cases,
the Ø-imperfective has no phonetic form, regardless of which prefixes precede or
follow it. The Ø- conjugation prefix is a true morphological zero, in that it
corresponds to the meaningful absence of a conjugation prefix. The phonology of
the Ø- conjugation prefix in the imperfective mode is fairly straightforward.
In word-initial position, i.e., when no prefixes precede the conjugation/mode prefix positions, the Ø- conjugation prefix has no phonetic form.

(5.56) Ø-imperfective in word-initial position followed by subject prefix

\[
\begin{align*}
\text{i}\text{ng }\text{h}\text{i}\text{n}\text{a} & : \text{‘I eat the fish’} \\
\text{i}\text{ng }\text{i} & : \text{‘you eat the fish’} \\
\text{a} & : \text{‘y’all eat the fish’}
\end{align*}
\]

When no inner subject prefix is present, i.e., when the Ø-imperfective is immediately followed by a classifier prefix, the peg prefix e- occurs as the nucleus of the pre-stem syllable, since all verbs require a pre-stem syllable.

(5.57) Ø-imperfective in word-initial position followed by classifier prefix

\[
\text{he (e) } \text{a} & : \text{‘s/he eats the fish’}
\]

When preceded by a disjunct prefix the Ø-imperfective has no phonetic form.

(5.58) Ø-imperfective following a disjunct prefix

\[
\begin{align*}
\text{tal} & : \text{‘he swims’}
\end{align*}
\]

When preceded by a conjunct prefix the Ø-imperfective has no phonetic form. However, the vowel of the preceding conjunct prefix may be deleted when a subject prefix is present.

(5.59) Ø-imperfective following a conjunct prefix

\[
\begin{align*}
\text{i}\text{ng }\text{s’e}\text{h} \text{a} & : \text{‘we eat the fish’} \\
\text{i}\text{ng }\text{x}\text{h} \text{e}\text{h} \text{a} & : \text{‘they eat the fish’}
\end{align*}
\]
5.3.3.1.2 The γ-imperfective

The γ-imperfective mode is used to form two different aspects: progressive and future. Both require the future mode stem variant. Without the inceptive prefix, the γ-imperfective forms the progressive mode; with the inceptive prefix, the γ-imperfective forms the future mode.

5.3.3.1.2.1 The γ-imperfective progressive

The γ- conjugation marker together with the future mode stem variant forms the progressive mode, signifying an action which is in the process of being carried out, similar to the English present progressive tense. The γ- conjugation prefix is regularly deleted in forms with zero inner subject, undergoing vocalization to a low vowel a.

(5.60) Progressive paradigm for Ø-ha‘ ‘sg. go’
   γihha‘l ‘I’m going’
   γinha‘l ‘you’re going’
   a‘ha‘l ‘s/he is going’

(5.61) Progressive paradigm for Ø-del ‘pl. go’
   ts‘ardél ‘we’re going’
   γahdél ‘you guys are going’
   xa‘dél ‘they’re going’

5.3.3.1.2.2 The γ-imperfective future

When used with the inceptive prefix te- (see section 5.3.4.2 below), the γ- conjugation marker and the future stem variant form the future mode. Areally,
Tanacross appears to be at a crossroads with respect to the overt appearance of the γ- conjugation marker in the future mode (John Ritter, p.c.). Languages to the north and east, including Upper Tanana, Han, Tutchone, and Gwich’in, completely lack overt γ- in the imperfective mode, even with the progressive. Compare for example Tanacross *yi hallmark* ‘I am going’ (PROG) with Upper Tanana *ih hallmark*. On the other hand, languages to the west retain the γ- conjugation marker in the imperfective future. For example, consider the Dena’ina example below.

(5.62) Dena’ina γ-imperfective future (Tenebaum 1978: 105)

\[
\begin{align*}
\text{tynichy} \\
\text{t-ye-n-Ø-çey} \\
\text{INCEP-CJ-2s-Ø-cry} \\
\text{‘you will cry’}
\end{align*}
\]

Tanacross also usually lacks the γ- conjugation marker in γ-imperfective future forms. Thus compare the following Tanacross example with the Dena’ina example above.

(5.63) Deletion of Tanacross γ- conjugation marker in future mode

\[
\begin{align*}
\text{tintse’x} \\
\text{t-γ-in-tse’x} \\
\text{INCEP-CJ-2SG-cry} \\
\text{‘you will cry’}
\end{align*}
\]

However, Tanacross forms with and without the γ- may alternate in verbs with non-zero inner subject prefix. Thus, the conjugation marker in the Tanacross γ-imperfective future is unstable, sometimes deleting as in languages to the east and sometimes being retained as in languages to the west. The factors
conditioning this dialectal or idiolectal alternation are not fully understood. When no inner subject prefix is present, the γ- probably always undergoes vocalization γ > a as it does in the γ-imperfective progressive. In forms with an inner subject prefix, γ- may or may not be present. For example, at least for some speakers both utihké’t and uteyíhké’t are acceptable for ‘I will buy it’. It appears that the γ- is more likely to be retained when another prefix intervenes between the inceptive te- and the conjugation marker, as in the following example.

(5.64) Retention of conjugation marker in γ-imperfective future

č’utdeyíšké’t
č’-u-t-de-γ-įš-ké’t
INDEF-THM-INCEP-THM-CJ-1SG:D-buy:FUT
‘I’ll buy something for myself’

In general, there appears to be a preference for forms which lack the γ-. Some example paradigms are given below.

(5.65) Future paradigm for Ø-ha ‘sg. go’

tihhaľ ‘I will go’
tinhaľ ‘you will go’
taňhaľ ‘s/he will go’

(5.66) Future paradigm for Ø-deľ ‘pl. go’

tsaľdēľ ‘we will go’ (ts’e + t > ts)⁶
tahdēľ ‘you guys will go’
xtaľdēľ ‘they will go’

The forms in (5.65) and (5.66) follow the vocalization rule by which γ > a following a disjunct Ce prefix; this vowel is subsequently deletes preceding an inner subject prefix (see Leer 1977). The existence of forms which retain the γ-
alongside forms which do not indicates that this vocalization rule is not always obligatory in forms having an inner subject prefix. However, the less conservative forms without the $\gamma$- are always possible and I have standardized to those forms in the remainder of this document. A complete description of the constraints on presence of the conjugation marker in the $\gamma$-imperfective future must await further study.

5.3.3.2 Perfective mode

The perfective mode denotes an activity which is completed or has a defined endpoint. The perfective mode is marked by a combination of the perfective stem variant and the perfective mode prefix $i$- ($< PA *[^\eta]-$). The perfective mode requires one of three non-zero conjugation prefixes: $n$-, $\gamma$, or $\delta$. The $\emptyset$- conjugation prefix may also occur with the perfective prefix, but only with semantically imperfective stative verbs. Stative verbs are discussed separately in section 5.3.3.3.

The morphology of the perfective mode and the perfective mode prefix is extremely complex. The mode prefix may be entirely absent in some cases, or its presence may be reflected only in the presence of high tone on an adjacent vowel. The general pattern of the conjugation prefixes and the perfective prefix in the perfective mode can be summarized as follows.
The conjugation prefix is deleted following a conjunct prefix. The conjugation prefix is also deleted with zero inner subject and voiced classifiers. With the δ-perfective mode the conjugation prefix is deleted before both voiced and voiceless classifiers with zero inner subject.

The perfective prefix is deleted before an inner subject. With zero inner subject, the perfective prefix is not always present in its full form ĩ-, but some reflex of the perfective prefix is detectible in all perfective mode forms with zero inner subject.

In the subsections below I discuss n-perfective, γ-perfective and δ-perfective modes in turn.

5.3.3.2.1 The n-perfective
The n-perfective mode has a completive or terminative meaning. The n-perfective mode is marked by the n- conjugation prefix, but the presence of the ĩ- perfective prefix is detectable only in a few forms. Only in the zero subject forms with voiceless classifiers is the presence of both the n- conjugation prefix and the ĩ- perfective prefix detectable. All other forms deleted either the conjugation prefix or the mode prefix.
Table 5.4: n-perfective conjugation-mode-subject-classifier prefixes

<table>
<thead>
<tr>
<th></th>
<th>Ø-</th>
<th>d-</th>
<th>h-</th>
<th>l-</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>nih-</td>
<td>niš-</td>
<td>nek-</td>
<td>neg-</td>
</tr>
<tr>
<td>2SG</td>
<td>nin-</td>
<td>nit-</td>
<td>njäh-</td>
<td>nil-</td>
</tr>
<tr>
<td>2PL</td>
<td>nah-</td>
<td>nat-</td>
<td>nah-</td>
<td>nal-</td>
</tr>
<tr>
<td>Ø-</td>
<td>nin-</td>
<td>it-</td>
<td>njäh-</td>
<td>il-</td>
</tr>
</tbody>
</table>

In word-initial position or following a disjunct prefix, the perfective prefix in the n-perfective mode is regularly deleted preceding inner subjects. The portmanteau conjugation-mode prefix with inner subjects is thus \( n^- \). The examples below show the \( n^- \) conjugation prefix with first person singular inner subject in word-initial position (5.67a) and following the disjunct prefix \( ne^- \) (5.67b).

(5.67) Word-initial n-perfective followed by inner subject prefix

a. nihžah
   n-j-ih-žah
   CJ-PERF-1SG-go:PERF
   ‘I arrived’

b. něníhžah
   ně-n-j-ih-žah
   TERM-CJ-PERF-1SG-go:PERF
   ‘I arrived’

When no inner subject prefix is present, the morphology of the n-perfective mode is somewhat more complex. With voiced (d- and l-) classifiers the conjugation prefix \( n^- \) is deleted, and the mode prefix surfaces as an oral vowel. No nasalization is present. For example, in (5.68) the \( n^- \) conjugation prefix is deleted following the disjunct prefix \( na^- \), and no nasalization is present on the
perfective mode prefix. Glottal stop is inserted by regular rule since a vowel follows the disjunct boundary.

(5.68) n-perfective with zero-subject, voiced classifier

naʔitžah (d-classifier)
na-i-t-žah
ITER-M-D-sg.go
‘he arrived back’

With voiceless (Ø- and h-) classifiers both the conjugation prefix and the mode prefix are retained. Preceding the Ø-classifier the perfective mode prefix has the form in- (5.69a), while preceding the h-classifier the perfective mode prefix has the form i- (5.69b).

(5.69) Word-initial n-perfective with zero-subject, voiceless classifier

a. ninžah (Ø-classifier)
n-i-žah
CJ-PERF-go:PERF
‘he arrived’

b. lir njhtɛ’ (h-classifier)
lir n-i-h-tɛ’
dog CJ-M-H-handle.animate:PERF
‘he arrived with the dog’

5.3.3.2.2 The γ-perfective

The γ-perfective mode denotes the perfective aspect of a punctual or bounded activity with a well-defined beginning and end point. It is marked by the γ- conjugation prefix and the i- perfective mode prefix. The behavior of the conjugation and perfective prefixes in the γ-perfective mode parallels that in the
n-perfective mode to a large extent. As with the n-perfective mode, the presence of the \(i\)-perfective prefix is detectable only in a few forms. However, in contrast to the n-perfective, the \(\gamma\)-conjugation prefix is detectable (word-initially) in all forms. In zero subject forms with voiced classifiers, the presence of the \(\gamma\)-conjugation prefix is realized as \(\gamma\)-vocalization.

Table 5.5: \(\gamma\)-perfective conjugation-mode-subject-classifier prefixes

<table>
<thead>
<tr>
<th></th>
<th>(\emptyset)</th>
<th>d-</th>
<th>h-</th>
<th>l-</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>(\gamma\text{i}-)</td>
<td>(\gamma\text{i\text{-}s})</td>
<td>(\gamma\text{ek})</td>
<td>(\gamma\text{eg})</td>
</tr>
<tr>
<td>2SG</td>
<td>(\gamma\text{i\text{-}n})</td>
<td>(\gamma\text{i\text{-}t})</td>
<td>(\gamma\text{i})</td>
<td>(\gamma\text{i\text{-}l})</td>
</tr>
<tr>
<td>2PL</td>
<td>(\gamma\text{ah})</td>
<td>(\gamma\text{at})</td>
<td>(\gamma\text{ah})</td>
<td>(\gamma\text{al})</td>
</tr>
</tbody>
</table>

In word-initial position or following a disjunct prefix, the \(\gamma\)-conjugation prefix is found in all forms except preceding a voiced classifier with zero inner subject. Preceding a voiced classifier the \(i\)-perfective prefix is deleted and the \(\gamma\)-conjugation prefix undergoes ‘vocalization’ to \(a\)-, as in the \(\gamma\)-imperfective mode. The perfective prefix is deleted everywhere except immediately preceding a voiceless classifier (i.e., with a voiceless classifier and zero inner subject).

(5.70) \(\gamma\)-perfective with inner subject prefix

\[
\begin{array}{ll}
\text{ší?} & \gamma\text{i\text{-}h\text{-}á\text{-}t\text{l}} \\
\text{ší?} & \gamma\text{ih\text{-}i\text{-}t\text{l}} \\
\text{meat} & \text{CJ-1SG-eat:PERF} \\
\end{array}
\]

‘I ate the meat’

When no inner subject prefix is present, the \(i\)-perfective prefix is retained preceding voiceless classifiers and deleted preceding voiced classifiers. The \(\gamma\)-
conjugation prefix is retained with voiceless classifiers, and the perfective prefix is realized as in- before the Ø-classifier and as i- before the h-classifier.

(5.71) γ-perfective with zero-subject prefix, voiceless classifier

a. γindlok (Ø-classifier)
   γ-in-dlok
   CJ-PERF-laugh
   ‘s/he laughed’

b. šudiyīhkēt (h-classifier)
   š-u-di-γ-i-h-kēt
   1SG-THM-THM-CJ-M-H-ask:PERF
   ‘he asked me’

c. yīhjet (h-classifier)
   y-i-h-jet
   CJ-PERF-H-rot
   ‘it rotted’ <2.111>

The perfective prefix is deleted with voiced classifiers, and the γ- conjugation prefix undergoes γ-vocalization, realized as the low vowel a-.

(5.72) γ-perfective with zero-subject prefix, voiceless classifier

čaldzīrts (l-classifier)
č-a-l-dzīrts
INDEF-CJ-L-dance:PERF
‘s/he danced’

Following a conjunct prefix, the γ- conjugation marker is regularly deleted in the γ-perfective mode throughout the paradigm. However, the deletion of the γ- conjugation prefix must occur only after γ-vocalization has applied. This is evident in (5.71), where γ-vocalization has occurred following a conjunct prefix.
In voiceless classifier forms γ-vocalization does not apply so the γ-
conjugation prefix is not detectable following a conjunct prefix. An example is
the perfective paradigm for č’’e-Ø-ʔátl ‘to eat’ in (5.73), with indefinite object
prefix č’’e-. The γ- conjugation prefix occurs only in the final form with human
plural subject xe-. In this case the human plural prefix intervenes between the
indefinite object prefix č’’e- and the conjugation prefix γ-, hence the deletion rule
does not apply.

(5.73) Deletion of γ- conjugation prefix following conjunct prefix č’’e-
č’’ihʔátl ‘I ate’
č’’inʔátl ‘you ate’
č’’inʔátl ‘s/he ate’
its’íinʔátl ‘we ate’
č’ahʔátl ‘you guys ate’
č’εxʔíinʔátl ‘they ate’

Furthermore, the perfective mode prefix is present, as in-, only in the zero-subject
forms, i.e., third person singular, first person plural, and third person plural. Even
with these forms the perfective prefix remains only because this verb has a
voiceless classifier. As shown in (5.71) the perfective prefix is deleted preceding a
voiced (d- or l-) classifier, and deletion of the perfective prefix triggers
vocalization, as above.

5.3.3.2.3 The δ-perfective

The morphology of the δ-perfective mode is slightly more complex than that of
the n-perfective or γ-perfective. The δ- conjugation prefix is deleted with zero
inner subject before both voiceless and voiced classifiers. The perfective prefix is deleted preceding inner subjects but realized as mid-front e- (as opposed to e-) with zero inner subject.

Table 5.6: \(\delta\)-perfective conjugation-mode-subject-classifier prefixes

<table>
<thead>
<tr>
<th></th>
<th>(\emptyset)</th>
<th>d-</th>
<th>h-</th>
<th>l-</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>(\delta)i(\emptyset)-</td>
<td>(\delta)i(\emptyset)-</td>
<td>(\delta)ek-</td>
<td>(\delta)eg-</td>
</tr>
<tr>
<td>2SG</td>
<td>(\delta)in-</td>
<td>(\delta)it-</td>
<td>(\delta)jh-</td>
<td>(\delta)il-</td>
</tr>
<tr>
<td>2PL</td>
<td>(\delta)ah-</td>
<td>(\delta)at-</td>
<td>(\delta)ah-</td>
<td>(\delta)al-</td>
</tr>
<tr>
<td>(\emptyset)</td>
<td>e-</td>
<td>et-</td>
<td>eh-</td>
<td>el-</td>
</tr>
</tbody>
</table>

As with the \(n\)-perfective and \(\gamma\)-perfective, the \(i\)-perfective mode prefix is deleted when an inner subject prefix is present. The \(\delta\)-conjugation prefix is retained preceding an inner subject.

(5.74) \(\delta\)-perfective with inner subject

a. \(\delta\)ahtsi\(\prime\) (h-classifier)
   \(\delta\)-ah-tsi\(\prime\)
   CJ-2PL-make:PERF
   ‘you all made it’

b. \(\delta\)de \(\delta\)j\(\emptyset\)k’\(\acute{\text{a}}\)?
   \(\delta\)-de \(\delta\)-in-h-k’\(\acute{\text{a}}\)?
   1SG-PP CJ-2SG-H-shoot:PERF
   ‘you shot me’ \(<2.81>\)

When no inner subject is present, the perfective prefix surfaces as e- and the \(\delta\)-conjugation prefix is deleted. As shown below, the vowel of the perfective prefix in these forms contrasts with that of the peg prefix e-, found in the imperfective form.
(5.75) δ-perfective with zero-subject

a. lurg eht’éθ
   lurg e-h-t’éθ
   fish PEG-H-fry:IMPF
   ‘he fries the fish’

b. lurg eht’eh
   lurg e-h-t’eh
   fish M-H-fry:PERF
   ‘he fried the fish’

When the δ-perfective prefix is preceded by a conjunct qualifier prefix, such as inceptive te-, the preceding prefix is marked by a high tone. This high tone is present even in zero inner subject forms where the δ- conjugation prefix is deleted. (Regular tone-spread processes may then apply to this high tone.)

(5.76) δ-perfective with inceptive (qualifier) prefix

te-h-tsɨ’ ‘to make’ (inceptive perfective)
tédéktsɨ’ ‘I started to make it’
téḏɨhtsɨ’ ‘you started to make it’
téhtsɨ’ ‘he started to make it’
tsehtsɨ’ ‘we started to make it’
tēḏāhtsɨ’ ‘y’all started to make it’
xtéhtsɨ’ ‘they started to make it’

5.3.3.3 Stative verbs

Stative verbs always require the perfective prefix ŕ-, regardless of whether they are semantically imperfective or perfective. That is, the formal perfective prefix per se does not itself distinguish ongoing states from states which no longer exist.
Both \textit{e’dah} ‘he is sitting’ and \textit{yindá}i ‘he was sitting’ contain the perfective mode prefix (though they have different conjugation prefixes). As with active verbs, the perfective mode prefix may have no surface phonetic realization. Stative verbs also require the formally perfective stem variant in the imperfective mode. Thus, stative imperfective verbs are formally marked as perfective (cf. Krauss & Leer 1981: 41-2).

5.3.3.3.1 **Stative imperfective**

In the imperfective mode stative verbs may occur with the \(\emptyset\)-, \(n\)-, or \(\delta\)-conjugation markers. The morphology of the stative imperfective mode with the \(n\)- and \(\delta\)-conjugation prefixes is isomorphic with that of the active perfective mode (see section 5.3.3.2 above). Some examples are given below.

(5.77) \(\delta\)-stative imperfective

a. elge’y
   e-l-ge’y
   M-L-dry
   ‘it is dry’ (l-classifier)

b. nêk’eδ
   n-é-k’eδ
   GEN-M-cold
   ‘it is cold’ (Ø-classifier)

c. dikihdah
   di-δ-ih-dah
   THM-CJ-1SG-sit:IMPF
   ‘I’m sitting down’
Unlike active verbs, stative verbs may also occur with the \( i \)-perfective mode prefix and a \( \emptyset \)-conjugation prefix. This combination marks the \( \emptyset \)-imperfective mode for stative verbs. The \( \emptyset \)-conjugation prefix has no phonetic form. The \( i \)-prefix is deleted preceding an inner subject prefix.

(5.78) \( \emptyset \)-stative imperfective with inner subject

a. \( u^?ihtón? \)
   \( u^\text{-ih-tón} \)
   \( \text{THM-1SG-hold} \)
   ‘I am holding it’

b. \( ihzu' \)
   \( ih^\text{-zu'} \)
   \( 1\text{SG-fine} \)
   ‘I’m fine’

When no inner subject is present, the \( i \)-prefix is realized as \( in \)-following a consonant and \( n \)-following a vowel or in word-initial position.

(5.79) \( \emptyset \)-stative imperfective with zero subject

a. \( ninzu' \)
   \( n-in-zu' \)
   \( \text{THM-M-pretty} \)
   ‘she is pretty’

b. \( nzu' \)
   \( n-zu' \)
   \( \text{M-good} \)
   ‘it is good’

c. \( žax \) xuntsurl
   \( žax \) xu-n-tsur1-e
   house AREA-M-small-NOM
   ‘a small house’
5.3.3.3.2 Stative perfective

In the perfective mode stative verbs require the γ-conjugation marker. The behavior of the γ-stative perfective is similar to that of the γ-perfective mode with active verbs, discussed in section 5.3.3.2.2 above. The perfective prefix is deleted preceding inner subjects, and the conjugation prefix undergoes γ-vocalization preceding voiced classifiers.

