

TITLE PAGE

Seeking Simplicity: The preference for minimal syllable structure in Dogrib

by

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ABSTRACT

Dogrib is one of the most innovative members of the Northeastern Athapaskan language group. This thesis focuses on one major innovation that has occurred in the language over the last few decades—that of the reduction of the Dogrib syllable in shape and number. Codas have become neutralized in Dogrib and processes like vowel assimilation and intervocalic consonant deletion often result in a long vowel and one fewer syllable realized in the output than the input shape. This reduction is evident in three phonological domains: the syllable domain where codas become neutralized, the conjunct domain, where onsets are often not realized, and the stem domain, where vocalic suffixes are incorporated into the stem syllable.

I provide an Optimality Theory (Prince & Smolensky 1993) account of this movement towards simple prosodic shapes wherein the family of *STRUC markedness constraints, particularly *STRUC(σ) (Zoll 1993), have been climbing up the phonological grammar of Dogrib and discourage the realization of complex structures. Thus I assume a conspiracy of simplicity is active in the language.

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Abbreviations

The Dogrib language is referred to in the body of this work as Tłı̄chọ Yatı̄ı. The following abbreviations are used throughout this thesis in the interlinear glossing of Tłı̄chọ Yatı̄ı.

Boundaries:

- generic morpheme boundary
- # disjunct boundary
- = root boundary

Verbal prefixes:

IP	incorporated postposition
ObO	oblique object
th	thematic prefix
pl	plural thematic prefix
CUST	customary
ADV	adverbial
ASP	aspectual
DIS	distributive
ITER	iterative
CON	continuative
*s	*s conjugation marker
*y	*y conjugation marker
*n	*n conjugation marker
prf	*ñ perfective marker
impf	imperfective
CL	classifier ¹

Person prefixes:

1	first person
2	second person
3	third person
S	subject
O	object
P	possessive
s	singular
d	dual
pl	plural
U	unspecified
UH	unspecified human

Examples:

1dS = first person dual subject
 UHS = unspecified human subject

Suffixes/enclitics:

dim	diminutive
poss	possessed noun
nom	nominalizer
aug	augmentative
adv	adverbial suffix
NEG	negative
Q	question
FUT	future

Reference Abbreviations:

MKR 2002	Consultations with Mary Koyina Richardson, 2002
DDBE 1996	Dogrib Divisional Board of Education, 1996

¹ Classifier is the traditional term for these morphemes; however, they are often more accurately termed transitivity markers or voice/valence markers in more recent literature.

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DEDICATIONS

I dedicate this thesis to the Tłjch̓ people.

Chapter 1

An Introduction to Tłı̄chọ Yatı̄

1.1 Introduction

There are processes in the Dogrib language, henceforth referred to as Tłı̄chọ Yatı̄, where certain consonants disappear and certain vowels assimilate, all of which result in less complex structure and fewer syllables in words. What this thesis addresses is why these processes are occurring. My explanation is that grammars have constraints against complexity in structure, and the importance of such constraints depends on the grammar of each particular language. In Tłı̄chọ Yatı̄ these constraints are increasing in importance. Using the framework of Optimality Theory (Prince and Smolensky 1993) this thesis therefore offers an explanation of the tendency to favour simple structures in Tłı̄chọ Yatı̄.

1.1.1 Genetic Affiliation and language context

Tłı̄chọ Yatı̄ is a Dene language which belongs to the Athapaskan language family, which in turn, has been posited to exist within a broader language group as well. The language Eyak is also closely related to the language family and in 1915 Sapir included Athapaskan, Tlingit and Haida in a larger language phylum called Na-Dene. While Tlingit has some similarities to Athapaskan and Eyak, historical Athapaskanist Krauss (1964) suggests Haida remains too distant to be part of the Na-Dene grouping.

The family of Athapaskan itself is a wide-spread language group which includes

languages in three distinct areas of North America: the southwest of the US, the US Pacific coast, and Canada and Alaska. Probably the most well known of the Athapaskan languages are from the Apachean group, which includes Navajo. The Pacific coast group is quite diverse, and there are not many speakers of these languages left. The Northern group is quite large with about 24 different languages, including Tłı̨chǫ Yatı̨. The Northern group spans through much of North Western Canada and Alaska.