(5.80) Stative perfective
a. diyihda?
   di-γ-ih-da?
   THM-CJ-1SG-sit:PERF
   ‘I was sitting down’
b. yuyintón?
   y-u-γ-in-tón?
   4OBJ-THM-CJ-M-hold:PERF
   ‘he held it’

5.3.3.4 Optative

The optative mode signifies intended or desired action. It is used in hortative and prohibitive constructions and in complements of the verb ‘want’. It may also be used to denote an intended but not yet accomplished action and is thus often used in lieu of the inceptive or future. The optative mode may also have a deontic sense, especially when used with the post-verbal deontic particle dâ: The optative
mode requires the optative mode prefix /γu- and the optative stem variant of the verb. Only the Ø-conjugation prefix occurs in the optative mode.

Table 5.7: Optative conjugation-mode-subject-classifier prefixes

<table>
<thead>
<tr>
<th></th>
<th>Ø-</th>
<th>d-</th>
<th>h-</th>
<th>l-</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>γuh-</td>
<td>γuš-</td>
<td>γok-</td>
<td>γog-</td>
</tr>
<tr>
<td>2SG</td>
<td>γun-</td>
<td>γut-</td>
<td>γuh-</td>
<td>γul-</td>
</tr>
<tr>
<td>2PL</td>
<td>γah-</td>
<td>γat-</td>
<td>γah-</td>
<td>γal-</td>
</tr>
<tr>
<td>Ø-</td>
<td>u-</td>
<td>ut-</td>
<td>uh-</td>
<td>ul-</td>
</tr>
</tbody>
</table>

Preceding non-high vowels, the vowel of the optative mode prefix assimilates in height to the vowel of the inner subject prefix (if present), and the subject prefix vowel is deleted. Preceding high vowels the vowel of the optative prefix is deleted.

(5.81) Optative mode prefix vowel adjustments

\[
\begin{align*}
\gamma u + \text{ih} & \rightarrow \gamma uh- \\
\gamma u + \text{ek} & \rightarrow \gamma ok- \\
\gamma u + \text{ah} & \rightarrow \gamma ah-
\end{align*}
\]

The consonant of the optative prefix is deleted in zero-subject forms, though the prefix vowel is retained.

(5.82) Optative mode paradigm (Ø-classifier)

<table>
<thead>
<tr>
<th>Ø-tsáy</th>
<th>‘cry’ (optative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>γuh-tsáy</td>
<td>‘I should cry’</td>
</tr>
<tr>
<td>γuntsaγ</td>
<td>‘you should cry’</td>
</tr>
<tr>
<td>utsáy</td>
<td>‘he should cry’</td>
</tr>
<tr>
<td>ts’utsáy</td>
<td>‘we should cry’</td>
</tr>
<tr>
<td>γahtsáy</td>
<td>‘y’all should cry’</td>
</tr>
<tr>
<td>xe?utsáy</td>
<td>‘they should cry’</td>
</tr>
</tbody>
</table>
When preceded by a conjunct prefix of the form Ce- the consonant of the optative prefix and the vowel of the preceding prefix are deleted (Leer 1982a).

(5.83) Contraction of optative prefix following conjunct prefix

\[
\text{Ce- + yu- } \rightarrow \text{Cu-}
\]

(5.84) Optative mode paradigm with conjunct prefix (l-classifier)

\[
\begin{align*}
\text{č’e-l-dzës} & \quad \text{‘to dance’} \\
\text{č’ugdzës} & \quad \text{‘I should dance’} \\
\text{č’uldzës} & \quad \text{‘you should dance’} \\
\text{č’uldzës} & \quad \text{‘he should dance’} \\
\text{its’uldzës} & \quad \text{‘we should dance’} \\
\text{č’aldzës} & \quad \text{‘y’all should dance’} \\
\text{č’exuldzës} & \quad \text{‘they should dance’}
\end{align*}
\]

There is no contraction of the optative prefix follow a disjunct Ce- prefix, as shown in (5.85).

(5.85) Optative prefix following disjunct prefix

\[
\begin{align*}
\text{te’yušdek} \\
\text{te#yu-iš-dek} \\
\text{THM#OPT-1SG:D-tired} \\
\text{‘I’d be tired’}
\end{align*}
\]

The optative is also used to code unrealized action and thus often occurs with verbal complements of modality verbs. Some examples are given in (5.86).

(5.86) More examples of optative mode

\[
\begin{align*}
a. \quad \text{č’ugdzës} & \quad \text{eynihθeṇ} \\
\text{č’ę-yu-eg-dzës} & \quad \text{ey-n-ih-θeṇ} \\
\text{INDEF-OPT-1S:L-dance} & \quad \text{THM-THM-1S-want} \\
\text{‘I want to dance’}
\end{align*}
\]
b. ldíɬ ts’uhtsey  eyt’seninđən
díɬ ts’ε-γu-h-tseływ-ε  ey-ts’e-n-in-θən

tea IMP-OPT-H-make-NOM  THM-IMP-THM-M-want
‘we want to make tea’ <1.23>

In contrast to other Alaska Athabaskan languages, the Tanacross optative is often
used as an immediate future, especially with first-person subject.

(5.87) Optative as an immediate future

xe’ ?él č’oqt’e’d
xe’ ?él č’ε-γu-εg-t’e’d

grease with  INDEF-OPT-1SG:L-cook:OPT
‘I’m gonna cook with grease’

5.3.3.5 The i'-negative

Verbal negation may be marked via as many as three morphological devices. The
first two devices are the verb phrase proclitic k’á= and the negative suffix -ε. In
addition, negation is marked via the negative mode prefix i- with a Ø-
conjugation prefix. The negative prefix occurs in the same position as the
perfective mode prefix and supplants that prefix even in the perfective (or stative
imperfective) mode.

The full form of the i- prefix occurs only with active perfective and
stative imperfective verbs which lack an inner subject prefix, as in (5.88) and
(5.89). The i- negative prefix replaces the perfective prefix and always occurs
with the Ø- conjugation prefix, regardless of which conjugation prefix is present
in the corresponding positive form. For example, the verb u-dí-h-ké’t ‘to ask’ in
(5.89) requires the γ- conjugation prefix in the perfective mode positive form.

However, in the negative form no conjugation prefix is present, and the i-
perfective mode prefix is replaced by the i̲- negative prefix.

(5.88) Negative prefix (stative imperfective verb, zero subject)

a. deneh nle'  
deneh n-lë’  
man M-be  
‘he is a man’

b. k’á deneh ìlé’y  
k’á deneh ì-lé’y  
NEG man NEG-be  
‘he is not a man’

(5.89) Negative prefix (active perfective verb, zero subject)

a. šudejìhké’  
š-u-de-γ-i-h-ké’t  
1SG-THM-THM-CJ-M-H:ask:PERF  
‘he asked me’

b. k’á šudìhké’d  
k’á š-u-di-ì-h-ké’t-ε  
NEG 1SG-THM-THM-M-H:ask:PERF-NEG  
‘he did not ask me’

With active imperfective verbs, or verbs which contain an inner subject prefix, the vowel of the negative prefix does not appear, leaving only the marked tone on the pre-stem syllable (Jeff Leer, p.c.).

(5.90) Negative prefix (stative imperfective verb, non-zero subject)

k’á deneh áhlé’y  
k’á deneh ‘-ah-lé’y  
NEG man NEG-2PL-be  
‘you are not men’
(5.91) Negative prefix (active imperfective verb, zero subject)

\[
\begin{align*}
\text{ká} & \quad \text{áhâl} \\
\text{ká} & \quad \text{ā'haľ}
\end{align*}
\]

NEG  NEG-PROG-sg.go

‘he’s not going’

The phonetic realization of the negative prefix can be summarized as follows.

<table>
<thead>
<tr>
<th></th>
<th>non-perfective</th>
<th>perfective/stative imperfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>zero subject</td>
<td>‘-‘</td>
<td>‘î‘</td>
</tr>
<tr>
<td>non-zero subject</td>
<td>‘-‘</td>
<td>‘-‘</td>
</tr>
</tbody>
</table>

**Table 5.8: Realization of the negative prefix**

---

### 5.3.3.6  Conjugation and mode: summary

I briefly summarize here the conjugation and mode prefixes. The conjugation and mode prefix positions represent a crucial piece of the inflectional morphology of the Tanacross verb. Mode is marked by one of four prefixes (including Ø-)

Corresponding to imperfective, perfective, optative and negative. Stative verbs require the formally perfective prefix with both imperfective and perfective stems.

In addition, one of four conjugation prefixes (including Ø-) must precede the mode prefix. While the choice of conjugation prefix may carry aspectual meaning, especially for motion verbs, for many verbs the choice of conjugation prefix is governed by the verb aspect or by particular derivational prefixes present in the verb.
5.3.4 Qualifier prefixes

Several aspectual and thematic prefixes may occur immediately preceding the conjugation/mode marker and following the pronominal prefixes. Morphemes in this portion of the prefix template have been referred to as ‘qualifier’ prefixes. Many of these prefixes are aspectual and require particular conjugation markers and stem sets. Others are simply thematic: a lexicalized part of the verb theme. The qualifier position of the prefix template itself has internal structure, as diagramed below.

Figure 5.4: Qualifier (conjunct) prefix template

<table>
<thead>
<tr>
<th>AREAL xu-</th>
<th>DIRECTIVE u-</th>
<th>INCEPTIVE te-</th>
<th>GENDER t-d-</th>
<th>ERRATIVE n-</th>
</tr>
</thead>
</table>

5.3.4.1 Areal xu-

The areal prefix *xu*- is used with verbs whose absolutive argument has an areal extent or refers to time, weather or an abstract situation. Such nouns include those referring to geographical features and those referring to houses. The areal prefix is a pronominal argument marker which may reference subjects or objects. While the behavior of the areal prefix is superficially similar to that of the adjectival class/gender agreement prefixes, these two prefix types are not in complementary distribution with each other. The areal may co-occur with an adjectival class prefix. The areal prefix precedes the object pronouns, whereas the gender prefixes follow the object pronouns. The areal prefix behaves similarly to the object...
pronouns but differs in two important respects from true object pronouns. First, the areal prefix may refer to subjects or objects, though it never refers to the subject of a transitive verb. Second, the areal prefix co-occurs with nominal referents, whereas the object prefixes occur in complementary distribution with full nominal arguments.

The examples in (5.92) show that the use of the areal prefix is governed by the noun, not the verb theme. Both *diŋ ‘river’ and dečen ‘stick’ can be the subject of the verb Ø-k’eθ ‘crooked’, but only ‘river’ requires the areal prefix.

(5.92) Use of the areal prefix xu-  

a.  
   *diŋ xuk’eθ  
   *diŋ xu-k’eθ  
   river  AREA-crooked  
   ‘the river is crooked’

b.  
   dečen  e-k’eθ  
   dečen  e-k’eθ  
   stick  PEG-crooked  
   ‘the stick is crooked’

Certain nominal subjects and objects require pronominal cross-referencing via the areal prefix. These include nouns referring to houses and those referring to weather.

(5.93) Nouns requiring the areal prefix  

a.  
   žax  xunįht0ux  
   žax  xu-n-in-h-t0ux  
   house  AREA-CJ-2SG-H-stuff  
   ‘you’re chinking the house’  <4.5>
b. žax xultl’et
    žax xu-l tl’et
    house AREA-L-tight
    ‘the house is crowded’ lit: ‘the house is tight’

c. k’oθ xunle’
   k’oθ xu-n-le’
   cloud AREA-M-lots
   ‘it’s cloudy’ lit: ‘the clouds are many’

Such ‘areal’ nouns may also require cross-referencing via the areal prefix when
they occur as object of postpositions, as with ke’y ‘village’ in (5.94).

(5.94) Postpositional objects cross-referenced via the areal prefix

    dekey’ ts’i? xuxatdel
    de-k’e’y ts’i? xu-x-a-t-del
    RFLX-village to AREA-HUM.PL-CJ-D-pl.go
    ‘they went back to their village’ <5.35>

5.3.4.2 Inceptive te-

The inceptive prefix te- signifies an action which is just about to begin or has just
begun. Verbs with the inceptive prefix require the 5- conjugation prefix in both
imperfective and perfective modes.

Tanacross differs from other Alaska Athabaskan languages in that the
inceptive, rather than the future mode, is the most common way to express future
action.

The inceptive prefix is also required by the future mode (see 5.3.3.1.2.2).
The inceptive prefix may also occur with the perfective mode (necessarily the δ-perfective).

(5.96) Inceptive prefix with perfective mode

a. Mansfield ts’į? tēdīhžah
Mansfield ts’į? tēdīhžah
M. to INCEP-CJ-1SG-go:PERF
‘I was about to go to Mansfield’ <2.121>

b. yitēhčeθ
yí-tē-h-čeθ
4OBJ-INCEP-H-stab
‘he was about to stab him’ <2.111>

5.3.4.3 Adjectival class prefixes (gender)

Many verbs include a prefix which indicates the adjectival class of the absolutive argument. Rice refers to cognate prefixes in Slave as ‘adjectival class prefixes’ (1989: 576); Kari refers to cognate prefixes in Ahtna as ‘gender’ (1990).

Tanacross includes two such prefixes: n- and d-. The prefix n- occurs in verb themes referring to descriptive qualities such as size. The prefix d- occurs in verb themes referring to colors and tactile qualities. The choice of adjectival class prefix reflects both the semantics of the verb and the class of the absolutive argument, hence the terminological ambiguity between adjectival class prefix and gender prefix. While in some cases the choice of prefix n-, d-, or Ø- is governed
by the verb theme, in many other cases, especially when the verb is sufficiently
semantically bleached, the choice of prefix appears to be entirely governed by the
nominal argument. The examples in (5.97) compare nouns from three different
classes as arguments of the same verb, $\emptyset$-dla'h ‘plural objects in position’.

(5.97) Adjectival class prefixes

\[ \emptyset \text{irt e'dla'h} \] ‘embers are lying there’ (\$\emptyset$- class)
\[ j\epsilon q\text{ de'dla'h} \] ‘berries are lying there’ (d- class)
\[ k\epsilon n? n'e'dla'h \] ‘matches are lying there’ (n- class)

Based on the patterning of nouns with class prefixes in verb themes such as that
above, it is possible to determine which class/gender prefix (n-, d-, or $\emptyset$-) is
associated with each Tanacross noun. I have not compiled extensive
documentation of class/gender prefixes; however, I have found no cases for which
the gender categorization of a Tanacross noun differs from that of a cognate noun
in Ahtna, as represented in Kari (1990). In general the n- prefix is used with round
objects and liquids; the d- prefix is used with natural object such as plants,
feathers, and fur. While not all verbs require a gender agreement prefix, the
choice of gender prefix is governed by the noun.
(5.98)  *n*- gender

\[
\begin{align*}
\text{tur ně'k’cdh} & \quad \text{‘the water is cold’} \\
\text{tur ně'děl} & \quad \text{‘the water is warm’} \\
\text{tur nělkón?} & \quad \text{‘the water is hot’} \\
\text{tur nělyos} & \quad \text{‘the water is boiling’}
\end{align*}
\]

(5.99)  *d*- gender

\[
\begin{align*}
\text{detkét} & \quad \text{‘it is thick’} \\
\text{ délgey} & \quad \text{‘it is white’} \\
\text{c’e’yé’z? délḥah} & \quad \text{‘eggs are lying there’}
\end{align*}
\]

Gender prefixes may also occur with nouns which have been incorporated into the verb.

(5.100) Gender prefixes with incorporated nouns

\[
\begin{align*}
^n\text{da'xdetdél} & \\
^n\text{da'x-x-de-t-dél} & \\
\text{eye-HUM.PL-GEN-D-pl.go} & \quad \text{‘they went looking’}
\end{align*}
\]

In some cases the gender prefixes have become lexicalized or ‘thematicized’. For example, the verb theme meaning ‘to pick (berries)’ is based on the theme *h-tsey* ‘to make’ with the *n*- gender prefix corresponding to berries.

(5.101) Lexicalized gender

\[
\begin{align*}
\text{jēg nehtsey} & \\
\text{jēg n-eh-tsey} & \\
\text{berry THM-H-pick} & \quad \text{‘s/he is picking berries’}
\end{align*}
\]
5.3.4.4 Directive u-

The directive prefix u- signifies an action directed unsuccessfully at an object. It may also have a conative sense, as in an unsuccessful or attempted action. The directive occurs with the n- conjugation marker in all modes.

(5.102) Directive u-

yunihdék
y-u-n-i-h-dék
4OBJ-DIR-CJ-M-CL-shot
‘he shot at it (and missed)’

The directive u- may also occur thematically, in which case it does not govern the choice of conjugation marker or stem set.

(5.103) Verbs containing u- directive prefix

a. žax uyihké:t
żax u-y-ih-ké:t
house THM-CJ-1SG-buy:PERF
‘I bought a house’

b. Larry šurzi?
Larry š-u-r-zi?
L. 1SG-THM-name
‘my name is Larry’ lit: ‘I am called Larry’

c. uţihtón? u-ih-tón?
THM-1SG-hold
‘I’m holding it’

d. šudjkhé:t
š-u-d-i-h-ké:t
1SG-THM-THM-M-H-ask:PERF
‘he asked me’
5.3.4.5 Errative n-

The errative (ERR) qualifier prefix n- marks an accidental, unintended, or mistaken action. Verbs which include this prefix undergo classifier voicing via the D-classifier morpheme, as discussed in section 5.3.1.2.1.2.3 above. Verbs with this prefix also require the ð- conjugation prefix in the perfective mode.

(5.104) Errative prefix n-

a. č’etnédegne’k
   č’e-t-n-ð-e-εg-ne’k
   INDEF-THM-ERR-CJ-PERF-1SG:L-swallow
   ‘I choked (on something)’
   lit: ‘I swallowed something unintentionally’ <3.139>

b. něįšē’ke’
   ne-ð-iš-ke’
   ERR-CJ-1SG:D-step
   ‘I stumbled’ lit: ‘I stepped incorrectly’ <3.118>

5.3.4.6 Thematic qualifier prefixes

The qualifier zone also include several thematic prefixes. The behavior of these prefixes often differs from that of the conjugation/mode prefixes even when they have the same phonetic form. For example the thematic n- prefix in the Ø-subject form neža’ ‘he grew up’ is retained where the n- conjugation prefix would be deleted.
(5.105) Thematic dé-

tur šdéhtlaq

tur š-dé-h-tlqa

water 1SG-THM-H-crave

‘I’m thirsty’

(5.106) Thematic n-

a. šnahdél

š-n-ah-dél

1SG-THM-2PL-follow

‘y’all are following me’

b. šos nekʔèh

šos n-ekʔèh

bear THM-1SG:H-see:IMPf

‘I see a bear’

(5.107) Thematic ô-

ôôôkxe’

ô-ô-êk-xê’

THM-CJ-1SG:H-kill.singular.object

‘I killed him’ <3.141>

5.3.5 Pronominal prefixes

The leftmost portion of the conjunct prefix template consists of the pronominal
prefixes. The pronominal prefixes include object pronouns, which cross-reference
the person and number of the direct object. The object prefixes also include
reflexive and reciprocal object prefixes. Also included in this portion of the
template are the outer subject prefixes, which cross-reference the number of the
subject.
5.3.5.1 Outer subject

The outer subjects, sometimes called ‘deictic’ subjects, include the impersonal subject $ts’e$-, human plural subject $xe$-, and the indefinite or unspecified subject marker $c’e$-. The outer subjects immediately follow any object markers (if present), with the exception of the fourth person object prefix $yi$-, which follows the human plural subject prefix and precedes the impersonal subject prefix. The outer subject prefixes always precede the conjugation and mode markers. In addition, several aspectual morphemes may intervene between the inner and outer subject positions.

Only one outer subject prefix may be present in the verb. Outer subjects differ from inner subjects in several syntactic properties, as discussed in section 5.3.2.5 above. First, they are not obligatory. Second, they cross-reference number but not person. However, the outer subject prefixes do appear to function paradigmatically with the inner subject prefixes, in that outer and inner subject prefixes cannot co-occur in the same verb.

5.3.5.1.1 Impersonal subject $ts’e$-

The impersonal prefix $ts’e$- has two primary uses: as a first person plural subject marker and as an impersonal human subject marker. The most common use of
Tanacross *ts’e*- is as a first person plural subject marker. In Tanacross, as in other Alaska Athabaskan languages, there is no reflex of the Proto-Athabaskan first person duoplastic subject prefix *i’-D. Instead, first person plural referents are referenced on the verb via the impersonal subject prefix *ts’e*-.

As noted by Krauss (p.c.), the use of indefinite *ts’e*- as a first person plural is analogous to the use of *on* as first person plural in modern spoken French.

(5.108) First person plural use of *ts’e*-

<table>
<thead>
<tr>
<th>tsets</th>
<th>deʔukah</th>
<th>natsedek</th>
</tr>
</thead>
<tbody>
<tr>
<td>tsets</td>
<td>deʔukah</td>
<td>na-tse-te-h-dek</td>
</tr>
<tr>
<td>wood</td>
<td>for</td>
<td>ITER-IMP-INCEP-H-pl.go</td>
</tr>
<tr>
<td>‘we go out looking for wood’ (Charlie &amp; McRoy 1972)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The impersonal prefix is often used together with the optative mode to form a hortative construction.

(5.109) Hortative use of *ts’e*-

<table>
<thead>
<tr>
<th>neʔžax</th>
<th><em>ts’j?</em></th>
<th>nats’utdél</th>
</tr>
</thead>
<tbody>
<tr>
<td>ne’-žax</td>
<td><em>ts’j?</em></td>
<td>na-ts’e-u-t-dél</td>
</tr>
<tr>
<td>1PL-house to</td>
<td>ITER-IMP-OPT-D-pl.go</td>
<td></td>
</tr>
<tr>
<td>‘let’s go home’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The prefix *ts’e*- is also used to cross-reference referential indefinite (i.e., non-identifiable) human subjects. This is the ‘impersonal’ use. In this use *ts’e*- may index singular or plural referents. The discourse factors conditioning the use of *ts’e*- are not very well understood at this time.
The impersonal subject prefix contracts with following alveolar stops, as described in (5.110).