Tłı̨chǫ Yatı̨ belongs to the Northeastern branch of the northern Athapaskan languages, which also includes dialects of the Slave¹ and the Dene Sų́líné (Chipewyan) languages. It is spoken in the Mackenzie District of the Northwest Territories in and around the communities of Rae-Edzo, Wekweti, Wha Ti, Rae-Lakes and Yellowknife. There is, of course, dialectal variation in Tłı̨chǫ Yatı̨ from community to community, but my work only focuses on the variety of the language spoken in Rae-Edzo. Over 4000 people identify themselves as Tłı̨chǫ, and 2000 of those speak the language as their mother tongue. (Legislative Assembly, NWT 2003).

1.1.2 Language background

1.1.2.1 Previous work

A very rich analytic and descriptive literature exists on the languages of the Athapaskan family stretching back to the late 1880s with extensive documentation of languages in the MacKenzie basin by the French missionary, Emile Petitot, and with

¹ The term 'dialects' is used to refer to the languages of the Slave group which include Bearlake, South Slavey, Hare and Mountain. Rice (1989) refers to them as part of a dialect complex due to their mutual intelligibility. For comparative purposes I make use of the languages of Hare and South Slavey as representatives of the dialect complex of Slave.

Edward Sapir who did field work in Athapaskan languages all over the continent and first started publishing on the Na-Dene languages in 1915. Some of Sapir's students continued this study: e.g., Hoijer did work on Apachean and Li documented Dene Sųłiné (Chipewyan). More recently several grammars have been written on Athapaskan languages including Hupa (Golla 1970), Sarcee (Cook 1984), Navajo (Young & Morgan 1987) and most significantly for the sake of this thesis Slave (Rice 1989).

Many important theoretical and descriptive insights into the phonology and morphology of Athapaskan languages have been made in the areas of phonology and morphology of various Athapaskan languages, such as McDonough (1990), and Alderete (2002), Randoja's dissertation on Beaver (1990), work by Hargus (1988), (1997a), (1991), Hargus and Tuttle (1997), and Tuttle (1998), as well as extensive work by Rice on Slave and Holton's work on Tanacross (2000) and recent work by Gessner (2003). Howren (1979) who wrote a phonology of Tųıchų Yatıı, and Causley (1995), (1997), (1998), who offers a theoretical account of coalescence in the language, are two people who have published on Tųıchų Yatıı phonology specifically. All of these works provide important background and insight to this thesis.

Other past linguistic documentation and linguistic work that has been done on Tųıchų Yatıı in particular began with the writings of a missionary, Emile Petitot, (1886), (1888) who documented stories, vocabulary and place names of Tųıchų Yatıı and other languages of the area. The last thirty years has seen important work done by Robert Howren (1979) (1971a), on the phonology of the language and the formalization of the D-effect, by Lynda Ackroyd (1982), who wrote a comprehensive manuscript on the

grammar of Tłıchǝ Yatı̀, and by Leslie Saxon who has done extensive linguistic work on the language and who edited, along with Mary Siemens, an edition of the Dogrib Dictionary (DDBE 1996). Saxon is also currently writing a spelling manual to accompany the dictionary. There have also been numerous story books and other pedagogical materials published by the Dogrib Divisional Board of Education or its successor, the Dogrib Community Services Board.

1.1.2.2 Language sources

Mary Koyina Richardson of Rae-Edzo is a speaker of Tłıchǝ Yatı̀ who kindly gave me her time and provided me with many of the forms I make use of in this thesis.

In addition to the material provided by Mary Koyina Richardson, I make use of the notes and data of Leslie Saxon, who has studied and worked with the community and the Tłıchǝ Yatı̀ extensively. I have also drawn heavily upon work done on the phonology of Tłıchǝ Yatı̀ by Lynda Ackroyd (1982), and Trisha Causley (1995), and use many words from the Tłıchǝ Yatı̀ dictionary: *TłıchǝYatı̀ Enıhtı̀'è: A Dogrib Dictionary* (1996). Ackroyd (1976) and Saxon (1979), (1999) have also both done historical work (unpublished) on the languages of the Mackenzie Basin, and I draw upon much of this historical, comparative work in this thesis.

1.1.3 Tłıchǝ Yatı̀

Like all Athapaskan languages, Tłıchǝ Yatı̀ is polysynthetic, with notoriously complex morpho-phonemics in the verb complex. This thesis focuses primarily on the

stem phonology of Tłı̄chǫ Yatı̄, and secondarily on the phonological changes of the verbal prefixes of the conjunct domain, and so only touches lightly on the complex morpho-phonemics as a context for the phonology.

As mentioned above, Tłı̄chǫ Yatı̄ belongs to the North Eastern subgroup of Athapaskan languages, which all come from Proto-Northeastern Athapaskan (PNEA)—a categorization formalized by Ackroyd (1976) following Howren (1971b). Tłı̄chǫ Yatı̄ is most easily distinguished from its close neighbours by its tone development: The constricted vowels of Proto-Athapaskan (PA) which developed into high tone in the dialects of Slave and in Dene Sų́ı̄né, developed into low tone in Tłı̄chǫ Yatı̄. The language can also be distinguished through changes which have occurred such as the elimination of the high round back vowel [u] from its vowel inventory (Ackroyd 1976, 29)². Other innovations that separate Tłı̄chǫ Yatı̄ from its close neighbours, such as simplification of syllable structure, loss of segmental value in suffixes and the shift in stem shapes from disyllabic to monosyllabic, will be discussed throughout the thesis.

The remainder of this introductory chapter provides an overview of the Tłı̄chǫ Yatı̄ segment inventory, in section 1.2, and a brief morphological sketch of Tłı̄chǫ Yatı̄, in section 1.3. The last sections of this chapter introduces the theoretical assumptions I will be making use of in my analysis throughout this thesis, and the overall goal of this work.

² There is a phonetic [u] which has reintroduced itself into the language as an allophone of /o/, but the historical PNEA /*u/ surfaces as [o] or [i] in Tłı̄chǫ Yatı̄, depending on the consonant preceding it (Marinakis 2002).

1.2 The Sounds of Tłjchq Yatì:

The background information given in this section comes from four sources: a 1982 manuscript by Lynda Ackroyd, *Dogrib Grammar*; another manuscript, by Melissa Svendsen, *A translator's kit for the Dogrib Language* (2000); Robert Howren's 1979 *Phonology of Dogrib*; and the 1996 edition of *Tłjchq Yatì Enjht'è: A Dogrib Dictionary*. Again, the focus of this thesis, and this section, is on the dialect of Tłjchq Yatì which is spoken in Rae-Edzo. This section offers a discussion of the consonant and vowel inventories of Tłjchq Yatì. The consonant inventory below in (1) under section 1.2.1 is given in the Tłjchq Yatì orthography, as is the vowel inventory in (2). There are many patterns of sound alternations within the inventory which will be discussed briefly below.

1.2.1. Segment Inventory (orthographic representations)

(1)	Consonants						
	labial	alveolar	lateral	velar	labiovelar	laryngeal	
	stops						
unaspirated	(mb) b	(nd) d		g	gw		
aspirated		t		k	kw		
glottalized		t'		k'	kw'	ʔ	
	affricates						
unaspirated		dz	dl	j			
aspirated		ts	tʃ	ch			
glottalized		ts'	tʃ'	ch'			
	fricatives						
voiceless		s	ʃ	sh	x	wh ³	h
voiced		z	l	zh	gh ⁴	w	
	resonants						
oral		(r)		y			
nasal	m	n					

The vowel inventory below shows how there is a distinction in the language between nasal and non-nasal vowels as well as front, back and round distinctions. As will be discussed later in the thesis, there are also phonemically contrasting long and short vowels.

(2)	Vowels						
	front			back			
	non-nasal		nasal	un-rounded		rounded	
	non-nasal	nasal		non-nasal	nasal	non-nasal	nasal
high	i	ĩ					
mid	e	ẽ				o	õ
low				a	ã		

³ The segments [wh] and [w] are of an ambiguous nature. There are alternations between [m] and [w] as well as between [wh] and [f] (Saxon personal communications). The other piece of ambiguous behaviour is that when in combination with the /d-/ classifier, a labial fricative is realized as [gw] (Howren 1971b). Therefore these segments could have either a labiovelar place classification or a labial place classification.

⁴ The consonant [gh] can also be realized as glide [y] before front vowels, as examples show like [eye]~[eghe] 'drum' in the Dogrib Dictionary (DDBE 1996).