(5.110) Contraction rules for impersonal subject prefix

\[\text{ts’} + \text{tV} \rightarrow \text{tsV-}\]
\[\text{ts’} + \text{dV} \rightarrow \text{dzV-}\]

(5.111) Contraction of impersonal subject prefix

\[\text{ts’ets} \rightarrow \text{tsa’da’el}\]
\[\text{ts’ets} \rightarrow \text{ts’-t-e-y-da’el}\]
\[\text{firewood} \rightarrow \text{IMP-INCEP-CJ-chop}\]
\[‘\text{we will chop firewood’} \quad <2.113>\]

5.3.5.1.2 Human plural subject xe-

The prefix xe- marks human plural subjects, as distinct from non-humans. The human plural subject marker may co-occur with a full nominal argument.

(5.112) Human plural subject xe-

a. \[\text{ts’inke’y}=\text{?in} \quad \text{xe’tl} \quad \text{zi} \quad \text{da’yi-le’}\]
\[\text{children=PL} \quad \text{sled in} \quad \text{down-HUM.PL-M-L-slide}\]
\[‘\text{they children slide down (the hill) in a sled’} \quad <4.71>\]

b. \[\text{k’o’od} \quad \text{nilxutdi’k}\]
\[\text{k’o’od} \quad \text{nil-x-u-t-ni’k}\]
\[\text{already} \quad \text{RECIPI-HUM.PL-THM-D-take}\]
\[‘\text{they are already married’} \quad \text{lit: ‘they already took each other’} \quad <4.85>\]

Non-human subject, even animate ones, do not occur with the prefix xe-, indicating that this prefix is restricted to human subjects.
Non-human subject without $x\epsilon$-

\[
\begin{align*}
yə't\theta\acute{\epsilon}n &\quad də'nî\acute{g} &\quad ah\acute{\epsilon}s \\
yə't\theta\acute{\epsilon}n &\quad də'nî\acute{g} &\quad ɣ-h-\acute{\epsilon}s \\
down\text{.there} &\quad \text{moose} &\quad \text{PROG-H-animal.\text{walk}:IMPF} \\
\end{align*}
\]
‘moose are walking around down there’

The human plural prefix usually marks third person subjects; however, this morpheme is in general only a marker of number, not person. The Tanacross human plural prefix may refer to first person plural as well.\textsuperscript{10}

Human plural subject with first person reference

\[
\begin{align*}
\text{şen} &\quad \text{tah} &\quad t\acute{a}'\acute{\delta}\acute{\epsilon}\theta &\quad t'\acute{a}'\gamma &\quad \ddot{c} \acute{\i}h &\quad x\ddot{d}\text{êlt}\theta'\acute{i}x \\
\text{şen} &\quad \text{tah} &\quad t\acute{a}'\acute{\delta}\acute{\epsilon}\theta &\quad t'\acute{a}'\gamma &\quad \ddot{c} \acute{\i}h &\quad x\ddot{d}\text{êlt}\theta'\acute{i}x \\
\text{summer} &\quad \text{during} &\quad \text{tent} &\quad \text{under also} &\quad \text{HUM.PL-THM-L-stay:CUSTM} \\
\end{align*}
\]
‘in the summer we also live in tents’ (Charlie & McRoy 1972)

The use of the human plural prefix is not obligatory. While elicited examples containing human third person plural subject referents will almost always include the $x\epsilon$- prefix, it is quite common for the prefix to be omitted in discourse contexts, especially when the number of the subject NP is explicitly marked via the animate noun enclitic =$\ddot{\i}t\acute{n}$. An example is given in (5.115).

Plural subject not marked by $x\epsilon$-

\[
\begin{align*}
x\acute{u}rts'\text{inkey}=\ddot{\i}t\acute{n} &\quad \ddot{c} \acute{\i}h &\quad \text{school} &\quad \text{da-t\acute{a}-del} \\
x\acute{u}'-ts'\text{inkey}=\ddot{\i}t\acute{n} &\quad \ddot{c} \acute{\i}h &\quad \text{school} &\quad \text{da-t-a-del} \\
3\text{PL-kids}=\text{PL} &\quad \text{also school} &\quad \text{up-INCEP-PROG-pl.go} \\
\end{align*}
\]
‘their kids will go back to school’ (Charlie & McRoy 1972)

The factors conditioning the use of the human plural prefix are pragmatic and lie beyond the scope of the present description.
5.3.5.1.3 Indefinite/unspecified subject ě’ě-

The indefinite or unspecified subject prefix ě’ě- is identical in form to the indefinite object prefix. It is used in situation where the subject is not relevant or topical. The most common use of the indefinite subject prefix is as the subject of a passive construction where the original subject is demoted to the object of a postposition. The indefinite subject follows the same morphophonemic rules as the indefinite object prefix. In particular, it contracts with a following alveolar stop d- or t- prefix to form j- or ě-, respectively.

(5.116) Indefinite subject prefix

<table>
<thead>
<tr>
<th>še</th>
<th>jettès</th>
</tr>
</thead>
<tbody>
<tr>
<td>š-e</td>
<td>ě’ě-d-et-tès</td>
</tr>
</tbody>
</table>

1SG-PP INDEF-GEN-D-elongated.pokes
‘something (stick) poked me’ <4.39>

5.3.5.2 Direct object pronouns

Objects are cross-referenced via pronominal arguments which occur immediately preceding the outer subject position (if present). With the exception of the third person singular forms, these prefixes are formally identical to the nominal possessive prefixes.
Table 5.9: Direct object pronominal prefixes

<table>
<thead>
<tr>
<th>person</th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>š-</td>
<td>ne-</td>
</tr>
<tr>
<td>2</td>
<td>n-</td>
<td>nhu-</td>
</tr>
<tr>
<td>(with inner subject)</td>
<td>Ø/-m-</td>
<td>xu'-</td>
</tr>
<tr>
<td>(no inner subject)</td>
<td>y-</td>
<td></td>
</tr>
<tr>
<td>INDEFINITE</td>
<td>č’e-</td>
<td></td>
</tr>
<tr>
<td>REFLEXIVE</td>
<td>?ede-</td>
<td></td>
</tr>
<tr>
<td>RECIPROCAL</td>
<td>nil-</td>
<td></td>
</tr>
</tbody>
</table>

The object prefixes occur to the left of the human plural xe- and impersonal ts’e- prefixes. Cross-referencing of first and second person object arguments is obligatory. Third person object arguments are not always cross-referenced via an object prefix, and object pronouns do not occur when full NP third person arguments are present.

Some examples of non-third person singular object prefixes are given below.

(5.117) Object prefixes with verb theme n-h-ʔeh ‘to see’

a. šnjhʔeh
   š-n-in-h-ʔeh
   1SG-THM-2SG-H-see
   ‘you see me’

b. ɳnekʔeh
   n-n-ɛk-ʔeh
   2SG-THM-1SG:H-see
   ‘I see you’

c. xurts’enehʔeh
   xur-ts’e-n-h-ʔeh
   3PL-IMP-THM-H-see
   ‘we see them’
5.3.5.2.1 Third person singular object Ø-

When the object referent is third person singular, the form of the object prefix varies according to the person of the subject. If an inner subject prefix (i.e., first person singular, second person singular, or second person plural) is present, then the third person object is not cross-referenced on the verb.

(5.118) Third person singular object with non-zero inner subject

a. δεδεκχε’
   δε-δ-εκ-χε’
   THM-CJ-1SG:H-kill.singular.object
   ‘I killed him’ <3.141>

b. neδεκža’
   ne-δ-εκ-ža’
   THM-M-1SG:H-grow:PERF
   ‘I raised him/her’ <3.107>

5.3.5.2.2 Fourth person object y-

When no inner subject prefix is present, an alternate form of the third person object prefix is used. Cognates of this third person object prefix y- occur in all
Athabaskan languages and are referred to with a variety of labels, including ‘alternate third person’ (Young & Morgan 1987), ‘obviative pronoun’ (Thompson 1989), and ‘fourth person’ (Rice 1989). I will use the latter term, though this should be understood merely as a formal descriptive label.

When the fourth person object prefix occurs word-initially followed by a consonant, it syllabifies as [i].

(5.119) Vocalic allophone of fourth person object y-

\[
\text{y-n-h-ʔɛ?} \\
\text{y-n-h-ʔɛ?} \\
\text{4OBJ-THM-CL-see.PERF} \\
\text{‘he saw him’}
\]

As with other object pronouns, fourth person y- occurs only when no object NP is present.

(5.120) Examples with and without nominal object NP

\[
\begin{align*}
\text{šos} & \quad \text{nɛhʔɛh} \\
\text{šos} & \quad \text{n-ɛh-ʔɛh} \\
\text{bear} & \quad \text{THM-H-see:IMPF} \\
\text{‘he sees a bear’} \\
\end{align*}
\]

The fourth person object prefix may also occur with an outer subject prefix. The fourth person prefix follows the plural human subject prefix xe- and precedes the impersonal prefix ts’ɛ-.
(5.121) Fourth person y- with outer subject prefix

a.  xeynəh?ə?
    xe-y-n-h-ʔə?
    HUM.PL-4OBJ-THM-H-see:PERF
    ‘they saw him’ <2.69>

b.  its’ənehʔə?
    i-ts’e-n-əh-ʔə?
    4OBJ-IMP-THM-H-see:PERF
    ‘we saw him’

5.3.5.2.3 Indefinite object ə’ɛ-

The pronoun ə’ɛ- is used for objects which are unknown or non-specific. This pronoun often occurs in verb themes whose argument structures require an object. Note that the vowel of the indefinite prefix is deleted preceding a non-reduced vowel.

(5.122) Indefinite object prefix

a.  ə’ihʔáɁ
    ə’-ihʔáɁ
    INDEF-1S-eat:IMPF
    ‘I’m eating (something)’

b.  ə’ɛʔáɁ
    ə’-ɛʔáɁ
    INDEF-eat:IMPF
    ‘he’s eating (something)’

The indefinite object pronoun cannot occur with an overt adjunct nominal object.
(5.123) No indefinite object with overt nominal objects

1urg ihʔáɬ
fish 1s-eat:IMPF
‘I’m eating fish’

The indefinite object pronoun also alternates with third and fourth person object prefixes.

(5.124) Comparison of indefinite and third/fourth person object prefixes

a. č’ɛʔáɬ
   č’e-ʔáɬ
   INDEF-eat
   ‘he’s eating (something)’

b. yiʔáɬ
   yi-ʔáɬ
   4OBJ-eat
   ‘he’s eating it’

While the indefinite object pronoun may co-occur with the human plural subject prefix xe-, it may not occur with the impersonal subject prefix ts’ɛ-. The fourth person object prefix occurs instead.

(5.125) Indefinite object with outer subject prefixes

a. č’e xeʔáɬ
   č’e-xe-ʔáɬ
   INDEF-HUM.PL-eat:IMPF
   ‘they’re eating’
b. its’εʔáɬ
i-ts’eʔ-ʔáɬ
4OBJ-IMP-eat:IMPF
‘we’re eating it’
*č’e detached from

The indefinite object pronoun contracts with following alveolar stops.

(5.126) Indefinite object contraction rules (Leer 1982a)
č’ε + t → čε
č’ε + d → je

(5.127) Contraction of indefinite object pronoun
jeʔihtθ’εk
č’ε-d-ihtθ’εk
INDEF-THM-1SG-hear
‘I’m listening (to something)’

5.3.5.2.4 Reflexive ėde- and reciprocal nil-

Two other prefixes may occur in the direct object position indicating either co-reference between subject and object (reflexive) or a plural subject acting as both subject and object (reciprocal). The reflexive is marked by the prefix ėde-, and the reciprocal is marked by the prefix nil-. Both of these prefixes require the D-morpheme in the classifier position (see sections 5.3.1.2.1.1.2 and 5.3.1.2.1.1.2).

The reflexive may occur with any subject prefix, while the reciprocal requires a plural subject and thus cannot occur with 1SG and 2SG inner subject prefixes. Both the reciprocal and the reflexive occur in the direct object position, that is, they precede the outer subject prefixes.
(5.128) Reflexive \textit{?ede-/?et-/?e-}

a. \textit{?ede\textsuperscript{\textepsilon}g\textk’\textepsilon?}
\textit{?ede\textsuperscript{\textepsilon}-\textepsilon-g-k’\textepsilon?}
\textit{RFLX-CJ-1SG:L-shoot:PERF}
‘I shot myself’

b. \textit{tu’ k’e\textepsilon t\textepsilon n\textepsilon? ?etneg\textepsilon q\textepsilon h}
\textit{tu’ k’e\textepsilon t\textepsilon n\textepsilon? ?et-n-\textepsilon g-\textepsilon q\textepsilon h}
\textit{water on face RFLX-THM-1SG:L-see:IMPF}
‘I see myself in the water’ \textit{<2.43>}

(5.129) Reciprocal \textit{nil-}

a. \textit{nilxenelgot}
\textit{nil-\textepsilon x-e-n-l-got}
\textit{RECIPIPR-HUM.PL-CJ-L-hit:PERF}
‘they hit each other’ \textit{<2.87>}

b. \textit{nanilxnal\textepsilon q\textepsilon ?}
\textit{na-nil-\textepsilon x-e-n-\textepsilon y-l-\textepsilon q\textepsilon ?}
\textit{ITER-RECIPIPR-HUM.PL-THM-CL-L-see:PERF}
‘they saw each other again’ \textit{<2.43>}

5.3.6 Conjunct prefixes: summary

This concludes the description of the conjunct prefixes. The conjunct prefixes include lexical, inflectional and derivational morphemes, and together with the verb stem form the core of the verb word, to which the preceding disjunct prefixes are attached as satellites. All of the person marking and aspectual marking occurs within the conjunct prefix zone. In the following section I discuss the disjunct prefixes.
5.4 Disjunct verb prefixes

The disjunct verb prefixes occur to the left of the pronominal zone. They are less tightly bound to the verb stem, and there is less fusion across morpheme boundaries in the disjunct zone. The status of the disjunct verb morphemes as bound versus free morphemes remains controversial. Some or all of these morphemes may be better described as independent words or ‘preverbs’.\textsuperscript{11} However, the disjunct prefixes must at least be considered to occur as part of verbal constructions. The disjunct portion of the prefix template is shown in Figure 5.6.

Many descriptions of Athabaskan languages include disjunct prefix positions for ‘bound’ postpositions and postpositional objects as well. While it is true that postpositions may interact phonologically with the verb, and that postpositions occur with verbs in predicate constructions, there is little evidence that postpositions are actually verbal prefixes in Tanacross. I have chosen to classify postpositions as free morphemes, described in section 6.4 below.

5.4.1 Iterative

The iterative prefix \textit{na}- indicates an action which is repeated or reversed. With verbs denoting directional motion it often has the sense ‘returning’ or ‘going
back’. Since very many motions can be conceived of as having already occurred in one direction, this sense of *na-* is extremely frequent (Rice 1989: 731). With non-directional motion verbs, *na-* often has the sense of ‘again’, as in a repeated action. With transitive verbs *na-* often has the sense of ‘another O’.

With most verbs, the iterative prefix requires middle voice, marked by the D-effect on the classifier. Since the D-effect is not detectable with voiced (d- and l-) classifiers, this amounts to saying that the iterative prefix triggers a change from Ø- to d- classifier in Ø-classifier verbs, and a change from h- to l-classifier in h-classifier verbs.

(5.130) Iterative

\[
\text{tō’itūʔ ʰd[rz  ts’ê ſr  nayiškeɬ} \\
\text{tō’itūʔ ʰd[rz  ts’ê ſr  nayiškeɬ} \\
r\text{iver  downstream  boat  in  ITER-PROG-D:1SG-travel.by.boat} \\
\text{‘I’m boating back down the river in a boat’ <5.35>}
\]

When the iterative prefix *na-* is preceded by a prefix of the shape CV, the vowel of the iterative prefix deletes and the preceding vowel is lengthened. This phenomenon is sometimes referred to as ‘na-absorption’ (Leer 1982b).

(5.131) na-absorption

\[
\text{CV + na → CV'.} \\
\text{[ITER]}
\]

Some examples of na-absorption are given below.
(5.132) Examples of na-absorption

a.  tĩ̱nindary
    ti-na-n-in-d-ha'y
    out-ITER-CJ-2SG-D-go
    ‘(you) go back out’ <2.71>

b.  ta'y̱ihdlah
    ta-na-γ-ih-dlah
    water-ITER-CJ-1S-classify.compact.object
    ‘I put them back in the water’ (Leer 1982b: 5)

c.  ne'nihdlah
    ne-na-n-ih-dlah
    TERM-ITER-CJ-1S-classify.compact.object
    ‘I put them back down (there)’

Unlike other low-tone prefixes, the iterative prefix appears to block rightward spreading of a preceding high tone (section 2.3.4).

(5.133) Blocking of tone spread

    ya'ndáz  naʔatme'l
    ya'-p dáz  na-γ-t-me'l
    DISTAL-across:ABL  ITER-PROG-D-swim
    ‘he’s swimming back from the other side’

5.4.2 Incorporated stems

Incorporated stems can be considered a special case of a derivational prefix string.

Most incorporated stems are nouns and usually add an instrumental sense of
‘using N’ or ‘by way of N’ to the verb theme. The form of an incorporated noun is
usually a reduced form of the full noun, as shown in (5.134).
(5.134) Incorporate forms of nouns and verbs

<table>
<thead>
<tr>
<th>stem</th>
<th>incorporate</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tu’</td>
<td>ta-</td>
<td>‘water’</td>
</tr>
<tr>
<td>-tsax</td>
<td>tsax-</td>
<td>‘cry’</td>
</tr>
<tr>
<td>-də’r?</td>
<td>də’-</td>
<td>‘eye’</td>
</tr>
</tbody>
</table>

The number of incorporated nouns is probably quite large; the list presented in this section is certainly not exhaustive. A more detailed study of incorporation (in Koyukon) can be found in Axelrod (1990b).

(5.135) Examples of incorporated stems

a. ta’haɬ
ta-ɣ-haɬ
water-PROG-go
‘he’s wading’

b. tats’ulʔók
ta-ts’-u-lʔók
water-INDEF.HUM-OPT-L-float
‘let’s swim’

c. tsaxdallaɬ
tsax-ɬ-ɬ-laɬ
cry-GEN-PROG-L-pl.move
‘going around crying’

d. stsuɬ yah naxetl tetiɬk
s-tsuɬ yah na-xetl-de-tɬk
1SG-grandmother for ITER-sled-GEN-handle.sticklike:CUST
‘he would drive the sled for my grandmother’

e. ᵉdə’xədədəɬ
⁹də’x-ɬ-de-t-dəɬ
eye-HUM.PL-GEN-D-pl.go
‘they went looking’

f. t’áxúdlah
t’a-ɬ-xú-dlal
pocket-AREA-handle.plural.object
‘s/he put them in the pocket’
5.4.3 Adverbial prefixes

The leftmost verb prefix position consists of lexical morphemes which add an adverbial or manner meaning to the verb. Some adverbial prefixes are lexical (or thematic), in that they occur as a required part of the verb word. However, most adverbial prefixes are derivational, in that they add optional lexical content to a verb. In fact, some of these adverbial prefixes closely resemble root morphemes in that they tend to carry the central meaning of the verb word. In particular, adverbial prefixes are often used with classificatory verb stems which refer only the shape or character of the object being handled; the type of action itself is captured by the adverbial prefix. For example, consider the adverbial prefix *nat'ur*- used with the verb stem *tey* ‘classify animate object’ in the verb *nat'uryéhtey* ‘he skins it’ (see (5.145) below).

Some adverbial prefixes, such as the iterative, are highly productive and may be added to just about any verb. Others are much more restricted and may occur with only a small set of verbs. This variation in productivity is closely correlated with variation between adverbial prefixes having more grammatical meanings (hence higher productivity) and those having more lexical meaning (hence lower productivity).

Some prefixes appearing in the adverbial position are not true morphemes but occur as part of a discontinuous morpheme consisting of lexical material in
the adverbial position as well as one or more conjunct prefix positions. In particular, many adverbial prefixes require a particular classifier morpheme, as with the iterative prefix *na-* (Kari 1990).

It is possible to further distinguish between aspectual and non-aspectual adverbial prefixes (or prefix strings). Aspectual adverbial prefixes govern the conjugation marker and verb stem aspect of the verb theme to which they apply. Non-aspectual adverbial prefixes do not change conjugation or aspect.

In the remainder of this section I discuss several Tanacross adverbial prefixes, though the reader should be warned that this list is woefully incomplete. Where a particular set of conjugation prefixes is required with a given string, I indicate the imperfective mode and perfective mode conjugation prefixes, respectively, in parentheses. For example, the notation (γ,n) indicates that a string requires the γ- conjugation prefix in the imperfective mode and the n- conjugation prefix in the perfective mode. For consistency in glossing, I have for the most part followed the glossing conventions used by Kari in his Ahtna dictionary (1990, Appendix E).

The adverbial prefix *na-* has the meaning ‘again’, ‘back’ or ‘around’. It does not govern the choice of conjugation pattern, however it does require the D-
morpheme as hence occurs with voiced (d- or l-) classifier. This morpheme is often referred to as the ‘iterative’ prefix. It is one of the most common derivational prefixes in Tanacross. The iterative is discussed in more detail in section 5.3.1.2.1.2.1, in the context of middle voice constructions.

The adverbial prefix string $na\#t$, where $t$- is a qualifier prefix, has the meaning ‘around’. It is often referred to as the perambulative (PRMB) prefix. It requires the perambulative stem aspect, which has the $(\gamma,n)$ conjugation pattern. It may occur alternately as $lo$- or $la$-, with no qualifier prefix. In the Mentasta dialect of Ahtna, $na\#t$- occurs in the imperfective mode while $lu$- (Tanacross $lo$-) occurs in the other modes (Kari 1990: 292). In Tanacross there appear to be other factors conditioning this alternation. The form $la$- is a dialectal variant of $lo$-.

(5.136) $na\#t$- and $lo$- perambulative

a. naxeltetík
   na-xel-t-tík
   PRMB-sled-PRMB-handle.elongated.object
   ‘he was driving the sled around’

b. łóʔá̱haɬ
   łó-ʔ-a'-haɬ
   PRMB-CJ-M-walk
   ‘he is walking around’

c. naxtɛtnɛk
   na-x-t-ɛt-ɛnɛk
   PRMB-HUM.PL-PRMB-D-plural.move
   ‘they are moving from place to place’  <5.11>
The adverbial prefix string $xe#u$, where $u$- is a qualifier prefix, and the 
$(\dd,\dd)$ conjugation pattern, has the meaning ‘to pass by’.