1.2.2 Discussion of sounds

This section provides a brief discussion of the sounds of Tłjichq Yatì seen in the inventories above, as well as an overview of some of the prosodic elements of the language and a few of the more regular phonological processes.

1.2.2.1. Consonants

Despite their orthographic representations, the contrast between [d] and [t] and [g] and [k] etc, is a contrast of aspiration rather than voicing. There is a series of aspirated plosives and a series of non-aspirated plosives. The aspirated stops and affricates are voiceless, and the non-aspirated stops and affricates are only weakly voiced, if at all.

Tłjichq Yatì does have a series of voiced and voiceless fricatives, however, as the inventory indicates. As is typical to the Athapaskan family the lateral segments [l/ɬ] and the labiovelar segments [w/wh] are grouped with the fricatives because they pattern like fricatives in their voicing alternations, discussed below in 1.2.2.3.

Pre-nasalized stops [mb] and [nd] are hardly used anymore in contemporary Tłjichq Yatì speech in Rae-Edzo. When they are found, however, the sound [nd] functions as one segment. The entries under this sound in the Dogrib Dictionary are also listed under the [d] section. The same is the case for the segment [mb]—the same entries can also be found under [b], however, this pre-nasalized segment is in complementary distribution with [m] (Ackroyd 1982, 26), where [m] occurs before nasal vowels in the

native inventory⁵ and [mb] occurs before oral vowels: m /_v, mb /_v. The allophone, [b], does not occur before nasal vowels (Howren 1979, 26), except in loanwords: *bji* ‘beans’ *libq* ‘ribbon’, as listed in the Dogrib Dictionary (DDBE 1996). The segments [b] and [mb] are not in complementary distribution.

The segment /r/ is limited in its distribution, and alternates with [n] and [d] in initial position in prefixes. Howren 1979 and Ackroyd 1982 both propose it is an allophone of [d]. For many speakers, /r/ is no longer realized at all, especially in prefixes. There is a process of lenition that affects the segments [d], [n], and [r] in conjunct domain prefixes. It is discussed in chapter 3.

Finally, an important variation to point out within the consonantal inventory is between the two sets of sounds called the ‘alveo-series’ (DDBE 1996): Depending on geographical and sociolinguistic variation, the series of palatal-alveolar sounds in Tłıchq Yatı̄ alternate with the alveolar sounds. The alternations are as follows:

(3)	ch	~	ts	
	chʼ	~	tsʼ	
	j	~	dz	
	sh	~	s	
	zh	~	z	(DDBE 1996, xviii)

1.2.2.2 Vowels and Prosodic features

The vowel inventory, given in (2), shows how Tłıchq Yatı̄ has a four vowel inventory as far as quality is concerned, that distinguishes between high, mid and low

⁵ [m] can occur before oral vowels in certain loan words, however, like *lamè* ‘mass’ and *ması̄* ‘thank-you’ (DDBE 1996).

vowels. The language also has both oral and nasal vowels as well as phonemic tone. The marked tone in the language is the low tone. There are both long and short vowels in Tłìchq̄ Yatì, but according to Ackroyd (1982) long vowels in this language always come from the coalescence of two distinct morphemes. Chapters 2 and 4 will discuss this issue from a historical perspective, and argue that even though long vowels were not phonemic in the past, there are currently phonemically long vowels in stems, which were historically disyllabic.

As well as the four monothongs, [a] [e] [i] [o], Howren (1979) includes the diphthong [ai] in the phonemic vowel inventory of Tłìchq̄ Yatì, and provides the word for ‘three’, *tai*, as an example. However, my consultant, Mary Koyina Richardson, pronounces the word for three [taa]. Ackroyd also includes this diphthong and lists the same example, but she does not include it in the phonemic inventory. The diphthong is not represented as a single vowel in the orthography, and it is not mentioned by any of my other sources. Howren also notes that he finds no instances of this diphthong nasalized. The forms Howren provides as evidence that the [à] and [ài] contrast, seen in (4), are not convincing enough evidence to assume this diphthong is phonemic: they are not a true minimal pair, and the word for ‘five’ is a morphologically complex form (Saxon, personal communications 2003) and so there is more than one morpheme present in the word.