(5.137) $xe#u$- ‘pass by’

a. $xeʔuʔah$
   $xeʔuʔah$
   pass.by-pass.by-walk
   ‘he walked by’ $<2.67>$

b. xenut’ax
   $xe-n-u-t’ax$
   pass.by-THM-pass.by-fly:PERF
   ‘a bird flew by’ $<2.53>$

The adverbial prefix $na$-, together with the $(\emptyset,\gamma)$ conjugation pattern,
indicates an action carried out in a downward direction.

(5.138) $na$- ‘down’

a. $d̪eˈt̪ d̪eˈt̪ naʔaltθet$
   $d̪eˈt̪ d̪eˈt̪ naʔa-l-tθet$
   hill down down-PROG-L-run
   ‘he came running down the hill’

b. $tsuˈg̃aˈrɛ tˈox naninkatɬ$
   $tsuˈg̃aˈrɛ tˈox na-n-in-katɬ$
   bird next down-M-CJ-collapse
   ‘a bird’s next collapsed (and fell down)’ $<5.10>$

The adverbial prefix string $dzeʔče-n-l-$, where $č’ɛ$- is the indefinite object
prefix and $n$- is a qualifier prefix, and $l$- is the the l-classifier, has the meaning of
‘completely’ or ‘until stopped’. 
(5.139) *dzẹ́ dzẹ́n-el- ‘completely, until stopped’

\[\text{dzẹ́n-}el\]\n\[\text{dzẹ́-}e-n-\text{el}\]\n\[\text{DZE-INDEF-N-L-laugh}\]
\[\text{‘he’s laughing really hard’ (l-classifier) } <4.5>\]

The adverbial prefix *sta-* has the meaning ‘away’. It occurs with the (n,n) conjugation pattern.

(5.140) *sta-* ‘away’

a. *sta?iltθet*
\[\text{sta-}i-l-tθet\]
\[\text{away-M-L-sg.run}\]
\[\text{‘he ran away’ } <2.63>\]

b. *stašneninžut*
\[\text{sta-š-ne-n-in-žut}\]
\[\text{away-LSG-THM-CJ-M-chase}\]
\[\text{‘he chased me away’}\]

The adverbial prefix *né-* has the meaning ‘down’, ‘to a point’ and signifies an action which is completed, terminative, or taken to a point. It is sometimes referred to as the ‘terminative’ (TERM) prefix. It occurs with the (n,n) conjugation pattern.

(5.141) *né-* ‘down, to a point’ (terminative)

a. *k’ahdú? dé? něnihžah*
\[\text{k’ahdú-}e-n-\text{ih-žah}\]
\[\text{now just TERM-CJ-LSG-sg.go:IMPF}\]
\[\text{‘just now I came in’ } <2.143>\]

b. *néxunihdeý*
\[\text{ně-xu-n-i-h-deý}\]
\[\text{TERM-AREA-CJ-2SG-H-move.hand}\]
\[\text{‘(you) put it together!’ } <5.37>\]
The prefix *ná-* has the meaning ‘keep on’, ‘continue’ and signifies a continued action. It is sometimes referred to as the ‘continuative’ (CONT) prefix. It occurs with the continuative stem variant and the (Ø,γ) conjugation pattern. This prefix occurs thematically in many common verb themes.

(5.142) *ná-* ‘continue’

\[
\begin{align*}
náʔéδɛt & \\
náʔɛ-δɛt & \\
\text{THM-PEG-stand} & \\
\text{‘he’s standing’} & \\
\end{align*}
\]

The adverbial prefix *xu*- has the meaning ‘falling down’. It occurs with the (Ø,γ) conjugation pattern.

(5.143) *xu*- ‘falling down’

\[
\begin{align*}
xuyɛŋθ’et & \\
xu-γ-εg-θ’et & \\
\text{falling-CJ-1SG:1-animate.moves:PERF} & \\
\text{‘I fell down running’} & \\
\end{align*}
\]

The adverbial prefix *k’e-* has the meaning ‘severing’. It occurs with the (n,n) conjugation pattern.

(5.144) *k’e-* ‘severing’

\[
\begin{align*}
dečol & \text{ k’etnɛltsa’t} \\
de-čol & \text{ k’e-t-n-ɛl-tsart} \\
\text{RFLX-throat severing-INCEP-CJ-L-cut.quickly} & \\
\text{‘he was about to cut his (own) throat’} & <2.107> \\
\end{align*}
\]

The prefix *nat’v*- has the meaning ‘skinning’ and indicates that an action is being carried in order to remove skin from an animal.
(5.145) *nat’ur-* ‘skinning’

a. nat’uryéhte’y
   nat’u’ry-é-te’y
   skinning-4OBJ-H-handle.animate
   ‘he’s skinning it’ <2.107>

b. nat’urts’le?'
   nat’u-ts’e-Y-le?’
   skinning-IMP-FUT-handle.plural.objects
   ‘we will be skinning them’ <2.109>

The prefix *nilk’a-* has the meaning ‘opening’.

(5.146) *nilk’a-* ‘opening’

a. na’ dínáht’la’ nilk’adinle’y
   na’ dínáhtl’a’ nilk’a-d-in-le’y
   this book opening-GEN-2SG-handle.plural.objects
   ‘you open this book!’ <3.11>

b. nilk’aneta’
   nilk’a-n-e-ta’
   opening-CJ-M-handle.elongated.object
   ‘someone opened (the door)’ <4.73>

The prefix *nildzee-* has the meaning ‘separating’ and signifies an action which separates an object into two parts.

(5.147) *nildzee-* ‘separating’

   nildzedeekts’at
   nildze-ék-tse’at
   separating-GEN-1SG:H-cut.quickly
   ‘I’m cutting it in two’ <2.105>

The prefix *te-* has the meaning ‘into the water’ and indicates an action which results in entry into the water. It requires the (n,n) conjugation pattern.
(5.148) *te-* ‘into the water’

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>tsá? téʔítzháh</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>tsá? te-n-i-t-zah</td>
<td></td>
</tr>
</tbody>
</table>

beaver into.water-CJ-M-CL-go:PERF

‘a beaver went in the water’ (LS 11/11/98)

The prefix *lda-* (or sometimes *nilda*) has the meaning ‘closing’ and requires the (n,n) conjugation pattern.

(5.149)  

*lda-* ‘closing’

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ldatdenintáʔ</td>
</tr>
<tr>
<td>2</td>
<td>lda-t-de-n-in-táʔ</td>
</tr>
</tbody>
</table>

closing-?-GEN-M-2SG-handle.elongated.object

‘(you) close the door’ <4.73>

The prefix *nelk’e-* denotes an action which occurs in a ‘down and back’ or ‘zig-zagging motion’. It occurs with the (Ø,γ) conjugation pattern.

(5.150) *nelk’e-* ‘down and back’

a. Fairbanks ts’íʔ nelk’e-x-ededél 
Fairbanks ts’íʔ nelk’e-x-de-dél 
F. to down.and.back-HUM.PL.-?pl.go
‘they went back to Fairbanks’ <2.143>

b. nelk’eʔa’haʔl 
 nelk’e-a’-haʔl 
 zig.zag-PROG-sg.walk 
‘he is walking around (erratically)’ <2.67>

The prefix *xa-* has the meaning ‘turning around’. It is composed of the prefix *xa-* and the iterative prefix *na-*, which combine to form *xa-* via the regular process of na-absorption (see section 5.4.1 above). The presence of the iterative prefix requires the D- morpheme.
(5.151) xa#D- ‘turning around’

xa\n\n\nnitdel
xa-na-x-n-i-t-del
turning-ITERATIVE-HUM.PL-CJ-M-D-pl.go
‘they turned around’   <5.35>

5.5 Verb stem

The final syllable of the verb consists of the verb stem and possibly a negative or nominalizing suffix. Neither of these suffixes is syllabic but is instead realized as modification of the stem tone and voicing of the verb stem coda. These two suffixes are discussed in section 5.6 below.

The verb stem itself is itself morphologically complex, composed of a root plus an obligatory inflectional suffix corresponding to imperfective, perfective, optative or future mode. The suffix is realized phonologically via ablaut of the verb root. This notion is formalized by Leer, who defines a root as “an underlying form, from which through regular phonological modification of the vowel nucleus and/or suffixation, the stems of a given stem set or group of stem sets may be derived” (1979: 3). This yields two suffix positions, as shown in Table 5.10.

Table 5.10: Root, stem and suffix template

<table>
<thead>
<tr>
<th>STEM</th>
<th>SUFFIX</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOT</td>
<td>IMPF</td>
<td>NEG</td>
</tr>
<tr>
<td></td>
<td>PERF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPT</td>
<td>NOM</td>
</tr>
<tr>
<td></td>
<td>FUT</td>
<td></td>
</tr>
</tbody>
</table>
Compared to some other Athabaskan languages such as Koyukon (Axelrod 1993), the Tanacross root and mode suffixes are tightly fused and generally not synchronically segmentable. Because mode inflection is obligatory, the root is an abstract ‘archi-morpheme’ which never occurs independent of a mode suffix. It is not always possible to assign a specific meaning to a verb root, since a verb lexeme may consist of a root morpheme together with lexically specified (thematic) prefixes. For example, the imperfective stem variant -t̂eh in the verb nek̂ēh ‘I see’ is grammatically imperfective but does not have a lexical meaning apart from the thematic prefix n-.$^{12}$

The phonological constraints governing the combination of root plus mode suffixes are extremely complex. However, there is strong evidence that the root does play an active role in synchronic verb morphology. In particular, the pattern of mode suffixation for a particular verb participates in an elaborate system of aspect marking. Since it is generally not possible to segment the Tanacross verb stem, it makes sense to refer instead to the set of possible verb stems corresponding to the imperfective, perfective, future and optative forms of a root. This set is referred to as a ‘stem set’. A given verb root may be associated with several stem sets, each corresponding to a different aspect.

While there is a certain amount of synchronic irregularity inherent in the system, it is possible to identify suffixation patterns corresponding to various
aspects. In arguing against irregularity and the concomitant burden of
memorization Rice notes that patterns of stem variation are remarkably stable
both across idiolects/dialects and across time (1989: 803). Even if memorization
is not the barrier which some have claimed it to be, the patterns of stem
variation—memorized or computed—play an important role in verbal
morphology.

For example, consider the pattern of stem variation which corresponds to
the ‘momentaneous’ aspect. This aspect encodes punctual events. For ‘open’
roots, those whose PA antecedents do not end in obstruents (see Leer 1979),
several patterns are possible, however, there are several points of regularity
among these patterns. In particular, the imperfective stem generally ends in a
voiceless sonorant or voiceless glottal fricative. The perfective stem has a
nasalized vowel and occurs with low (unmarked) tone. The future stem has a
voiceless lateral fricative suffix -t. The optative stem is similar to the imperfective
stem but carries falling tone and voices the stem-final consonant (-h → -Ø). Some
dexamples are given below.

(5.152) Stem sets for the momentaneous aspect (open root)

<table>
<thead>
<tr>
<th>IMPF</th>
<th>PERF</th>
<th>FUT</th>
<th>OPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ʔá’ʔ</td>
<td>-ʔə</td>
<td>-ʔə’l</td>
<td>-ʔə’y</td>
</tr>
<tr>
<td>-tʰ</td>
<td>-tʰ</td>
<td>-tʰ</td>
<td>-tʰ</td>
</tr>
</tbody>
</table>

‘handle compact object’

‘handle sticklike object’
These momentaneous stem sets can be compared to stem sets for the durative aspect. These stem sets are characterized by high tone on the perfective stem.

Some examples are given below.

(5.153) Stem sets for the durative aspect (open root)

<table>
<thead>
<tr>
<th>IMPF</th>
<th>PERF</th>
<th>FUT</th>
<th>OPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ʔɛh</td>
<td>-ʔɛʔ</td>
<td>-ʔiʔ</td>
<td>-ʔɛʔɛ</td>
</tr>
<tr>
<td>-tsax</td>
<td>-tsɛx</td>
<td>-tsax</td>
<td>-tsɛʔγ</td>
</tr>
</tbody>
</table>

‘do, see’

‘cry’

There are perhaps a dozen different aspects in Tanacross. No single verb appear in all aspects, and most verb roots may occur in only one or two different aspects.¹³

A complete description of the Tanacross aspect system is beyond the scope of this dissertation and remains an important area for future research.

### 5.6 Suffixes

In contrast to the modal suprafixed and suffixes discussed in section 5.5, there remain other verb suprafixed and suffixes which are clearly synchronically separable. These include the negative suffix and the nominalizing suffix. These morphemes are sometimes considered enclitics due to their semantic scope over the entire verb phrase. However, I classify them as suffixes based on the fact that they may only occur on the verb word, not on a word from another category.

#### 5.6.1 Negative suffix

Verb phrase negation is marked both via a verb stem suffix -ɛ and via a phrasal proclitic k’ɛ=. The negative suffix never appears in the surface form but instead
surfaces as voicing of the stem-final consonant. The negative verb stem is thus similar to the possessed form of noun stems but has no final glottal stop.

Voiceless stem-final consonants are voiced in the negative form, and sonorant finals are lengthened. This stem modification—voicing of the stem-final consonant—can be seen historically as the Tanacross reflex of the PA */-he* suffix. As noted in section 2.3.4, the negative verb stem also carries a distinct intonation pattern resulting in an extra-high pitch marking on the negated verb stem, as shown in (5.154).

(5.154) Negative suffix with extra-high tone

a. k’á yíhhâl
   k’á y-ih-hašl-ε
   NEG PROG-1SG-sg:go:IMPF-NEG
   ‘I’m not going’

b. k’á táhšâdô
   k’á t-γ-h-šârtθ-ε
   NEG INCEP-FUT-H-snow:PERF-NEG
   ‘it’s not going to snow’

The extra-high tone occurs only when the verb is in the final position of an intonational phrase. In other positions, the low (unmarked) tone of the negative suffix combines with the original stem tone in a manner analogous to that of the nominalizing suffix -e, discussed in section 4.2.3 above. Thus, original high-tone stems have falling tone when they occur with the negative suffix in non-intonation final position. An example is the verb h-šârtθ ‘to snow’, shown in (5.155).
(5.155) Negative suffix without extra-high tone

In intonation-final position, the extra-high tone neutralizes the stem-tone modification effect of the negative extra-high tone.

5.6.2 Nominalizing suffix

Nominalization was discussed earlier in the context of noun morphology (see section 4.2.3 above); here it is discussed in the context of verb morphology. There is some overlap between these two discussions. Nominalization is formally marked by the verb suffix -ē. The nominalizing suffix carries low tone which combines with underlyingly high tone stems to create falling tone stems. The vowel of the nominalizing suffix does not surface but is instead realized in most cases via voicing of the stem-final consonant. For stems ending in glottal fricatives (5.156) or glottal stops (5.157) the behavior of the nominalizing suffix is slightly different.

(5.156) Nominalized forms of stems ending in glottal fricatives (Leer 1982a: 12)

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>?e'dah</td>
<td>‘he is sitting’</td>
</tr>
<tr>
<td>?e'dary</td>
<td>‘the one who is sitting’</td>
</tr>
<tr>
<td>ineh?e'uh</td>
<td>‘he sees it’</td>
</tr>
<tr>
<td>ineh?e'n</td>
<td>‘that which he saw’</td>
</tr>
</tbody>
</table>
Nominalized forms of stems ending in glottal stop (Leer 1982a: 12)

\[
\begin{align*}
nač’eniňňt’il’ú? & \quad \text{‘I’m sewing’} \\
nacˇ’eniňňt’il’úu & \quad \text{‘that which I’m sewing’} \\
injih?é? & \quad \text{‘he saw it’} \\
injih?é?e & \quad \text{‘that which he saw’}
\end{align*}
\]

Some textual examples of the nominalizing suffix are given in (5.158).

(5.158) Examples of nominalization

\[
\begin{align*}
\text{a.} & \quad \text{tur źır č’et’á́t} \ tada’le’l \ něk?eh \\
& \quad \text{tur źır č’et’á́t} \ ta-d-y-le’l-ε \ n-ɛk-ʔeh \\
& \quad \text{water in INDEF-leaf water-GEN-PROG-pl.obj-NOM THM-1SG-see:IMPF} \\
& \quad \text{‘I see leaves floating in the water’ <4.115>}
\end{align*}
\]

\[
\begin{align*}
\text{b.} & \quad \text{dəɬ} \ ts’ęmíníʔay \ ėké’ \\
& \quad \text{dəɬ} \ ts’ę-ní-n-íʔa’a-ε \ ė-ké’ \\
& \quad \text{hill straight-down-CJ-M-classify.cpt.obj-NOM M-side} \\
& \quad \text{‘on the side of a hill that sloped down’ (G. Paul 1980: 20)}
\end{align*}
\]

For more discussion of the nominalizing suffix see section 4.2.3 above.

5.7 Chapter summary

While I have followed the templatic model in the description of Tanacross verb morphology, it should be emphasized that much of the meaning of the verb is not compositional. It is convenient for the purposes of description to consider each prefix (and suffix) position in the verb template independently. But such descriptive convenience should not be allowed to obscure the holistic nature of the verbal morphology. Verb lexemes are often discontinuous, involving lexical material in more than one template position. More crucially, particular morphemes may govern the choice of other affixes, as with the inceptive prefix \textit{te-}, which require the \textit{b-} conjugation prefix, and the iterative prefix \textit{na-}, which
requires the d-classifier. Such selectional restrictions mean than the Tanacross verb is more than a mere collection of morphemes which combine arbitrarily to form a predicate.

Several aspects of verb morphology have not been adequately addressed here. The most notable omission is the topic of verb stem variation, which was discussed in only a cursory manner. Verb stem variation is arguably the most complex facet of verbal morphology and plays an important role in Tanacross grammar as the locus of the interface between verbal morphology and semantics. A complete description of Tanacross verb stem variation must await further study.

Other areas of verbal morphology have been addressed incompletely. These include the adverbial and the incorporate prefixes. While I described the behavior of some of these prefixes, I have not attempted a complete inventory. Such an endeavor might more appropriately be addressed within a study of verbal semantics.
Notes to chapter 5

1 Assigning a phonetic form to the verb root is of necessity somewhat arbitrary since the root does not occur on the surface. Usually some convention is employed for this purpose, such as using the perfective stem form in the most common aspect in which a verb occurs.

2 Some dialects of Canadian Gwich’in do retain the first person duoplural, though it does not occur in modern Alaskan Gwich’in. See Story (1989) for more on the Athabaskan duoplural.

3 Hargus & Tuttle (1997) analyze the Athabaskan ‘peg’ as a mode prefix, so that the requirement that e- be present in the absence of an inner subject prefix and conjugation-mode prefix can be viewed as a syntactic constraint that all verbs be specified for mode rather than a morphologically-conditioned phonotactic constraint.

4 Historically, the various stem forms for the different aspects can be analyzed as a combination of a verb root together with an aspecual suffix. In Tanacross it is not always possible to isolate an aspecual suffix from the verb root itself synchronically.

5 Conjugation and aspecual patterns for a particular verb correlate well with membership in semantically-based lexical subcategories, known as ‘verb theme categories’. See Kari (1979) on Ahtna verb theme categories; Axelrod (1993) on Koyukon. The discussion of verb theme categories in Tanacross is beyond the scope of this dissertation.

6 In the first person plural form the impersonal prefix ts’e- contracts with the inceptive prefix te- to form tse- (Leer 1977).

7 The indefinite object prefix does not occur with the impersonal subject prefix ts’e-; the fourth person object prefix yi- occurs instead. See section 5.3.5.2.3.

8 The first person plural use is also found outside Alaska, where it contrasts with the inner first plural subject prefix (Story 1989).

9 Tenebaum makes a similar observation (1978: 111)
10 The cognate human plural prefix in Slave is in fact restricted to third person (Rice 2000b: 206).

11 Alternately, the disjunct morphemes might be termed ‘clitics’, though these morphemes always attach to the verb word, not to any other element of the verb phrase. The phonological status of the disjunct boundary will not be addressed further here.

12 A given verb root may combine with several different sets of thematic verb prefixes to form several different verb morphemes. It is of course possible to assign a meaning to the verb root as the union of the meanings of the individual verbs built from that root. However, such a meaning is necessarily abstract if the verb root does not occur without thematic prefixes.

13 Verbs may be categorized as to the range of aspects in which they occur and the primary aspect in which they occur. For more on this approach to verb theme categories, see Kari (1979).
Chapter 6  Minor word classes

In addition to the two major lexical categories of noun and verb, there are a number of minor, closed categories which are differentiated from each other primarily on semantic bases and in some cases also on a morphological basis. With the exception of the directionals, members of the minor word classes are predominantly monomorphemic. The division into distinct word classes presented here is admittedly rather arbitrary, and I do not offer syntactic evidence for these divisions. Thus, the arrangement of this chapter is motivated more by descriptive convenience than by any sort of language-internal division of word classes in Tanacross. The following categories are described here: independent pronouns, postpositions, demonstratives, question words, adverbs, particles, conjunctions, adjectives, and directionals.

6.1  Independent pronouns

Both bound and free (independent) pronouns occur in Tanacross. Bound object pronouns occur as verb prefixes cross-referencing the person and number of the verbal object, as discussed in section 5.3.5.2 above. Bound pronouns also occur as prefixes on postpositions (see section 6.4). Independent pronouns occur as separate words.
Independent pronouns may occur as adjuncts to subjects, objects or nominal possessors. They are not obligatory and always carry a contrastive or emphatic reading. The first and second person independent pronouns are shown in the table below.