(4) setà ‘my father’ sɪlài ‘five’ (Howren 1979, 22)

I do not include this diphthong in the phonemic inventory here because its infrequency suggests it is not a phoneme in Tłìchq̄ Yatì, but a combination of the two

vowels [a] and [i]. It is likely the result of hiatus resolution processes that combine the root [a] with the nominalizing suffix [i] as is the cases of *sjlài* ‘five’ and *tai* ‘three’ (Saxon, personal communications 2003). Hiatus resolution through vowel assimilation is discussed in depth in chapter 2.⁶

Howren (1979) also identifies three prosodic features in Ṭj̣cḥo Yaṭị: nasality, tone and intonation. Nasality and tone are discussed below, and intonation is not discussed here at all. There is much work to be done on the phonetics of the language, including a study of the intonation patterns in the language; however, that is outside the scope of this thesis.

1.2.2.2.1 Nasality

As the inventory above indicates, the quality of nasality is phonemic in Ṭj̣cḥo Yaṭị. Historically, nasal vowels were probably derived from nasal codas, with a rule like:

$Vn > V\text{ / } _]_{\sigma}$ as has been suggested for other, related languages, like Slave (Rice, 1989) and Dene Ṣụḷiṇé, (Cook, 1983). Variations like [ḍọq̣ ~ done] suggest, however, that this rule is not totally adequate synchronically in Ṭj̣cḥo Yaṭị, since in this word the nasal which disappears is not in coda position, yet the nasal quality remains on the vowel. The way the second person singular subject marker [ne-] often surfaces in the conjunct domain of verbs furthers this position: [ṇẹṇẹ/i-ẉọ/ ‘you want’. In this case it

⁶ Gliding also occurs in the language to the same purpose, and it is possible that such forms are an example of gliding as a preliminary stage of hiatus resolution, which ultimately results in assimilation in innovative contemporary forms.

is the onset of the 2sS prefix which disappears, yet the nasal feature is retained on the remaining long vowel. To generalize, then, nasality in Tłichq Yatì comes from the influence of nasal consonants on neighbouring vowels, but also exists phonemically.⁷ Synchronically each oral vowel contrasts with a nasal vowel, exemplified by the data below:

- | | | | | | | |
|-----|----|------|-------------|--------|--------------|-------------|
| (5) | a. | di | 'island' | dì | 'four' | |
| | b. | ło | 'smoke' | łò | 'much, many' | |
| | c. | whaà | 'long time' | hìwhaà | 'fast' | (DDBE 1996) |

Ackroyd mentions, however, that [ã] is very rare. This may be because nasalized [a] raises to [o] by a historical process. Rice notes that in Slave /a-n/ within a syllable becomes [o] as well (1989, 127). However, this raising only occurs in certain morphemes in Tłichq Yatì, since the locative suffix, which manifests itself as a nasal vowel, does not seem to raise [a] to [o], as in the pair of words in (6a.). The vowel does raise in the incorporated prefix in (6b.) where the nasal value comes from the *n conjugation marker. There is no raising of the vowel [o] when nasalized either, as the pair in (6c) indicates.

- | | | | | | |
|-----|----|-----------------------|--|------------------------------|---------|
| (6) | a. | tł'à | | tł'à̃ | |
| | | 'bay' | | bay-loc | 'beach' |
| | b. | goghà?eedi | | weghòtì | |
| | | 10-th-UO-*γ=give.food | | 3sO-th-*n=give(animate obj.) | |
| | | '(be) given' | | '(be) given' | |

⁷ Counter to my claim, it could be argued that nasality is a phonetic quality since [ɣ] does not contrast with [vn] in the language, since there are no [n] codas phonetically (Hargus personal communications).

c.	ɬèt'è ɬekɔ	ɬèt'è ɬekɔɔ	
	bread sweet	bread sweet-NOM	
	'the bread is sweet'	'cake'	(DDBE 1996)

Evidence from suffixed forms, like those in (6a&c), suggests that nasality spreads throughout the stem domain⁸ syllable regressively or progressively. However, a phonetic study of nasality is also needed for the language in order to determine whether nasality always spreads within the syllable domain, or whether spreading depends upon which vowels or morphemes are involved.

1.2.2.2.2 Tone

Tɬichɔ Yatì has phonemic tone which is heard as either high pitch or low pitch. All vowels have either high or low tone, but low tone is considered the marked value in the language and is therefore the tone that is represented in the orthography.