Table 6.1: Tanacross independent pronouns

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ših/šir</td>
<td>ne'xón?</td>
</tr>
<tr>
<td>2</td>
<td>nén?</td>
<td>nuxhó'n?</td>
</tr>
</tbody>
</table>

(6.1) Examples of independent pronouns

a. nuhxón? xudahnh
   nuhxón? xu-d-ah-nih
   2PL AREA-THM-2PL-say
   ‘did you guys say that?’

b. súʔu ših šdeγu’hk’á
   súʔu ših š-deγu-h-k’á
   PROHIB 1SG 1SG-THM-OPT-2SG-H-see:PERF
   ‘don’t shoot me’

There are no Tanacross independent pronouns referencing third person, that is, no cognates of Ahtna yen and yene. Instead, singular proximal demonstrative pronouns are used to refer to third persons, and plural is marked by the human plural enclitic ʔin. An example is given in the following section.
6.2 Demonstratives

A limited set of demonstratives may modify noun phrases, occurring either as pronouns or as determiners. I discuss both uses here as they have the same form.

The four demonstratives are shown in the table below.

<table>
<thead>
<tr>
<th></th>
<th>SINGULAR</th>
<th>PLURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROXIMAL</td>
<td>nâ’n</td>
<td>ñen</td>
</tr>
<tr>
<td>DISTAL</td>
<td>jâ’n</td>
<td>ñey</td>
</tr>
</tbody>
</table>

As noted in the previous section, demonstrative pronouns are used to refer to third person human referents. The proximal singular nâ’n is used for this purpose.

Plural humans are marked by the proximal singular together with the human plural enclitic ñen, rather than the proximal plural demonstrative ñey. Thus, third person human plural is nâ’n=ñin, as shown in (6.1b).

(6.2) Examples of demonstrative pronouns

a. sṯuров     ñey     xênih
   s-ṯuров   ?êy     xe-nih
   1SG-grandmother DISTAL   HUM.PL-say
   ‘they said that to my grandma’

b. nā’n     ñin     xuxtenih
   nā’n     ñin     xu-x-nih
   PROX   PL     AREA-HUM.PL-say
   ‘did you guys say that?’

When demonstratives are used as determiners, they occur in the initial position of the noun phrase.
(6.3) Examples of demonstrative determiners

a. jā’ mintl’á: di’lé?e utón?
   jā’ m-intl’á: di’lé?e u-tón?
   DISTAL 3SG-hand something THM-hold
   ‘in that hand he held something’ (G. Paul 1980: 40)

b. nā’n ts’éhxeh yintsé’x
   nā’n ts’éhxeh y-in-tsé’x
   PROX girl CJ-M-cry
   ‘this girl was crying’

6.3 Question words

Question words are used with content questions (“wh-questions”) to indicate what property is being questioned (time, manner, location, etc.). The Tanacross question words are listed in the table below.

<table>
<thead>
<tr>
<th>Question word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>dí’</td>
<td>‘what’</td>
</tr>
<tr>
<td>dó’</td>
<td>‘who’</td>
</tr>
<tr>
<td>ndé’</td>
<td>‘where’</td>
</tr>
<tr>
<td>dì́y̓a(h)</td>
<td>‘why’ (lit: ‘what for’)</td>
</tr>
<tr>
<td>nts’é</td>
<td>‘how’</td>
</tr>
<tr>
<td>dé?</td>
<td>‘when’ (future)</td>
</tr>
<tr>
<td>dá?</td>
<td>‘when’ (past)</td>
</tr>
</tbody>
</table>

Question words generally occur phrase-initially. Some examples are given below.

(6.4) Examples of question words

a. nts’é t’int’eh
   nts’é t’int’eh
   how THM-2SG-be:IMPF
   ‘how are you?’
b. nts’é nuhsí
   nts’é n-u-h-sí
   how 2SG-THM-H-call
   ‘what’s you name?’ lit: ‘how are you called?’

c. dó níhʔəh
   dó n-i-h-ʔəh
   who THM-2SG-H-see:IMPF
   ‘who do you see?’

d. dir ʔíhme’ts
   dir ʔ-i-h-me’ts
   what CJ-2SG-H-boil
   ‘what did you boil?’

e. ndé ts?i? yínha1
   ndé ts?i? y-in-ha1
   where to PROG-2SG-sg.go
   ‘where are you going?’

f. ndé kéy ts’en ninžah
   ndé kéy ts’en n-in-žah
   where village from CJ-2SG-sg.go
   ‘what village are you from?’

Note that content interrogatives are further marked via a phrase-final low pitch intonation contour. This has the effect of neutralizing marked stem-tones where these stems occur in phrase-final position. As elsewhere in this dissertation, I have followed the convention of marking only lexical tone and tone which derives from lexical tone via tone-spread processes. Pitch derived from intonation is not marked.

For example, after the application of the appropriate intonation contour (6.4b) above would be pronounced with a final low pitch, in spite of the fact that
the final syllable has a lexically marked high tone. This illustrates stem-tone neutralization in content interrogatives.

6.4 **Postpositions**

Tanacross postpositions constitute a distinct lexical class of morphemes which can be inflected with pronominal object pronouns. Postpositions head a postpositional phrase and must occur immediately following the noun phrase which they govern. This NP may be a full noun phrase or an object pronoun.

(6.5) **Tanacross postpositions**

<table>
<thead>
<tr>
<th>Postposition</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a'</td>
<td>‘for’ (BENEFACTIVE)</td>
</tr>
<tr>
<td>č’áʔ</td>
<td>‘away from’</td>
</tr>
<tr>
<td>ukah</td>
<td>‘for’</td>
</tr>
<tr>
<td>?èl</td>
<td>‘with’</td>
</tr>
<tr>
<td>k’edð</td>
<td>‘by’, ‘beside’</td>
</tr>
<tr>
<td>k’et</td>
<td>‘on’</td>
</tr>
<tr>
<td>kah</td>
<td>‘for’</td>
</tr>
<tr>
<td>kēʔ</td>
<td>‘in quest of’</td>
</tr>
<tr>
<td>kōnʔteg</td>
<td>‘front’</td>
</tr>
<tr>
<td>nandrįz</td>
<td>‘behind’</td>
</tr>
<tr>
<td>źi</td>
<td>‘in’</td>
</tr>
<tr>
<td>t’arγ</td>
<td>‘under’</td>
</tr>
<tr>
<td>tah</td>
<td>‘in’, ‘during’, ‘among’</td>
</tr>
<tr>
<td>teθ</td>
<td>‘over’</td>
</tr>
<tr>
<td>ts’įʔ</td>
<td>‘to’</td>
</tr>
<tr>
<td>γa/γah</td>
<td>‘by’, ‘for’, ‘through’</td>
</tr>
<tr>
<td>ts’eŋ</td>
<td>‘from’</td>
</tr>
<tr>
<td>e</td>
<td>‘on’, ‘against’</td>
</tr>
</tbody>
</table>

In many cases postpositions serve to mark oblique verbal arguments. Some examples are given below.
(6.6) Oblique argument postpositions

a. Jerry ḫéɬ dīhdah
   Jerry ḫéɬ ד-הד-ה
   J with CJ-1SG-stay:IMPF
   ‘I’m staying with Jerry’

b. ḥaɬy šaɬ ahtsey
   ḥaɬy š-aɬ γ-h-tsey
   snowshoe 1SG-for PROG-H-make
   ‘he’s making a snowshoe for me’

c. ts’eeɬ zìɬ nátkeɬ
   ts’eeɬ zìɬ ná-γ-at-keɬ
   boat in ITER-M-D-go.by.boat
   ‘he’s coming back down the river in a boat’ <3.77>

d. xuγah nič’eneneq?ìɬ
   xu-γah ni-č’e-ne-n-εγ-ʔìɬ
   3PL-by TERM-INDEF-THM-M-1SG-sneak
   ‘I snuck up by them’ <3.121>

e. yanidaɬa γah s?éɬ naxuldek
   yanidaɬa γah s-ʔéɬ na-x-u-l-dek
   long.ago.times for 1SG-with THM-AREA-OPT-L-tell.story
   ‘you tell me a story about long-ago times’ <3.28>

The argument structure of a Tanacross verb may differ from that in the corresponding English verb. Core direct object arguments in English are often coded as oblique arguments marked by a postposition in the corresponding Tanacross verb. This is the case with the object of the verb ‘love’ in (6.7).

(6.7) Non-prototypical postpositional objects

ts’inke’y γah ihts’ìɬ
   ts’inke’y γah ih-ts’ìɬ
   children for 1SG-love
   ‘I love my kids’ <3.107>
When a postposition immediately precedes a verb, sandhi may affect the phonological boundary between the postposition and the leftmost verb prefix.

Thus, postpositions may participate in some regular verb morphophonemic processes. For example, the fourth person object prefix yi- occurs as y- when preceded by an open syllable and followed by a consonant. As shown in (6.8), this rule applies equally to postpositions of shape CV which precede a fourth person object prefix which is followed by a consonant.

(6.8) Sandhi between postposition and verb

\[
\begin{align*}
denîr & \quad yadadek \\
denîr & \quad \text{y}a \quad \text{yi-d-\text{-y-l-dek}} \\
\text{moose} & \quad \text{by} \quad \text{4OBJ-THM-M-L-miss.shot} \\
\text{‘he (shot and) missed the moose’ } <3.79>
\end{align*}
\]

Another example of sandhi between postpositions and verb prefixes is found in the process of \textit{na}- absorption. For example, the vowel of the postposition in (6.9) is lengthened and the verb-initial iterative prefix \textit{na}- is deleted. The entire string is pronounced under one intonational contour.

(6.9) \textit{na}-absorption following postposition

\[
\begin{align*}
\text{me'ê'ek?âtl} \\
\text{m-e} \quad \text{na-ê'ê-êk-?âtl} \\
\text{3-PP} \quad \text{ITER-INDEF.OBJ-1S.CL-eat} \\
\text{‘I fed it again’ (Leer 1982b)}
\end{align*}
\]

However, such sandhi processes are not obligatory and may be blocked in careful speech or when the object of the postposition is used contrastively.
In addition to these phonological effects, postpositions may also impose constraints on the choice of conjugation and aspect prefixes. For example, the postposition *γa*- ‘through’ requires the *n*- conjugation prefix in the governing verb.

(6.10) Postposition *γa* ‘through’ with (n,n) conjugation pattern

a. yiya  ninke’t  
yi-γa  n-in-ke’t  
4OBJ-through  CJ-M-pierce  
‘he pierced through it’ <2.111>

b. dedzāy?  ya  ninke’t  
dedzāy?  ya  n-in-ke’t  
RFLX-ear through  CJ-M-pierce  
‘she pierced her ear’ <2.111>

The postposition *γa*- ‘through’ also occurs with the qualifier prefix *d*- and the d-classifier, with the meaning ‘missing’.

(6.11) P-γa##d-D- ‘missing P’

a. deṉg  unihdek  
deṉg  u-ni-h-dek  
moose  CON-GEN-H-miss.shot  
‘he shot at the moose’ <3.79>

b. deṉg  ya  ydaldek  
deṉg  ya  yi-d-y-l-dek  
moose through  4OBJ-THM-M-L-miss.shot  
‘he (shot and) missed the moose’ <3.79>

Thus, both phonologically and morphologically, Tanacross postpositions are intermediate between independent words and verb prefixes. This intermediate status may well reflect an ongoing morphologization of the postpositions in Athabaskan languages. As noted by Tenebaum (1978) with respect to Dena’ina,
“[T]he postpositions as a morphological unit appear to be intermediate between true prefixes and independent particles, perhaps having been free elements at one time and now exhibiting the characteristic rightward movement of Athabaskan morphology, being drawn, like the incorporates, and probably for that matter all of the disjunct prefixes, into the body of the verb, intensifying the morphological ‘squish’ of the prefixes nearest the stem.” (193)

The postpositions could perhaps be considered verb clitics, reflecting their intermediate status between words and verb prefixes. Indeed, many authors consider both postpositions and postpositional object pronouns (discussed below) to be actual verb prefixes occupying the leftmost positions of the verb template.

A postpositional object pronominal prefix may affix to a postposition in lieu of a full NP postpositional object. The postpositional object pronouns are identical in form to the possessive prefixes and direct object prefixes. However, unlike the possessive prefixes, the postpositional object pronouns cannot co-occur with an adjunct noun phrase. Thus, *John ʔéél ‘with John’ but not *John uʔél, though uʔél itself is possible without an adjunct noun phrase, meaning ‘with him/her/it’. The complete list of postpositional object prefixes is given in Table 6.4.
Table 6.4: Postpositional object pronominal prefixes

<table>
<thead>
<tr>
<th>person</th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>š-</td>
<td>ne'-</td>
</tr>
<tr>
<td>2</td>
<td>n-</td>
<td>nuh-</td>
</tr>
<tr>
<td>3</td>
<td>m-/u-</td>
<td>xu'-</td>
</tr>
<tr>
<td>4</td>
<td>y-</td>
<td></td>
</tr>
<tr>
<td>INDEFINITE</td>
<td>č'e-</td>
<td></td>
</tr>
<tr>
<td>REFLEXIVE</td>
<td>?ede-</td>
<td></td>
</tr>
<tr>
<td>RECIPROCAL</td>
<td>nil-</td>
<td></td>
</tr>
</tbody>
</table>

The third person form is used when an inner subject is present in the governing verb. As with the third person singular possessive prefix, the vocalic form occurs preceding consonants, while the consonantal form occurs preceding vowels. The fourth person form is used when no inner subject is present in the governing verb.

(6.12) Reciprocal postpositional object

\[
\begin{array}{ll}
\text{nīl} \text{y}a & \text{xaltθe}l \\
\text{nil-y}a & \text{x-a-l-θe}l \\
\text{RECIP}-\text{beside} & \text{HUM.PL}-\text{PROG}-\text{L-run} \\
\text{‘they are running beside each other’} & <2.60>
\end{array}
\]

6.5 Adverbs

Adverbs are uninflected words which express manner, time or intensification. However, this is not really a semantically defined category, as many verb prefixes also express an adverbial meaning. Adverbs differ from particles in having more of a semantic than pragmatic function. Some examples of adverbs are given in (6.13).
A large subcategory of adverbs consists of adverbs referring to time. Examples of time adverbs are given in (6.14).

(6.14) Time adverbs

dáʔa  ‘previously’
déʔ  ‘subsequently’
tl’am  ‘after’
t’h’ihtah  ‘still’
t’h’ih  ‘yet’
x’en  ‘quickly’
k’ah  ‘now’
dze’n  ‘today’

A large number of adverbs of time can be formed using the adverbial particles dáʔa ‘previously’ and déʔ ‘subsequently’. Some examples are given in (6.15).

(6.15) Examples of time averbs

a.  k’á  déʔ  t’h’ihtah  níttśíl
    k’á  déʔ  t’h’ihtah  n-í-t-tsíl-ε
    NEG  subsequently  still  THM-NEG-D-ripe-NEG
    ‘it’s still not ripe’  <3.31>

b.  tedə  dáʔa
    tedə  dáʔa
    night  previously
    ‘last night’
c. k’āhmén? dé?
   k’āhmén? dé?
   morning subsequently
   ‘tomorrow morning’

  d. k’ah dů? dé?
   k’ah dů? dé?
   now EMPH subsequently
   ‘from now on’

6.6 Particles

Particles are uninflected and unstressed words which have a pragmatic function.

The functions encoded by Tanacross particles include modal, emphasis and focus.

Particles which serve a coordinating or subordinating function are discussed separately in section 6.7.

The particle č’e marks the focused element in a focus construction. It occurs following the focused or contrasted noun phrase or pronoun.

(6.16) Focus č’e

  a. ših č’e ɗihdary
     ših č’e ɗ-ih-dary
     1SG FOCUS CJ-1SG-stay
     ‘I’m the one who lives here’

  b. dîr č’e įhme’dz
     dîr č’e į-h-me’dz
     what FOCUS 2SG-H-boil
     ‘what is it that you’re boiling?’

The modal particles include sūʔ? and dā. The particle sūʔ? or its allomorph sūʔtu is used with a second person form of a verb to form a prohibitive construction meaning ‘do not’. It usually precedes the verb or verb phrase.
(6.17) Prohibitive sùr?

sùr? stáʔiltθet
sùr? stáʔ-i-l-θet
PROHIB away-2SG-L-run
‘don’t (you) run away’

The particle dâ may follow an optative mode form of a verb to emphasize the deontic sense of the optative mode.

(6.18) Deontic dâ

γυνάʔa dâ
γυ-ν-δάʔa dâ
OPT-2SG-stay DEONTIC
‘you should stay’

The particle dú occurs following a noun or pronoun and has an emphatic or contrastive meaning.

(6.19) emphatic dú?

nān dúʔ štáʔ sínt’eh
nān dúʔ š-táʔ s-ín-t’eh
this EMPH ISG-father CJ-M-be
‘this is my father’

The negative particle k ’á occurs as a verb phrase proclitic to mark verbal negation. The use of this morpheme is discussed in section 5.6.1 above.

6.7 Conjunctions

Conjunctions are uninflected words which serve to conjoin two clauses. Many conjunctions are homophonous with postpositions. The particle ts ’j, which is
homophonous with the postposition *ts?i* ‘to’, may be used in ways which are equivalent to English coordination and subordination. The two functions are not differentiated in Tanacross. Some example of the conjunction *ts?i* are given in (6.20).

(6.20) Subordinator/coordinator *ts?i*

a.  

\[ \text{gur’ } \text{nle’ } \text{ts?i’ } \text{ye?etdey} \]

\[ \text{gur’ } \text{n-le’ } \text{ts?i’ } \text{ye?-et-dey} \]

Brush Indian  M-be  CONJ  4OBJ-D-know

‘he found out that he was a Brush Indian’ (G. Paul 1980: 26)

b.  

\[ \text{šos } \text{nedičel } \text{ts?i’ } \text{ya’ndádz } \text{xuneh?eh} \]

\[ \text{šos } \text{nedičel } \text{ts?i’ } \text{ya’-dádz } \text{xu’-n-h?eh} \]

bear  sit.back  CONJ  DISTAL-downstream-ABL  3PL-THM-H-see

‘the bear sat right back and looked up at them’ (G. Paul 1980: 4)

The particle *šel*, which is homophonous with the postposition *šel* ‘with’, may also have a coordinating function.

(6.21) Coordinator *šel*

\[ \text{ey } \text{ya’dezh } \text{naxatdél } \text{šel} \]

\[ \text{ey } \text{ya’dezh } \text{na-x-a-t-dél } \text{šel} \]

that  distant-inland:ABL  ITER-HUM.PL.PROG-D-pl.go:IMPF  CONJ

‘they were traveling back down and’

Ketchumstuck  níxidétl

Ketchumstuck  nú-x-i-détł

K.  TERM-HUM.PL-M-pl.go:PERF

‘they arrived at Ketchumstuck’

The particle *déʔ* is used as a conditional subordinating conjunction. It follows the subordinate clause, and the subordinate clause verb occurs in the optative mode.
The particle *tʰʼán* can be used as a temporal subordinating conjunction indicating that the clause preceding the conjunction temporally precedes the clause following the conjunction.

Another common strategy employed in complex clause constructions is the use of a nominalized verb phrase as an object of a postposition.

*Alternate clause-combining strategy*
A more thorough discussion of the syntax of clause-combining in Tanacross is beyond the scope of this dissertation.

6.8 Adjectives

Predicative property concepts are expressed in Tanacross via a stative verb.

Attributive property concepts are also usually expressed via verbs, or more precisely via a nominalized verb form. However, there is small class of attributive property concept words referring to size dimension which occur as adjectives.

Attributive adjectives occur following the noun which they modify. Unlike nouns and verbs, Tanacross adjectives cannot be inflected. Adjectives are also differentiated from verbs in that they do not require a prothetic peg prefix.

(6.25) Tanacross adjectives

a. deñíŋ čox déδεkk’á?
deníŋ čox de-δ-e-k-k’á?
moose big THM-CJ-1SG:H-SHOT
‘I shot a big moose’

b. tśrl gary delýos
tśrl gary delýos
boy small THM-L-play
‘the small boy is playing’

In some cases an uninflected verb stem may be used attributively as an adjective.

For example, compare deneh ts’e’g ‘a tall, thin man’ with deneh nts’e’k ‘the man is tall and thin’. The latter form is inflected as a verb with the mode prefix n-, while the former is uninflected as an adjective. In other cases an entirely different
root is used to express attributive and predicative property concepts. For example, compare the adjective *gāy* ‘small’ with the verb *-tsədl* ‘to be small’.

### 6.9 Directionals

Tanacross employs directional adverbs which modify motion or location verbs. The directional system has three structural dimensions, corresponding to distance from the speaker, location relative to the speaker, and motion from the specified location. Directional words are composed structurally of a stem plus a prefix. The directional prefixes distinguish four levels of deictis, from proximal to distal, in addition to an unmarked or ‘neutral’ deictis.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>da-</td>
<td>‘near’</td>
</tr>
<tr>
<td>na-</td>
<td>‘intermediate’</td>
</tr>
<tr>
<td>ya-</td>
<td>‘distant’</td>
</tr>
<tr>
<td>yaʔa-</td>
<td>‘more distant’</td>
</tr>
<tr>
<td>a-</td>
<td>‘neutral’</td>
</tr>
</tbody>
</table>

The directional stems can be analyzed as consisting of an underlying root plus suffix, though as with noun and verb stem suffixation these underlying directional suffixes have coalesced with the directional root to form a structurally two dimensional system of directional stems. One dimension distinguishes direction; another dimension distinguishes motion with respect to the specified direction.

The motion dimension distinguishes motion with respect to the location specified by the directional root. The four motion categories are allative, ablative,
punctual and areal. The allative and ablative stems indicate direction toward or away from, respectively, the location specified by the root. The areal stems indicate motion in the general area specified by the root, while the punctual stems indicate location at the place specified by the root. The direction dimension has a riverine character which distinguishes two primary axes of upstream versus downstream and away from water (inland) versus toward water. The system does not distinguish inland from vertically above. (Not every possible combination of root plus suffix occurs in my data.) The stems which do occur are listed in Table 6.6.