According to Howren (1979), both high and low tone each have three variants. High tone occurs slightly raised on a syllable which is immediately followed by a low tone, slightly falling on the final syllable of a final intonational phrase, and consistently high elsewhere. Low tone occurs in its slightly raised variant in the final syllable of a non-final intonational phrase, the slightly lowered variant occurs on the final syllable of a final intonational phrase, and the normal low tone occurs elsewhere (Howren 1979, 21). However, as Saxon points out (personal communications 2003), these observations should perhaps be questioned since Howren wasn't aware of long vowels, finally or elsewhere. Chapter 2 will discuss how a long vowel can actually carry two tonal values in Tɬichɔ Yatì.

⁸ The term 'stem domain' is used in this thesis to describe the phonological unit which includes the root, as well as any classifier prefixes or vocalic suffix, and is discussed in section 1.3.1.1.

The following examples illustrate how some words are distinguished from each other solely by a difference in tone:

- | | | | | | | |
|-----|----|--------|------------|--------|----------------|-------------------|
| (7) | a. | xàretɔ | 'I taught' | xàrètɔ | 'she taught' | (Ackroyd 1982, 9) |
| | b. | gots'ɔ | 'from it' | gots'ò | 'toward it' | (DDBE 1996, 49) |
| | c. | xàt'a | 'fly out' | xàt'à | 'be taken out' | (DDBE 1996, 120) |
| | d. | dii | 'this' | dìi | 'now' | (DDBE 1996, 19) |

1.2.2.3 Common Phonological processes

This section briefly outlines some of the more well documented phonological processes which take place in Tɬichɔ Yatì such as stem initial devoicing and the D-effect.

1.2.2.3.1 Stem domain initial voicing alternations

Continuants in Tɬichɔ Yatì undergo alternations stem domain initially. Between vowels the continuants are voiced, but in word initial position or following a prefixal [h], they are voiceless. This alternation is not immediately evident since an [h] preceding a voiceless continuant is not often pronounced, except in careful speech, but is evident in the voiceless quality of the stem domain initial continuants⁹. Examples of these alternations are given in the data below, where the stem domain in question is bolded.

- | | | | | | |
|-----|----|-----------------|-----------|-----------------|-------------|
| (8) | a. | x àà | 'cards' | se gh àà | 'my cards' |
| | b. | sh ì | 'song' | ne zh ì | 'your song' |
| | c. | eh se | 'I shout' | e ze | 'he shouts' |
| | d. | neh wh ɔ | 'I want' | ni w ɔ | 'he wants' |
- (DDBE 1996, Ackroyd 1982)

This process seen in (8) is actually one of devoicing, which can be seen by

⁹ There are a small number of nouns with stem domain initial voiced continuants, but the devoicing process often affects them as well. Therefore the word *zha* 'snow' can also be heard as '*sah*' (Ackroyd 1982, 20).

looking at the forms in (9) below. There is an /l/ classifier present in (9a) which intervenes between the voiceless [h] and the voiced stem domain initial continuant, but is never phonetically realized in Tɬichɔ Yatì. This classifier blocks the devoicing process, so the stem domain initial consonant remains voiced. These forms are taken from Ackroyd, p.19, but are augmented here with underlying representations.

- (9) a. nàhzè ‘I hunt’ /nà # h -*1 =zè/
 b. nàzè ‘he hunts’ /nà # *1 =zè/

Older forms of this verb, therefore, occur with a voiced stem initial as in (9a); however, it is possible that the /l/ is not always realized this way because the verb in (9a) can also be pronounced *nàhsè* ‘I hunt’ (Ackroyd 1982, 19).

One exception to this devoicing rule can be found in the case of compound nouns in Tɬichɔ Yatì. Where [h] is part of a root, it can be followed by a voiced continuant, as in the word *nahzoh* ‘frost, hoarfrost’ (DDBE 1996). This is because the [h] is analyzed as part of the stem domain, in these cases, and not part of a prefix.