Table 6.6: Directional stems (after Sikorski 1996)

<table>
<thead>
<tr>
<th></th>
<th>Allative</th>
<th>Punctual</th>
<th>Areal</th>
<th>Ablative</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘upstream’</td>
<td>-ⁿdëře</td>
<td>-ⁿdëř</td>
<td>-ⁿdíg</td>
<td>-ⁿdëřdz</td>
</tr>
<tr>
<td>‘downstream’</td>
<td>-ⁿdařa</td>
<td>-ⁿdář</td>
<td></td>
<td>-ⁿdâřdz</td>
</tr>
<tr>
<td>‘inland’, ‘above’</td>
<td>-ⁿdeg</td>
<td>-ⁿdëg</td>
<td>-ⁿdóg</td>
<td>-ⁿdëdz</td>
</tr>
<tr>
<td>‘waterward’</td>
<td>-tôéńʔ</td>
<td>-tôř</td>
<td>-tôúg</td>
<td></td>
</tr>
<tr>
<td>‘across’</td>
<td>-ńáńʔ</td>
<td>-ńáń</td>
<td>-ńdaš</td>
<td>-ⁿdâż</td>
</tr>
<tr>
<td>‘below (vertically)’</td>
<td>-žégʔ</td>
<td>-žéř</td>
<td>-žóg</td>
<td>-žéž</td>
</tr>
<tr>
<td>‘away’</td>
<td>-ʔéńʔ</td>
<td>-ʔóɡ</td>
<td>-ʔâz</td>
<td></td>
</tr>
</tbody>
</table>

The function of the various directional stems can be diagramed as in Figure 6.1. Only the underlying root forms are listed here; the corresponding suffixed stem forms can be found in Table 6.6 above.
Directional stems are never used as objects of postpositions. Instead, the allative or ablative stem forms are used to indicate motion away from or toward the speaker. Directional stems and prefixes may be combined without restriction with concomitant combinatorial semantics. In many cases the directional word serves the same function as a locative postpositional phrase. Some examples are given below.

(6.26) Directionals

a. ya’ndâ’z  ts’ėy  ži  naʔatle’l  
yâ’-dâ’z  ts’ėy  ži  naʔatle’l
DISTAL-across:ABL  boat  in  ITER-PROG-D-go.by.boat
‘he’s coming back (from) across the river in a boat’

b. naʔžê’z  naʔada’l
na’-žê’z  na-a-t-ha’l
INTERMEDIATE-below:ABL  ITER-PROG-D-sg.go
‘he’s coming back up (from below)’
c. naʔζéʔ? aʔ-haʔl
naʔ-ζéʔ? aʔ-haʔl
INTERMEDIATE-below: ALL PROG-sg.go
‘he’s walking down (the hill)’

d. aʔtθúq náxtuhdaʔk
aʔ-tθúq na-x-t-u-h-daʔk
NEUTRAL-waterward: AREAL ITER-AREAL-PRMB-OPT-1 SG-sg.go
‘I gonna walk around down there’

e. yatθénʔ deŋ̲r̲g ahʔ̂čes
yaʔ-tθénʔ deŋ̲r̲g a-hʔ̂čes
DISTAL-waterward: ALL moose PROG-H-animal.walk
‘a moose is walking down there (toward the water)’

f. nahdéq saʔ nahʔčeh
nah-déq saʔ n-aʔ-ʔčeh
PROX-above: PUNCTUAL sun THM-2PL-see
‘(y’all) look at that sun up there’ <3.33>

In other cases the directional demonstrative occurs as an adjunct to a locational postpositional phrase. In particular, a punctual directional stem may be adjoined to an allative postpositional phrase, as in (6.27).

(6.27) Directionals as adjuncts to postpositional phrases

yaʔ-atθúq ɭurt k’et nataljeh
yaʔ-atθúq ɭurt k’et na-t-a-l-jeh
DISTAL-waterward: AREAL ice on PRMB-PRMB-PROG-L-slide
‘go slide on the ice’ <3.39>

Some particular directional combinations of directional stems and prefixes occur with very high frequency and might be considered to be lexicalized.
(6.28) Lexicalized directionals

a. nahʔōg
   nahʔ-ʔōg
   INTERMEDIATE-away:AREAL
   ‘outside’

b. yaʔandaʔ
   yaʔa-ndaʔ
   DISTAL-downstream:PUNCTUAL
   ‘Fairbanks’

The riverine directional system may also be extended to other contexts where no river system is present or relevant to the situation (cf. Taylor 1984). For example, the door of a house is considered to lie ‘toward the water’, while the rear of the house is considered to lie ‘inland’. This orientation of course reflects the custom of building houses with doors facing the water (Leer 1989) but the metaphor has been extended to apply even when houses do not face the water.

(6.29) Directional system applied to a house

aʔndêdz
aʔ-ʔndêdz
NEUTRAL-inland:ABL
‘come forward (toward the front)’ lit: ‘from inland’

Similarly, the human body can be considered to be oriented so that the head is ‘above’ and the feet are ‘below’.

(6.30) Directional system applied to a human body

nandôg štôʔiʔ tah žáʔ xúnleʔ
na-ʔdôg š-ʔtôʔiʔ tah žáʔ xu-n-leʔ
INTERMEDIATE-above:AREAL 1SG-head in lice AREAL-M-be
‘I have lice in my hair’ <3.61>
For further discussion of Athabaskan directional systems see Kari (1985; 1989a; 1990) and Leer (1989).
Chapter 7  Summary

In the preceding chapters I have described the present state of knowledge of Tanacross phonology, phonetics, and morphology. Of course, much more work remains to be done to describe the elaborate grammar and sound system of this language more fully. Still, I remain hopeful that I have at least achieved two main goals: synthesizing previous work on Tanacross, and adding some additional data which will contribute to future documentation and understanding of the language. The latter goal is addressed in part also by the appendices which follow, in particular the sample Tanacross text and the sample Tanacross vocabulary. By way of conclusion, in this chapter I summarize some important areas for future research.

While no area of Tanacross linguistics can be considered to be comprehensively documented, the phonology is at least fairly well understood. The recognition of the six-vowel system and the generally sub-phonemic nature of vowel length greatly elucidates the description of the sound system. However, much remains to be known regarding the interaction between lexical tone and intonation. The behavior of tone spread and assimilation is readily explained in isolation, but the ways in which tone spread interacts with prosodic features such as focus and negative intonation remain important topics for future study.
I have presented the results of two short acoustic studies. The first explores the nature of the voicing distinction in stem-initial fricatives. There is clearly a statistically significant difference in acoustic intensity between voiceless and ‘semi-voiced’ fricatives; the next step will be to develop an articulatory characterization of the ‘semi-voiced’ distinction. Articulatory and aerodynamic studies, including airflow and pressure measurements, should be carried out. It is crucial that such studies be undertaken while a relatively large pool of healthy and competent native speakers can be consulted. The second acoustic study addresses the relationship between lexical tone and phonation type. The existence of a correlation between high tone and acoustic correlates of laryngealization warrants further study. This should be a rich area for future investigation, possibly shedding some light on the nature of Athabaskan tonogenesis.

The bulk of this dissertation is devoted to the description of verb morphology, in particular verb prefix morphology, arguably the most complex area of Tanacross morphology. I have described in some detail the morphophonemics of the conjugation and mode prefixes in some of the more common aspects with some of the more common prefix combinations. Additional work will be required in order to provide a comprehensive description of mode-aspect morphology. Note also that the discussion of verb stem variation toward the end of chapter 5 is of a somewhat preliminary nature. A full investigation of
this important phenomenon is surely warranted and should be conducted in conjunction with a complete lexical documentation of the language.

Continued documentation of the Tanacross language will certainly expand its purview beyond sounds and words to include the study of syntax, semantics, and discourse. The aspectual system remains an important topic for future investigation in this realm. Adequate documentation of continuous natural speech across a variety of speech types remains a high priority, and a fuller understanding of the nature of Tanacross will come only by looking at the language in use.
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Appendix A. Tanacross practical orthography

As of this writing there are not many written materials available in the Tanacross language. However, an orthographic standard has developed over the past decade, largely through the work of the John Ritter of the Yukon Native Language Centre (YNLC), and more materials are likely to appear in the coming years. In this appendix I summarize the development of the Tanacross practical orthography and provide a guide to the crucial differences between the practical orthography and the technical orthography used in this dissertation. It is hoped that this discussion will aid speakers and linguists wishing to access existing and future publications in the Tanacross language.

Many different practical orthographies have been used to write Tanacross in pedagogical and linguistic publications. Leer (1982b) recognizes three distinct phases of Tanacross orthography. The first stage is exemplified by Nancy McRoy’s work in the early 1970’s (cf. McRoy 1973). The second stage is exemplified in the work of Ron Scollon later in the same decade (Scollon 1979; G. Paul 1980). The third stage is exemplified by Leer’s work with Alice Brean in the early 1980’s. The system employed in Kari’s work can be said to represent a fourth stage chronologically, though it is in many ways a hybrid of the second and third stages (Kari 1991b, 1991a). Kari’s system incorporates the vowel system
and tri-graph dental affricates (*th* and *ddh*) of the third stage but does not
distinguish semi-voiced fricatives with underscore. A fifth stage of Tanacross
orthography is exemplified by publications of the Yukon Native Language Centre
(Solomon 1994, 1996; J. Isaac 1997). The YNLC orthography incorporates the
stage three changes and adds five types of vowel tone marking. This system is
employed in most current Tanacross work, including that presented in this
document. The consonant chart is shown below.

Table A.1: Tanacross practical orthography (after Solomon 1996)

<table>
<thead>
<tr>
<th>Stops/Affricates</th>
<th>(b)</th>
<th>d</th>
<th>dl</th>
<th>ddh</th>
<th>dz</th>
<th>j</th>
<th>g</th>
<th>'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
<td>tl</td>
<td>th</td>
<td>ts</td>
<td>ch</td>
<td>k</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>t’</td>
<td>tl’</td>
<td>th’</td>
<td>ts’</td>
<td>ch’</td>
<td>k’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td>l</td>
<td>dh</td>
<td>z</td>
<td>gh</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>l</td>
<td>th</td>
<td>s</td>
<td>sh</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>l</td>
<td>th</td>
<td>s</td>
<td>sh</td>
<td>x</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasals</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nh</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(mb)</td>
<td>nd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approximants</td>
<td>w</td>
<td></td>
<td></td>
<td></td>
<td>y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>yh</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With respect to the fricatives, three distinctions in fricative voicing are
recognized. Semi-voiced fricatives (necessarily restricted to stem-initial position)
are marked with an underscore to indicate that their pronunciation in this position
differs from that of a fully voiced or voiceless fricative. In fact, as discussed in
above, these semi-voiced fricatives are actually conditioned allophones of the
voiced fricatives, with the exception of the underlyingly voiced palatal fricative,
which always occurs semi-voiced. However, these semi-voiced fricatives are very striking and clear to native speakers, and writing them as distinct segments captures an important and unique feature of the Tanacross sound system (John Ritter, p.c.). The YNLC orthography also recognizes /w/ as a distinct segment from its allophone /m/.

The vowel system of the YNLC orthography is shown in the table below. Five vowel symbols are used to represent six phonemic vowels. Each of five vowel symbols may occur either alone or in a sequence of identical symbols. (Diphthongs are represented as nuclear vowels followed by the approximant <y>, as in <ey> /ei/.)

Table B.1: Tanacross practical orthography -- vowels

<table>
<thead>
<tr>
<th>ii</th>
<th>uu</th>
<th>i</th>
<th>u</th>
</tr>
</thead>
<tbody>
<tr>
<td>ee</td>
<td>oo</td>
<td>e</td>
<td>o</td>
</tr>
<tr>
<td>aa</td>
<td></td>
<td></td>
<td>a</td>
</tr>
</tbody>
</table>

Sequences of identical vowel symbols usually represent long vowels, but not always. The mid-front vowel /e/ is represented orthographically as <ee>; the lower mid-front vowel /e/ is represented by <e>. For the other vowels the length distinction is in many cases not phonemic. For example, vowels in open stem syllables are almost always long, so there is usually no possibility of a length contrast in this position. Where length is not phonemic, there is a great deal of variation among literate speakers as to the way vowel length is written. In such
cases, there is a customary tendency to write stem vowels double and prefix vowels single. Often this distinction is lexicalized. For example, there is no length contrast in mid-back vowels in closed stems, yet we write <shos> ‘bear’ and <ganhook> ‘dancing stick’.

There is in general no difference in quality between the double and single vowels <uu> and <u> or between <oo> and <o>. Each of these vowels is pronounced similar to its cardinal phonetic value. The vowel <u> represents a high back round vowel. The vowel <o> represents a mid-high back round vowel, somewhat higher than its cardinal value. The doubled version of these symbols have identical phonetic values to their single counterparts. In contrast, the single vowel <i> varies quite a bit in height, ranging from a high front vowel to a mid-high front vowel. Thus compare:

(7.1) Phonetic realizations of <i>

<shthi'> [ʃθhɪʔ]  ‘my head’
<xlht’ih> [xlɛltθ’ih]  ‘they’re sitting’
<snt’eh> [snt’eh]  ‘he/she is’
<ihtsx> [ʔihtsʰax]  ‘I’m crying’

As noted above, the distinction between double <ee> and single <e> almost always corresponds to a quality difference in addition to a potential quantity difference. For example,

(7.2) Phonetic realizations of <e> and <ee>

<seek>  [se’k]  ‘saliva’
<-şék>  [-şék]  ‘torso’
The vowel <aa> represents a low central unrounded vowel. Its single counterpart <a> may be phonetically identical to <aa> but is also used to represent an allophone of short <e> which occurs before velar fricatives. Thus the vowels in <sén’> and <sáx> are spelled differently even though they are both underlingly the same phonemic vowel.

Tone is marked on vowels using a diacritic. Low tone syllables are not marked for tone. Only the first of a sequence of orthographic vowels is marked for tone (in contrast to Navajo). Low tone is unmarked. Extra-high tone (see section 2.3.4) is marked with a double acute accent.

(7.3) Tone markings

\( \hat{v} \)  low tone (unmarked)
\( \hat{\hat{v}} \)  high tone
\( \hat{v} \)  falling tone
\( \hat{\hat{v}} \)  rising tone
\( \hat{\hat{\hat{v}}} \)  extra-high tone

Nasalization is marked using the Americanist nasal hook. Both vowels of a vowel sequence are marked with the nasal hook if the vowel is nasalized, e.g., <śnąa> ‘my mother’.

Glottal stop is not written in word-initial position. Words spelled with an initial vowel actually begin with a glottal stop. To distinguish words which phonetically begin with a vowel, an appropriate sonorant is written preceding the vowel. Thus <yi> for initial /i/ and <wu> for initial /u/. A hyphen is used to
distinguish ejective consonants from sequences of pulmonic stop plus glottal stop.

Thus /nekʔɛh/ ‘I’m looking’ is written as <nek- ’ɛh>. 
Appendix B. Conjugation-mode-subject-classifier paradigms

<table>
<thead>
<tr>
<th></th>
<th>Ø-impf</th>
<th>γ-impf (fut)</th>
<th>γ-impf (prog)</th>
<th>n-perf</th>
<th>γ-perf</th>
<th>δ-perf</th>
<th>opt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø-classifier</td>
<td>1SG  ih-</td>
<td>tih-</td>
<td>γih-</td>
<td>nih-</td>
<td>γih-</td>
<td>δih-</td>
<td>yuh-</td>
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<tr>
<td></td>
<td>2SG  in-</td>
<td>tin-</td>
<td>γin-</td>
<td>nin-</td>
<td>γin-</td>
<td>δin-</td>
<td>yun-</td>
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<td>2PL  ah-</td>
<td>tah-</td>
<td>γah-</td>
<td>nah-</td>
<td>γah-</td>
<td>δah-</td>
<td>yah-</td>
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<td>a'</td>
<td>a'</td>
<td>n-</td>
<td>γn-</td>
<td>e'</td>
<td>u-</td>
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<td>d-classifier</td>
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<td>tiš-</td>
<td>γiš-</td>
<td>niš-</td>
<td>γiš-</td>
<td>δiš-</td>
<td>yuš-</td>
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<td>γit-</td>
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<td>γit-</td>
<td>δit-</td>
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<td>tat-</td>
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<td>it-</td>
<td>it-</td>
<td>et-</td>
<td>ut-</td>
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<tr>
<td>h-classifier</td>
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<td>γek-</td>
<td>nek-</td>
<td>γek-</td>
<td>δek-</td>
<td>yok-</td>
</tr>
<tr>
<td></td>
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<td>tih-</td>
<td>γih-</td>
<td>nih-</td>
<td>γih-</td>
<td>δih-</td>
<td>yuh-</td>
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<tr>
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<td>tah-</td>
<td>γah-</td>
<td>nah-</td>
<td>γah-</td>
<td>δah-</td>
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<td>ah-</td>
<td>nih-</td>
<td>γih-</td>
<td>eh-</td>
<td>uh-</td>
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<tr>
<td>l-classifier</td>
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<td>ték-</td>
<td>γek-</td>
<td>nek-</td>
<td>γek-</td>
<td>δek-</td>
<td>yok-</td>
</tr>
<tr>
<td></td>
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<td>til-</td>
<td>γil-</td>
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<td>γil-</td>
<td>δil-</td>
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<td>tal-</td>
<td>γal-</td>
<td>nal-</td>
<td>γal-</td>
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<td>al-</td>
<td>al-</td>
<td>il-</td>
<td>il-</td>
<td>el-</td>
<td>ul-</td>
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</tbody>
</table>
Appendix C. Text

The following short text was spoken by Laura Sanford of Tok, Alaska and is transcribed here in interlinear format, with morpheme and phrase-level glosses (thanks to Irene Solomon for help with the transcription and glossing). The line breaks correspond to breaks between intonation units, phrases spoken under one coherent intonation contour (see Chafe 1994). The transcription follows the practical orthography outlined in Appendix A. Direct quotes are indicated by small double angle brackets («»). English words are transcribed in italics. The text is a personal narrative describing an encounter between Laura’s grandmother Eva and a white game warden. The total length is 4:39 minutes.

GW001
shundāagh’,
sh-undāagh’
1SG-older.brother
my older brother

GW002
stṣuụ,
s-tṣuụ
1SG-grandma
my grandma
GW003
stsṳ̄  Eva  ēl,
s-tsṳ̄  ēl
1SG-grandma with
and my grandma Eva

GW004
nah dóg  ..  Chicken  xđėltth̓ʔ̱.
nah-dóg  ..  x-dé-l-th̓ʔ̱
INTER-upward:AREAL  HUM.PL-THM-1-pl-stay
were living up around Chicken

GW005
xu-tah  stsṳ̄  ēl  ēedah.
xu-tah  s-tsṳ̄  ēl  ē-dah
AREA-around 1SG-grandma with  M-stay:IMPF
he was living around there with my grandma

GW006
ey  ēl  shundāagh̓'.
ey  ēl  sh-undāagh̓'.
those with 1SG-older.brother
with my older brother

GW007
maybe ten or eleven years old  sunле  le'.
sun-ле  le'
THM-M-be  maybe
he was maybe ten or eleven years old

GW008
ey  ēl  stsṳ̄  gha  naxetltetiik.
ey  ēl  s-tsṳ̄  gha  na-xetl-t-tiik
those with 1SG-grandma for  ITER-sled-D-handle.elongated
he was driving the sled for my grandma.
GW009
naa yaadédz  naxatdél  él,
naa yaa-dédz  na-x-a-t-dél-e  él
this  DEST-upland:ABL  ITER-HUM.PL-PROG-D-pl.go:IMPF-NOM  with
when they were coming back down

GW010
aa ..
aa
HEST
ah

GW011
Ketchumstuk  níixtdél.
     ní-na-x-i-t-détł
     TERM-ITER-HUM.PL-M-D-pl.go:PERF
they were going back to Ketchumstuck

GW012
ey  él  dú’,
ey  él  dú’
those with thus
and

GW013
xatthén’ chenh māagh’dú’,
xa-thén’ chenh māagh’dú’
AREA-water:ALL flat edge thus
down toward the edge of the flat

GW014
nondléd  eedah.
nondléd  ee-dah.
whiteman  M-stay:IMPF
a white man was living

GW015
and ..
GW016

aa, ... 

aa

HEST

ah

GW017

ey gha tl’áan,
ey gha tl’áan
those for then
and then

GW018

ey gha tl’áan,
ey gha tl’áan
those for then
and then

GW019

aa, ... 

aa

HEST

ah

GW020

ey nondlèd xeyé’etdèy dú’,
ey nondlèd xe-y-é-et-déy-e dú’
that whiteman HUM.PL-4OBJ-THM-D-know-NOM and
that whitemen with whom they were aquainted

GW021

nách’edah’č’e xeyíhtsíj .
nách’edah’č’e xe-y-i-h-tsíj

game.warden HUM.PL-4OBJ-M-H-make:PERF
they made him a game warden
GW022
ey él dú',
ey él dú'
those with and
and thus

GW023
koxt'eniín xeyniljet tsį',
koxt'eniín xe-y-ni-l-jet tsį'
people HUM.PL.-4OBJ-THM-L.-afraid CONJ
the people were afraid of him

GW024
-su'u',
su'u'
PROHIB
don't

GW025
yaatthén' xetlghahtaan naan ..
yaa-thén' xetl-gh-ah-ta'an naan
DIST-water:ALL sled-PROG-2PL-handle.elongated this
drive the sled down there

GW026
nxëdl' shii su'u' shii gahlehleel.
n-xëdl' shii su'u' shii gh-ah-leel
2SG-sled in PROHIB meat PROG-2PL-handle.plural
don't carry meat around in your sled

GW027
naatthii nach'edah'ê'ê éedah há'
naa-thii nach'edah'ê'ê ée-dah há'
INTER-water:PUNCT game.warden M-stay because
because the game warden lives down there-
GW028
stṣų ey xenii .
s-ṣų ey xe-nii
1SG-grandma those HUM.PL-say:IMPF
they told that to my grandma

GW029
ey él stṣų ,
ey él s-ṣų
those and 1SG-grandma
and then my grandma (said),

GW030
-eey nuhxón’ dú’,
eey nuhxón’ dú’,
F XC 2Pl thus
-hey you guys!

GW031
diigha ch’e shdahné?
diigha ch’e sh-d-ah-né
why FOC 1SG-THM-2PL-say:PERF
why are you telling me that?

GW032
dōo nach’edah’ê’e ch’e t’adahné’ ?
dōo nach’edah’ê’e ch’e t’a-d-ah-né’
who game.warden FOC THM-THM-2PL-say:PERF
who is this game warden you’re telling me about?

GW033
stṣų xu’echnii.
s-ṣų xu-eh-nii
1SG-grandma AREA-H-say:IMPF
my grandma says that

GW034
ey él, ...
GW035
naatthií nach’edah’ê’ê ey shî’ nxêdl’ shií éedah dé’.
naa-tthíí nach’edah’ê’ê ey shî’ n-xêdl’ shií éé-dah dé’
INTER-water:PUNCT game warden that meat 2SG-sled in M-sit if
if that meat is sitting in your sled down there, the game warden,

GW036
nach’edah’ê’ê ey shax xalåen ts’î’ nintaht’el sixûnt’eh.’
nach’edah’ê’ê ey shax xalåen ts’î’ ni-n-t-ah-t’el-e si-xu-n’teh.’
game warden that jail to TERM-2SG-FUT-M-H-send-NOM THM-AREA-M-be
that game warden will surely send you to jail

GW037
xayehnnií t’ot’ee y stswû dû’ ts’ai’elt’eh ts’î’
xey-eh-nii t’ot’ee y stswû dû’ ts’a-ni’el-t’eh ts’î’
HUM-PL-4OBJ-H-say:IMPF even 1SG-grandma thus THM-THM-L-angry CONJ
they said that to her and then grandma became angry

GW038
-xut’eéy,
xut’eéy okay
-xokay,

GW039
nuhghaatelá’ shî’ natishjuuth há’.’
nuhghaatelá’ shî’ na-t-ish-juuth há’
one of your business meat PRMB-PRMB-1SG:D-drag because
it’s none of your business that I drag meat around.’

GW040
nii ts’î’ shî’ dëxghindlah
nii ts’î’ shî’ de-x-gh-in-dlah
say CONJ meat into-HUM-PL-CJ-M-handle.plural:PERF
she said, then put the meat into (the sled)
GW041
tl’ään xaatthén’ naxetdel.
then AREA-water:ALL ITER-HUM.PL-INC-PD-pl.go:PERF
then they started back down toward the water.

GW042
ey él ey,
those with those
and

GW043
wuchaa yaa naxetlaatiil.
wu-chaay y-aa na-xetl-aa-tiil
3SG-grandson 4OBJ-for ITER-sled-PROG-handle.elongated
her grandson was driving the sled for her

GW044
ey él xaatthii ey nondléd eedaay dú.’
ey él xaatthii ey nondléd ee-dah-e dú’
that CONJ AREA-water:PU. that whiteman M-stay-NOM thus
and down by the water that whiteman was living

GW045
xa’andâadz chenh étetlxiitqâ dá’a tah.
xa’a-ndâadz chenh é-xtél-x-d-ii-tqâ dá’a tah
AREA-downstream:ABL.flat PP-sled-HUM.PL-THM-M-handle.elong. prev. when
when they drove out onto the flat from downstream

GW046
ti’iltlhet ts’ï
ti-i-l-thet ts’ï
out-M-L-run CONJ
he ran out.
GW047
ey  daatthén’ telthet.
ey  daa-tthin’ te-l-thet
that  PROX-water:ALL  INCP-L-run
he started running up from down by the water.

GW048
«Andrew,

GW049
Andrew,

GW050
ašhég’  nixetlnintiih,
ašég’  ni-xetl-n-in-tiih
NEUT-below:ALL  TERM-sled-M-2SG-handle.elongated
stop the sled down there

GW051
ašhég’  nixetlnintiih  nii.
ašég’  ni-xetl-n-in-tiih  nii
NEUT-below:ALL  TERM-sled-M-2SG-handle.elongated  say
stop the sled down there, he told him.

GW052
ey  él  dú’  stsu, ...
ey  él  dú’  s-stsu
that with thus 1SG-grandma
and then my grandma (said),

GW053
aa, ...
aa
HST
ah
GW054
<sú'u maa nixetlghuntâa
sú'u m-aa ni-xetl-ghu-n-tâa
PROHIB 4OBJ-for TERM-sled-OPT-2SG-handle.elongated
-Don't stop the sled for him!

GW055
k'á dé maa nixetltintûil
k'á dé m-aa ni-xetl-t-in-tiil-e
NEG when 4OBJ-for TERM-sled-INEP-2SG-handle.elongated-NEG thus when
you're not going to stop the sled for him

GW056
xetlgshintiil,
xetl-gh-in-tiil
sled-PROG-2SG-handle.elongated
you (keep) driving the sled

GW057
sú'u maa nixetlghuntâa.
sú'u maa ni-xetl-ghu-n-tâa
PROHIB 3OBJ-for TERM-sled-OPT-2SG-handle.elongated
don't stop the sled for him

GW058
stṣu'ų yehnii.
s-ṣu'ų y-eh-nii
1SG-grandma 4OBJ-H-say:IMPF
grandma tells him.

GW059
and,

GW060
ey t'ot'ëey,
ey t'ot'ëey
those even.though
even though
GW061
xetl xúʼ dēʼ xetlaatiil and,
xetl xúʼ dēʼ xetl-aa-tiil
sled thus when sled-PROG-handle.elongated
the sled, driving the sled,

GW062
ey dúʼ niljets,
ey dúʼ ni-l-jets
that thus THM-1-afraid
he got scared,

GW063
stsùù chih kʼá ditthʼeg tsʼiʼ
s-tsùù chih kʼá di-thʼek-e tsʼiʼ
1SG-grandma also NEG THM-listen-NEG CONJ
and he also didn’t listen to grandma,

GW064
xaʼadaa nondlèd chih tiʼiltthet tsʼiʼ
xaʼa-daa nondlèd chih ti-i-l-thet tsʼiʼ
AREAn-downstream: PUNCT whiteman also out-M-1-run CONJ
and that whiteman had run out down there,

GW065
aa, ...
aa
HEST
ah, (saying)

GW066
-ʼashégʼ nixethnintiih,
a-ʼshégʼ ni-xetl-n-in-tiih
NEUT-below:ALL TERM-sled-M-2SG-handle.elongated
stop the sled down there
GW067
ashteg' nixetl'nintiih,
a-sh-teg' ni-xetl-n-in-tiih
NEUT-below:ALL TERM-sled-M-2SG-handle.elongated
stop the sled down there

GW068
naan nxédl' shítí jaxneki'iil.
naan n-xédl' shítí ch'e-d-x-n-ek'iil
this 2SG-sled in INDEF-THM-AREA-THM-1SG:H-look
I’m going to look in your sled

GW069
k'á dé' xeștłuteğhíiil,-
k'á dé' xe-xetl-u-te-gh-in-tiil-e
NEG pass.by-sled-pass.by-INCEP-PROG-2SG-handle.elongated-NEG
you’re not going to pass by me with your sled

GW070
yehné' él
y-eh-né' él
4OBJ-H-say:PERF CONJ
he told him.

GW071
niljiits ts'í nixetl'nintaŋ.
ni-l-jiits ts'í ni-xetl-n-in-taŋ
THM-L:afraid CONJ TERM-sled-CJ-M-handle.elongated
he (Andrew) got scared and stopped the sled

GW072
ey él stsuŋ' dú',
ey él s-suŋ' dú'
those with 1SG-grandma thus
and then grandma
GW073
téth játiil
téth ch’e-d-a-tiil
cane INDEF-GEN-PROG-handle.elongated
is walking with a cane

GW074
tah xên netéthjátiil.
tah xên ne-téth-ch’e-d-a-tiil
when quickly up-cane-INDEF-GEN-CJ-handle.elongated
walking up quickly with a cane

GW075
yaa nitéthjetaan  él
y-aa ni-téth-ch’e-d-ta-a-e  él
4OBJ-for TIRM-cane-INDEF-GEN-CJ-handle.elongated-NOM with
she went up to him with her cane

GW076
aa, ...
aa
HEST
ah

GW077
ey nondléd dú’
ey nondléd dú’
that whiteman thus
and when that whiteman

GW078
xetl k’ech’e’ed  él
xetl k’e-ch’e-’et-e  él
sled THM-INDEF-loosen-NOM with
was going to loosen the sled (cover),
GW079
jaa xën t’ee y stṣuŋ
jaa xën t’ee y s-ṣuŋ
that quickly really 1SG-grandma
all of a sudden grandma

GW080
yinlá’ k’ech’ehtl’eth ts’i’
y-inlá’ k’e-ch’e-h-tl’eth ts’i’
OBJ-hand severing-INDEF-H-strike and
started hitting his hand and

GW081
yithi’ etnelt’eey detéddh’ él
yi-thi’ et-n-el-t’eey de-téddh’ él
OBJ-head INDEF-ERR-L-move.elongated.quickly RFLX-cane with
and whipping his head with her cane

GW082
<amaa,
amaa
EXC
ouch!

GW083
amaa,
amaa
EXC
ouch!

GW084
nii ts’i’,
nii ts’i’
say CONJ
he said,
GW085
nondléed  xa’én’  tah
nondléed  xa’én’  tah
whiteman  AREA-away:ALL  when
the whiteman went away

GW086
na’atgets  tsenhh  xa’aa  taani’itsaay  él
na-a-t-gets  tsenhh  xa’aa  ta-na-ni-i-t-shah-e  él
ITER-M-D-crawl  CONJ  out-linear.extends  up-ITER-TERM-M-D-sg.go-NOM  with
crawling back up (to his house)

GW087
-sù’u  shxèdl’  etdeghultsiid,
sù’u  sh-xèdl’  et-d-ghu-l-tsiid
PROHIB 1SG-sled  THM-THM-OPT-1- move.hand.quickly:OPT
-Don’t touch my sled

GW088
nts’è  gha  ch’e  nén’  du’
nts’è  gha  ch’e  nén’  du’
what for  ROC  you  thus
why is it that you

GW089
shxèdl’  etdeniltsed,»
shxèdl’  et-d-n-i-l-tset-e
1sg-sled  THM-THM-CJ-2SG-I-move.hand.quickly-NOM
touched my sled »

GW090
stsùù  yéhnii  él,
stsùù  y-éh-nii  él
1SG-grandma  4OBJ-H-say:IMPF  with
my grandma told him, and
GW091
-ja'a shk'áá' dhéktəq,
-ja'a sh-k'áá' dh-ék-təq
here 1SG-gun 3SG-1SG:H-handle.elongated
I've got my gun right here

GW092
sixunt'eh.»
si-xu-n-t'eh
THM-AREA-M-be
for sure

GW093
ašég' dé'
a-šég' dé'
NEUT-below:ALL thus
then

GW094
ey nondléd dú' dinlá' dég' t'íithen ts'í'
ey nondléd dú' d-inlá' dég' t'-íi-theñ ts'í'
that whiteman thus reflex-hand up THM-M-stand CONJ
that whiteman put his hand up

GW095
«no, Eva,

GW096
sú'uí, sú'
PROHIB
don't

GW097
shih shdegwúnk'á'a.»
shih sh-de-gwú-n-k'á'a
1SG 1SG-THM-OPT-2SG-shoot:OPT
don't shoot me!
GW098
ena',
ena'
EXC
no

GW099
nii t'ot'eey stsug dut'.
nii t'ot'eey s-tsug dut'
say even.though 1SG-grandma thus
he said, and then grandma

GW100
dexeldl' shii ..
dexeldl' shii
RFX-sled in
in her sled

GW101
k'a' xaghinshel ts'iy ey
k'a' xa-gh-in-shel ts'iy ey
gun out-CJ-M-move.elongated quickly CONJ those
whips out the gun

GW102
yits'iy teh'aa ts'iy
yi-ts'iy te-h'-aa ts'iy
4OBJ-to INCP-H-linear.extends CONJ
and pointed it at him

GW103
-njaa t'eeey ch'e nexaxdah'aal
-njaa t'eeey ch'e n-e-xu-x-d-á-h'-áal-e
there really FOC 2SG-PP-AREA-HUM.PL-THM-M-H-find:FUT-NOM
right there is where they'll find you
GW104
ašhég’ nédhîltenh t’eey ch’e nexaxdâh’âal,
ashég’ ne-dh-i-l-tenh t’eey ch’e n-e-xu-x-d-á-h’aal-e
there where you’re frozen is where they’ll find you

GW105
yéhnii.
y-ëh-nìi
4OBJ-H-say:impf
she told him

GW106
xa’andég’ tah yalaghį’h’a
xa’a-ndég’ tah ya-la-gh-i-h’aa
AREA-upland:ALL when up-hand-CJ-M-H-linear.extend CONJ ITER-PROG-L-run
he went running back up with his hands in the air

GW107
stsùú dú’ xut’eey k’á’ ye’udį’h’aa.
stsùú dú’ xut’eey k’á’ ye-u-d-j’h’aa
1SG-grandma thus okay gun 4OBJ-DIR-GEN-M-H-linear.extend
and grandma aimed the gun at him.

GW108
él da’andég’ tah k’êl da’ilthet.
el da’a-ndég’ tah k’êl da-i-l-thet
with PROX-above:ALL when NOISE into-M-L-run
he ran in (the house) slamming (the door)

GW109
xáxuí’ nilk’énach’etnettiik tsį’
xáxuí’ nilk’e-na-ch’e-t-ne-t-tiik tsį’
little opening-ITER-INDEF-INCEF-ERR-D-handle.elongated CONJ
he started to stealthily open something (the door) a little bit
GW110
naa,
naa
this
this

GW111
ldadintaan stsw' ditth'ek
ldadintaan s-tsud di-th'ek
door 1SG-grandma THEM-hear
as soon as grandma hears the door,

GW112
d'aa tah k'a' yits' tah nakedettiix tah
d'aa tah k'a' yi-ts' na-ke-d-ttiix tah
previous when gun 4OBJ-to ITER-back-GEN-D-handle.eelongated when
she swings the gun around at him

GW113
da'aielthek tah
da-na-el-tthek tah
in-ITER-L-run when
and he runs back in

GW114
nildach'etneshek.
nilda-ch'e-t-ne-šhek
closing-INDEF-INDEF-ERR-move.eelongated.quickly
and closes something (the door) quickly

GW115
ey gha tl'ään defii' tach'ehtl'eth ts'í',
ey gha tl'ään defii' ta-ch'e-h-tl'eth ts'í'
that for then RELX-dog up-INDEF-H-strike CONJ
and then she beat up her dogs
GW116
shundáagh' chih.
sh-undáagh' chih.
1SG-older.brother also
also my older brother

GW117
yits’í’ xél él éltće ts’í’
yi-ts’í’ xél él el-teć ts’í’
4OBJ-to club with 1-handl.animate CONJ
she threatened him with a club, saying

GW118
-nén’ dú’ ch’e
nén’ dú’ ch’e
you thus FOC
and you,

GW119
nts’ē sú’ú nixetlghuntqáa nedihné’
nts’ē sú’ú ni-xetl-ghu-n-tqá ne-d-ih-né’
what PROBH TERM-sled-OPT-2SG-handle.elongated 2SG-THM-1SG-say:PERF
didn’t I tell you not to drive the sled down there?

GW120
diiγha ch’e ašhéγ’ nixetlnintqáa,
diiγha ch’e ašhéγ’ ni-xetl-n-in-tqá,
why FOC NEUT-down:ALL TERM-sled-M-2SG-handle.elongated
why did you drive the sled down there

GW121
ndéddh’ xetlghintiil-,
ndéddh’ xetl-gh-in-tiil
continue sled-PROG-2SG-handle.elongated
keep going!-
GW122

deźiq' ch'e tach'eht'eth ts'i
de-Jiig' ch'e ta-ch'e-h-tl'eth ts'i
RFIX-dog FOC up-INDEF-H-strike CONJ
she beat up the dogs

GW123

-wexwex- ey iin chih all xetsax ts'i.
wexwex ey iin chih xe-tsax ts'i.
YELP that PL also HUM.PL-cry CONJ
They all cried and went -yelp, yelp-

GW124

ãã.
ãã
HIST
ah

GW125

xts'exetlxghintą.
x-ts'e-xetl-x-gh-in-tą
AREA-away-sled-HUM.PL-CJ-M-handle.elongated
and they continued on their way

<<TEXT ENDS>>
## Appendix D. Selected vocabulary

This appendix contains a selected list of Tanacross open-class lexical items (i.e., nouns and verbs) organized alphabetically by English gloss. Tanacross words are italicized and are transcribed in the practical orthography (see Appendix A). Bound forms such as obligatorily possessed nouns are indicated via a hyphen (e.g., -ŋaŋa ‘mother’). For verbs the theme is given in parentheses followed by a fully inflected verb form. This list is in no way intended to be exhaustive or even representative of the complete Tanacross lexicon. It serves merely to give some idea of the semantic and morphological range of vocabulary items.

### Nouns

<table>
<thead>
<tr>
<th>English</th>
<th>Tanacross</th>
</tr>
</thead>
<tbody>
<tr>
<td>alder</td>
<td>k'ets</td>
</tr>
<tr>
<td>ancestors</td>
<td>tsiiyuul'</td>
</tr>
<tr>
<td>animal</td>
<td>nūun</td>
</tr>
<tr>
<td>ankle</td>
<td>-kēechēn'</td>
</tr>
<tr>
<td>ant</td>
<td>kelabdodz</td>
</tr>
<tr>
<td>arm</td>
<td>-gāan'</td>
</tr>
<tr>
<td>arrow</td>
<td>tes</td>
</tr>
<tr>
<td>ashes</td>
<td>kōn’jēdz’ (fire)</td>
</tr>
<tr>
<td></td>
<td>lts’iis (birch fungus, chew)</td>
</tr>
<tr>
<td>aunt</td>
<td>-aak’ey (mother’s sister)</td>
</tr>
<tr>
<td></td>
<td>-tsuŋ (father’s sister) (also grandmother)</td>
</tr>
<tr>
<td>awl</td>
<td>tthel</td>
</tr>
<tr>
<td>axe</td>
<td>cbin’ey</td>
</tr>
<tr>
<td>babiche</td>
<td>cb’iįset</td>
</tr>
<tr>
<td>baby</td>
<td>cb’egaay</td>
</tr>
<tr>
<td>baby basket</td>
<td>k’iį tth’aatl</td>
</tr>
<tr>
<td>back</td>
<td>-nén’ (backbone)</td>
</tr>
<tr>
<td></td>
<td>-inxāann’ (upper back)</td>
</tr>
<tr>
<td>bark</td>
<td>cb’elaats’eyb (spruce bark)</td>
</tr>
<tr>
<td></td>
<td>cb’elabt’uudz’ (outer bark)</td>
</tr>
<tr>
<td>basket</td>
<td>k’intth’āak (also birchbark)</td>
</tr>
<tr>
<td>bat</td>
<td>xeltsedz</td>
</tr>
<tr>
<td>beads</td>
<td>naatl’ēdz</td>
</tr>
<tr>
<td>beak</td>
<td>-dá’</td>
</tr>
<tr>
<td>bear</td>
<td>sbos (general term)</td>
</tr>
</tbody>
</table>
sbos sey (black bear)
"cb’eliiitboh’" (brown bear)
beard -daax̂a’
beaver tsá’
bed dabdzel (also meat or fish rack)
bee cb’elabdziiid
beetle teb’k’aay
belly -mét
berry jëg (general term)
naax̂ay jëg (nagoonberries, frogberries)
danibmaa (silver berry)
nanibdîuyy (high bush cranberry) (also currant)
ntl’èt (low bush cranberry)
nkáatl (salmonberry)
dendeyb (bearberries)
fúz ndagh’ (bearberries)
nitdzii’ (blueberries)
nabt’èez (blackberries)
danch’og’ (raspberries)
Big Dipper k’el’taa
birch k’iï
bird tsuugaay
bladder -luhtbëth
blanket ts’êd’
blood del
blouse cb’esék
body (spine) -nenk’á’
bone tðb’ènh
boots kench’ot’l (also mukluks)
bottom -keetl’aad (also sole)
bow ts’ehtjii’
bowl tutiił gëez’
box cbenbtil
boy tsiił gaay
brain -tbiix̂qa’
bray t’u’u
breath shëyb
brother -umdáagh (older brother)
-çbel (younger brother)
brother-in-law -fenb (man’s brother-in-law)
-çëb (woman’s brother-in-law, man’s sister-in-law)
brush ts’ètl
buckbrush (mountain willow, dwarf birch) luuðb
bucket nadb’iay
bullet k’aatthë’
burl tøb’k
butterfly laalëel
button eek ts’ël’
cache dahtsaa
calico detl’uun
camprober (grey jay) fúz
can cb’etiil
candle nedzeey
cane tøtth
canoe ts’eyb
canvasback ndzel
 caribou wudziib (general term)
dek’el (bull caribou)
dets’iig (calf caribou) (also calf moose)
cavity k'ee
chair k'etl'aadiidaay
charcoal t'ëes
cheek -intl'aamets
chest (body part) -dzebcbii'
chewing tobacco lesgib
chickadee ts'egaga
chief xaxkeb
child ts'enin
   dzuug (favored child)
children ts'inkeey
chin -dá'
chinking wu'él xuneltlugh
chips cb'ettbeedl'
clam t'aaas
clan cb'ecbeelyu (Fishtail Clan)
   cb'aadb (Opposite Clan)
   alts'iif' dendeey (Rightway Clan)
   dik'aagiyyu (Cottonwood Clan)
   niigaas (Canadian Clan)
   taandtidz altsiil (Middle Clan)
   tseyu (Ochre Clan)
   nallsin (Sky Clan)
clothing cb'ël'
cloud k'otb
club xël
container tiil
corpse -theg'
cottonwood t'aatb (also poplar)
cradle ttb'aatl
cradle moss ttb'aatl
crane deel
cranefly ttb'ëy cbox
cup tuutiil
dancing stick gaanbook
darkness xël
daughter -yaats'e' (woman's)
   -ttbe'e (man's)
day dzeen
den -'enb
dentalium cb'enk'ôn'
diaper ttb'aatl
dipnet 'eth
dog tii
   tigaay (puppy)
door ldadintaan
down feather cbuyb
dragonfly ttbelcb'og
dregs t'l'aatlog
dress 'eek (also coat)
drum shaas
   cb'elxel ('that which is struck')
dry fish mâ'
duck dets'en (general term)
dung duuys
dust lëemab (also glacial silt, flour)
eagle tuud (bald eagle)
   cb'eshbaan' (golden eagle)
ear -dzaagb'
earring dzaatl'UUl'
edge mâgb
elbow -ts'ês
embers tbiit
evening xelts'i'
excrement isq’a
eye -ndaaq’gh
eyebrow -nabdaaxä’
eyelash -nabts’eb xa’
face -néeq’
fart tl’ët
fat -k’ax
ch’ecbaadz’(rendered fat)
father tá’
father-in-law -tsëeq’
feather t’aa
ch’uyb (down feather)
femmented fish dzenax (fermented whitefish in birchbark basket)
nilk’odl (Copper River style fermented fish heads)
femur -xoltlb énn’
fence tt’hek (Caribou fence)
file cb’it’k’agb
fin t’ogb’
finger -inlaats’ogb’ (index finger)
fingernail -inlaagey’
fire kóin’
fireweed giúth (also rhubarb)
fish huug
fish cutter meetsel (also ulu)
fish hook lox
fish scales giúth
fish spear tebl’éyb
fish stringer cb’é’es
fish tail -cbëel’
fish trap tedh’aan
fishing place -k’eddb’
five dits’ëy
fleas -tl’ëg’
flesh -tt’i’j’
floor cbenttéel
fly dëy’
fog cb’ets’él
food sbí’ (also raw meat)
foot -kë’
foot wrappings tél
footwear kee
forehead -intaagez
forest nduu
fork cb’iigod
four den
fox naageddb
foxtail lìi ché’ (’dog’s tail’)
friend -tlëe’ (also cousin)
frog naaxay
frost sox
frozen tenb
frybread leets eet’eey
fungus (black birch) tl’eel
fur daa
gall -tl’ets
ghost -ink’aadh’
gloves laajeyb
goldeneye (duck) ttiktaay
goose xab (Canadian)

dqaxed (white-fronted)
goose grass xab giúthb’
goshawk fiit’cbox
grandchild -cbäay (woman's)
-tibüuy (man's)
grandfather -tsëey
grandmother -tsuuy
grass tl’ox
grasshopper nabten gaay ('little thunder')
grayling seejel
grease xee
grouse deyb (spruce grouse)
  ch’ehtëeg (sharp-tailed grouse)
  tsqa’ ts’uug (ruffed grouse)
guest (visitor) soojee
gull mebk’aay (mew gull)
gun k’a’
hail ch’enhuut
hair ḡ’a’
hand -infl’a’
hat ttbïšbius
head -ttbi’
headwaters ch’etl’aa
hearing -dzii
heart -dzeey’
heel -keetel
hill teyb
hook (gaff) säx
horn ch’edö’
house shax
housepit níbtsiił
husband -kéy’
ic e huu (also glacier)
  kab

Indian dendeh shub
intestines -ts’iig’
island taandhuu ('water forest')
juice -tii’
kidney -ts’edz’
knee -got
knife seey
knot shaaas
ladder kê’di’aay
lake menb
land nén’
language ‘aandeg
larynx (Adam’s apple) -cböl’
leaf ch’et’aq’a’
lie (untruth) shék
lightning nabten kónn’ ('thunder fire')
lingcod ts’aan
lips -daamel’
lodge (animal) -kée’
loon taadziil (common)
  ts’elmeet (arctic)
  ttbeechagb (red-throated)
louse shá’
lungs -dzebdog’
lynx niiduuuy
mallard t’aat cbox
man dendeh (also person)
  tsiił (young man)
  ch’etey (old man)
Mansfield Hill Mesiim Tsits’i’
Mansfield Village Dibtbåad
marmot *k’aay*
marten *tsuug*
mattress *téeel* (also bedding, rug)
meadow *chenb* (also flat)
meat (cooked) *nleen*
medicine *cb’ondeyb*
merganser (duck) *tsotb*
metal *ts’itsiy*
mind *-ini’*
mink *tebts’uydz*
mittens *jeyb*
mocassin *kentsjib*
mold *xaq’*
money *lsaaz*
moon *gbeldzeey*
moose *den’iig* (general term)
  *deshaaz* (cow moose)
  *ninchuun* (bull moose)
  *detsjig* (calf moose)
morning *k’ahtm’en’*
mosquito *thb’ey*
moss *dlaat* (also algea)
mother *-nqaa*
mountain *ddbel*
mouse *cheendedb*
  *teltsèdz*
moustache *-daayaan’*
mouth *-tháa* (body part)
  *-cheeg* (stream)
  *taacbeeg* (river mouth)
mouth (of river) *taacbeeg*
mud *leet’ot* (also quicksand)

mushroom *cb’enéyy’*

muskrat *dzenb*
nail *cb’etsol*
name *-uusi’*
navel *ts’uuk’ee*
neck *-k’otb*
needle *l’ankaan* (also sewing)
nephew *-aaz* (man’s nephew or niece)
nest *t’ox*
net (fishnet) *tebmiil*
night *teddb*
Northern lights *yadiimeey* (aurora borealis)
nose *-intsji*
nosrtil *-ndiiig*
oar *taach’itt’ogh*
ochre *tsyeb*
old person *cb’endeddb’*
oldsquaw (duck) *babaala’*
one (number) *ts’éblég*
osprey *xtth’ek*
others *xeltthaan*

otter *ntsijib*
outside *nab’og*
owl *mesiin* (general term)
pack *xeel*
paddle *taat’ogh’*
pants *-ebtlè’*
paper *dinahtl’aa* (also book)
partner *nebleg*
pass (mountain) *tetb*
pelvic bone -k'įttb'énn'  
pelvis -k'ey'  
peninsula lıdaa  
people denđeey  
    koxt'en iim  
pike (fish) uljaaddb  
pillow ttbi'aal  
pitch dzéex  
placenta ts'enin 'ēl ('with the child')  
plant nesbeegb  
plate tth'āak  
pocket t'ab  
porcupine ts'iit  
potato tsaaθb (Indian Potato)  
    teediz (store-bought)  
preacher ginbii  
ptarmigan k'etmab (willow ptarmigan)  
    ddbeł k'aal (rock ptarmigan)  
pus xehb  
pussy willow dabligaay  
quill ch'ox  
quiver k'aathb  
rabbit gab  
rack pole dints'eeg  
raft xiįthb  
rain cbaan  
rainbow saamíll'  
raven taatsaq'  
redpoll diįts ney  
relatives -eblaad'  
rennet -tsaag'  
ribs -shaaaddb'  
ring laatth'ax  
river bën  
river ndiiåg  
Robertson River Nitsil Ndiig  
robin sius  
rock ttbee  
roe k'uu'  
rope t'uuul  
rose xos t'åa' ('thorn leaf')  
rosehip nchuytth  
round (object) cb'exeex' (also egg)  
saliva sëek  
salmon huug delt'el (sockeye) ('red fish')  
    huug cbox (king) ('big fish')  
sand tbaayb  
sandbar tbaayb téel  
sap (birch) k'iił  
saucer cb'akeet'agb  
saw cb'iitl'ey  
sculp -tthiit'aag  
scar sbèt  
school xaxdeldiix sbax  
scissors lędeldōdz  
sewing kit t'abxiidlâay  
shadow -sbhiig  
shallows dees  
shaman deşben  
shavings ch'eeses  
sheep demee  
shin -dzaad'
shoelace *kentl’uul*
shore *taamâgh* (also beach)
shoulder *-xeddâ’*
shrike *jîiz maay*
sinew *ttb’éeex*
sister *-aadeb* (older sister)
    *-dèédz’* (younger sister)
sister-in-law *-xeb*
skin *thëth*
sky *šbax*
snore *gaal*
    *mil*
snow *šbettb*
snowshoe *’aayb*
snowshoe footstrap *cb’aal*
soap *taatleex*
socks *keetël*
son *-šhe’e* (man’s)
    *-šbaas* (woman’s)
soup *tuu’tbel*
spark *kôn’ ts’iil’*
spider *kelabdzeeey*
spider web *kelabdzeeey gâal’*
spirit *-šhiits* (also soul)
spirit *šenb*
spoon *k’âhtsèdl*
spring *dëy* (season)
spruce *ts’õgb* (general term)
    *ts’õgb tl’eg* (white spruce)
    *taatthaay* (black spruce)
spruce bark *cb’elaats’eyb*
spruce boughs *’él*
spruce cone *cb’elabdzol*
spruce needle *èl geddb’*
spruce roots *xeyb*
squirrel *dlèg* (tree squirrel)
    *ttbel* (arctic ground squirrel)
star *sén’*
steambath *ttbee tbel*
stick *dechenb*
stinging nettles *gyu gòz’*
stomach *-tsâadl’* (human)
    *-tsaamet* (animal)
store *cb’utkeet šbax*
storm *xâghînts’eyb*
stump *cb’aachbënn’*
sucker fish *tats’abl’ol*
summer *sbeen*
sun *saa*
swamp *xaalel*
swan *taagos* (trumpeter swan)
swing *dabmiil*
table *k’ech’ii’aadl*
taboo *injib*
tail *-cbè’*
Tanana River *ttb’iitü’* (‘straight water’)
tea *ldiil*
teakettle *ldiil tiil*
tent  *taatléthb*
thigh  *-sóthchén’*
thimble  *sú’ts’it-áay*
thorn  *xsó*
three  *taag*
throat  *sthéeg’*
thumb  *-lnalcbéttb*
thunder  *nabten*
tibia  *-dzaattb’ènn’*
timber  *taachénn’*
toe  *-kelaats’ogb’*
tongue  *-ttuul’*
tooth  *-x ú’*
torso  *-sék*
towel  *taatleex théthb*
tracks  *-k’eighb*
trail  *téy*
trap  *‘éel*
trunk (tree)  *-chén’*
turnip  *taanes*
two  *ldiikéey*
umbilical cord  *ts’enín ts ’ág’*
uncle  *-ee’eh* (mother’s brother)
    *-táay* (father’s brother)
urine  *lets*
veins  *-ch ’uudhb’*
village  *kéey*
vomit  *koyb*
waist  *-t’led*
warbler  *k’élaxwdibtsohb*
wart  *shéetb*
wash basin  *taatleex ttbéak*

water  *tuu*
wave  *taatlth*
weasel  *nibmaay*
white person  *nondléed*
wife  *’aat*
willow  *k’èy’*
window  *sits’enal’iin*
windpipe  *-thuíul’*
wing  *-ints’en’*
winter  *xey*
wolf  *tikáan*
wolverine  *nabtsíjth*
woman  *ts ’èhxéeb*
    *ts’est’éey* (old woman)
womb  *shii ts’enín edab*
wood  *tsets*
woodpecker  *chibttbeel*
    *ntsíil* (flicker)
worm  *guyu*

**Verbs**

afraid  *(ni-l-jet)*  *niljet* ‘he’s afraid’
ask  *(O-u-d-b-kéét)*  *díi gha*
    *sbudegbjibkéet* ‘why did you ask me?’
bark  *(dog)*  *(b-ttbee)*  *ehbtbee* ‘it is barking’
be  *(t’-0-t’eb)*  *ntsé t’int’eb* ‘how are you?’
black  *(da-t-sey)*  *datsey* ‘it’s black’
blue  *(d-l-dléets)*  *deldléets* ‘it is blue’
boil (n-l-xos) tuu nelxos ‘the water is boiling’
boil (O-b-meets) ekmeets ‘I’m boiling it’
break (d-xót) detxót ‘it’s broken’
brown (d-l-ttbox) deltbox ‘it’s brown’
buy (u-O-kéet) ugbibkéet ‘I bought it’
call (name) (O-u-sí) ntsé nusí ‘what’s your name?’
care for P (P-k’a-n-b-tqa) xuuk’anektab ‘I care for them’
chase (O-shuut) stasbeninghuut ‘he chased me away’
choke (t-n-l-ndekk) ch’etnëndek ‘he choked on something’
chop (O-ddbol) ts’aaddbel ‘we’re chopping’
clap (hands) (la-O-kéet) maa la’ibkéet ‘I clapping for him’
classify elongated object (O-tqa) gbihtil ‘I’m carrying (firewood)’
classify plural object (O-dlalb) xagbihdlalb ‘I took them out’
             xats’eleyeb ‘we’re taking them out’
club (ch’-b-tl’etb) xuuuch’ebtl’etb ‘he clubbed them’
cold (n-O-k’etth) neek’etth ‘it’s cold’
collapse (O-kaatl) ninkaatl ‘it collapsed’
cough (d-l-koth) degkoth ‘I’m coughing’
crawl (O-duuuth) xaghbduuuth ‘I crawled out’
crawl (d-gets) na’atgets ‘he’s crawling back’
crooked (G-O-k’eth) xuk’eth ‘it’s crooked’
cry (O-tsaax) etsaax ‘he’s crying’
cut (slice quickly) (O-b-tsaat)
             nektsaat ‘I sliced it’
cut (with scissors) (b-dôts) ekdôts ‘I’m cutting it’
dance (ch’-l-dziits) ch’eldzes ‘she’s dancing’
do (t’-d’-é) nts’ë t’inde’ë ‘what are you doing?’
drag (O-luuth) nanishluuth ‘I’m dragged it back’
drink (d-naa) tuu etnaa ‘he’s drinking water’
dry (n-l-geyb) nelgeyb ‘it’s dry’
eat (na-O-O-’aatl) nach’ib’aal ‘I am eating’
fall (animate move independently) (l-
th’et) xugbegtth’et ‘I fell down’
fall (compact object moves independently) (d-l-né)
             xudalné ‘it’s falling’
fat (l-k’aax) el’kaax ‘he’s fat’
find P (P-e-x-d-b-’qa) mexdek-’qa ‘I found it’
fish (with a hook) (na-ch’e-h-lôx)
             nach’eklôx ‘I’m fishing’
float (taa-l’-ôk) taaxel’ôk ‘they’re floating’
fly (n-Ø-t’ak) stanet’ak ‘it flew away’
forget (xe-l-ndaa) xedbegndaa ‘I forgot’
medbegndaa ‘I forgot it’
form (n-l-k’aas) xunenelk’aas ‘he formed that way’
freeze (d-ten) hèn etten ‘the river is frozen’
fry (b-l’éb) ekt’éeth ‘I’m frying it’
go (animal) (b-’és) nü̱n nateł’és ‘animals are walking around’
go (by boat) (Ö-kéel) nagbishkeel ‘I’m boating back’
go (one) (Ö-shab) Fairbanks ts’i’
teeshab ‘he is going to Fairbanks’
ninshab ‘he arrived’
go (several) (Ö-déét) ghabdel ‘you guys are going’
golden (G-l-meets) elmeets ‘it is golden colored’
good (Ö-suyu) ibsuyu ‘I’m well’
shaa nṣuyu ‘I like it’ (‘it’s good for me’) grey (d-l-maa) delmaa ‘it’s grey’
grow (n-Ø-sha’a) nedbihsha’a ‘I grew up’
handle compact object (Ö-’aaq)
sbl’é’en’aq ‘he gave it to me’
hard (G-d-gek) detgek ‘it’s hard’
hear P (P-de-Ø-ttb’ek) sbdintth’ek ‘do you hear me?’
heavy (Ö-deeth) ndeeth ‘it’s heavy’
hold (u-Ø-tón) u’ibtón ‘I’m holding it’
hot (n-Ø-theł) neetbel ‘it’s hot’
howl (sha-Ø-’qa) tiitk’aan shaxe’qa ‘the wolves are howling’
hunt (l-seek) na’eelsek ‘he’s hunting’
kiss (na-Ø-n-l-ts’u) nanilxenelt’s’u ‘they’re kissing each other’
know P (P-e-t-ndeyb) k’a me’isbdey ‘I don’t know him’
xe’isbdeyb ‘I know’
large (G-Ø-chaax) ncbax ‘it’s large’
laugh (Ö-dlo’k) eedlo’k ‘he’s laughing’
lie (untruth) (da-t-d-l-sbek)
datdel’sek ‘he’s lying’
long (Ø-ndeyb) ndeeth ‘it’s long’
love P (P-sha 0-sij) maa ibsij ‘I love here’
lower (water) (d-settb) tuu
natetsettb ‘the water went back down’
make (one) (b-sij) yibtsij ‘he made it’
make (several) (Ø-xa’a) k’intth’áak
xaaaxa’a ‘they’re making baskets’ (also kill several)
melt (u-d-Ø-let) ta’udelet ‘it (water) melted’
mend (b-k’a) medbekk’a ‘I mended it’
narrow (O-ts’ēg) nts’ēg ‘it’s narrow’ (also long)
paddle (taa-cb’-O-t’ogb) taach’ibt’ox
pick (berries) (n-b-tsii) jēg nektseyb ‘I’m picking berries’
pierce (O-geet) yixaninkeet ‘he pierced through it’
play (d-l-xos) xdelxos ‘they’re playing’
point (finger) (P-e-ts’u-O-ttbeyb) mets’u’ibttbeyb ‘I’m pointing at it’
poke (O-b-ts’ok) yib’t’sok ‘he poked it’
potlatch (xa-O-tiitl) xaxghintiitl ‘they made a potlatch’
pretty (n-O-suuy) nin-suuy ‘she’s pretty’
rain (b-chaa) ebcbaa ‘it’s raining’
red (d-l-t’el) del’t’el ‘it’s red’
remember (xe-l-ndiik) xegbegndiik ‘I remembered’
xe’eigndee ‘I remember’
render (O-h-chaats) ekcbaaats ‘I’m rendering it’
roll (l-maath) nakedelmaathb ‘it’s rolling over and over’
rot (b-jet) ehjet ‘it’s rotting’
ghbijet ‘it’s rotting’
round (d-geeze) etxeez ‘it’s round’
run (one) (l-ttbet) alttbel ‘he’s running’
sad (ts’axa-xu-b-dey) ts’axokdey ‘I feel sad’
say ((d)-O/b-ni’) yebniit ‘he says to him’
yediini ‘he said to him’
scratch (O-ts’ēt) edetts’ēt ‘he’s scratching himself’
see (O-n-b-’ēe’) nek-’ēe’ ‘I saw it’
wash (na-ch’e-n-O-tl’u’) nach’enibtl’u’ ‘I’m washing’
short (d-b-k’eyb) debk’eyb ‘it’s sharp’
shiver (d-diyyb) detdiyyb ‘he’s shivering’
shoot (b-dék) tekdek ‘I shot it’
shoot (gun) (d-b-k’ax) dedbekk’ax ‘I shot it’
short (d-k’odl) dink’odl ‘it’s short’
shout (O-sēk) ibsek ‘I’m shouting’
sick (b-ts’iik) ebts’iik ‘he’s sick’
sing (cb’-d-O-liib) cb’edibl’iib ‘I’m singing’
sit (one) (di-O-dab) didhibb’ab ‘I’m sitting’
seat (several) (dé-l-ttb’ib) xdeltttb’ib ‘they’re sitting’
sleep (one) (b-tēe) ghbi’te ‘I was sleeping’
dhibt’ee ‘I’m sleeping’
sleep (several) (b-teets) xghibteets ‘they’re sleeping’
slide (l-jeyb) da’ilfteyb ‘he’s sliding down’
small (O-tsunl) ntsudl ‘it’s small’
smell (b-tesenb) let ektsenb ‘I smell smoke’
smile (ts’a-i-n-thenb) ts’ayinîthenb ‘he’s smiling’
smoke (O-d-b-tlenb) jebtlênb ‘he’s smoking’
smoke (cigarette) (O-d-b-k’enb)
  jebk’enb ‘he’s smoking’
smoke (skin) (O-d-b-let) jeblet ‘he’s smoking something’
snare (O-l-hâ) yi’hâ ‘he snared it’
snow (b-shâatth) ebshâtth ‘it’s snowing’
soft (d-d-tlog) dettlog ‘it’s soft’
spear (b-cêth) ekcêth
spill (water) (na-d-b-t’iit) tuu
  nadett’iit ‘water is spilling’
  nadedbek’t’iit ‘I spilled it’
split (wood) (nildze-d-h-t’aax)
  nildzedat’ogb ‘you guys should split the wood’
spread (flat object) (d-mets) wuchêl’
  etmets ‘his clothing is flapping’
stab (b-got) yi’got ‘he stabbed it’
stand (one) (na-O-thet) ná’êthet
  ‘he’s standing’
stand (several) (na-O-deex)
  nats’udeex ‘let’s stand’
stare (O-l-gêets) sbîlêgêets ‘he’s staring at me’
stay (one) (O-daad) eedab ‘he’s staying’
step (O-O-êtth) xudbib’êtth ‘I stepped on it’
stiff (l-k’ets) nelk’ets ‘it’s stiff’
string (beads) (G-O-’ees) ib’e’es ‘I’m stringing it’
stuff (chinking in a house) (b-tbux)
  šbax xuneltbux ‘he’s chinking the house’
swallow (O-t-l-nde) tedbegndek ‘I swallowed it’
swim (O-mee) aameel ‘he’s swimming’
take (u-O-nïik) udbibndiik ‘I took it’
tan (hide) (O-tbaa) gbiñqbañ ‘it’s tanned’
tasty (l-keyb) elkeyb ‘it’s tasty’ (also sweet)
tear (O-ch’el) ekch’el ‘I’m tearing it’
  latnine’el ‘it’s torn’
tear (forcefully) (O-gaatth)
  gbiñqabñ ‘I tore it’
tell story (xu-l-nde) xutdegndek ‘I’m going to tell a story’
thick (d-d-ket) detket ‘it’s thick’
thin (G-d-lon) det-lon ‘it’s thin’
tie (O-G-l-cbêth) mecb’edbekcbeth
  ‘I tied something to it’
tie (bind) (b-tsôn) mecb’enektson ‘I bound something to it’
tight (l-l’et) elt’et ‘it’s tight’
tired (te-d-nde) tegebndek ‘I’m tired’
travel (O-ndaa) stanindaa ‘he traveled away’
warm (O-gón) xnelgón ‘it’s warm’
wash (O-k’e-ch’e-b-tsel) tth’äk k’ëch’ëktsel ‘I’m washing the dishes’

wet (b-tsel) ebtse ‘it’s wet’

whip (move elongated quickly) (O-sheb) xaygbinsbel ‘he whipped it out’

white (l-geyb) elgeyb ‘it’s white’

wide (O-teel) nteel ‘it’s wide’

windy (b-ts’eyb) ebts’eyb ‘it’s windy’

wipe (b-kêt) mech’ëkkêt ‘I’m wiping it’