1.2.2.3.2 The ‘D-effect’

The term ‘D-effect’ was coined by Robert Howren (1971) and refers to a process of coalescence between a /d/ occurring immediately before a root, and the root initial continuants (l, w, z, zh, gh), a glottal stop, or a pre-nasalized stop. The outcomes of this process in Tɬichɔ Yatì are given below:

phonetically as an alternate of /k/ and /x/.¹⁰ The following words from the Dogrib

Dictionary provide examples of syllable shapes in the language:

(12)

- | | |
|---|---|
| a. v e.tse ‘he cries’ v.cv | c. cv ti ‘water’ cv. |
| xo.e.t’i ‘s/he is married’ cv.v.cv | ne.chà ‘it is big’ cv.cv |
| b. vh eh.jì ‘be hooked’ vh.cv | d. cvh teh.ji ‘mink’ cvh.cv |
| kw’i.ah.nq ‘bee’ cv.vh.cv | kwì.yeh.tsih ‘wear on the head’
cv.cvh.cv |

The structure of the Tłjchq Yatì syllable is at the heart of this thesis and is discussed in greater detail in the next chapter. Evidence will be presented there that **vv** sequences are heterosyllabic when $V_1 \neq V_2$.

1.3 Brief Morphological sketch

A basic sketch of the structure and main components of Tłjchq Yatì is a necessary base for a study of any particular aspect of the language. This section therefore offers a general description of the components of a Tłjchq Yatì word and a brief sketch of the verb complex.

1.3.1. Components of a word

There are three main classes of morphemes in Tłjchq Yatì: roots, prefixes and suffixes. A word can consist of a stem which is a single root with no affixes, or it can contain a stem, which may consist of one or two roots, plus a number of prefixes and/or suffixes.

¹⁰ Research is currently being undertaken to determine the phonetic quality of the [h] coda under the Dogrib Textual Studies SSHRC grant awarded to Leslie Saxon. I assume for the sake of this thesis that it is not the same segment as the [h] which can occur as an onset either underlyingly or phonetically.

A general schema of a noun and a verb in Tłı̄chọ Yatı̄ are offered below:

- (13) noun: Prefixes=stem-suffixes
 verb: Disjunct prefixes#conjunct prefixes=stem-suffixes

1.3.1.1 Stems/roots and the stem domain

For the sake of clarity within this thesis I introduce two terms here: root and stem domain. The term ‘stem’ has traditionally been used in an idiosyncratic way in Athapaskan literature. I do not follow that tradition in this thesis. I define ‘root’ here as the uninflected base of a stem with no affixation attached, which cannot stand alone. A stem can be a root, or it can be a root plus one or more affixes, or it may be two compounded roots. The bolded sections of the words in the data below exemplify the distinction between stems, which can be any number of morphemes which other affixes can attach to, roots, and the stem domain.

- | | | | | | |
|------|-----------------|-------------------|--------------------|-------------|-------------|
| (14) | <i>stem</i> | | <i>stem domain</i> | <i>root</i> | |
| a. | wedajʔoq | ‘bottle cap’ | wedajʔoq | /-ʔo/ | |
| b. | etenèt’i | ‘s/he is pitiful’ | etenèt’i | /-ʔi/ | |
| c. | ti | ‘water’ | ti | /-ti/ | (DDBE 1996) |

Roots are morphologically required and provide a basic lexical meaning which is modified by the various prefixes and suffixes. Except for the odd suffix, roots are the final elements in Tłı̄chọ Yatı̄ words. Roots tend to be monosyllabic and usually only one is permitted per word, but the language does allow productive compounding and some incorporation of nouns. Roots are usually of the shape **cv(h)**, and can begin with any consonant except [r] or [h]; however there are a few roots which are vowel initial (Ackroyd 1982, 17).

The term ‘stem domain’ here refers to the root of the word as well as any affix

which has been incorporated into the syllable or syllables of the root, such as the /d/ or /l/ classifier prefixes and the vocalic suffixes discussed in chapter 4. I use this term rather than ‘stem’ to make a distinction between the particular phonological domain I defined here, and any stem which includes more prefixes than that.

Verbs are usually realized with at least one prefix, but there is one verb, *di* ‘s/he says’ (DDBE 1996, 19), that is realized with no affixation at all. Unlike verbs, the stem domain of nouns in Tłıchǝ Yatı̀ often occurs with no affixation as in (15a). Nouns also frequently occur in an affixed form, like (15b), where the root is the same as that in (15a), but the word also includes a possessive prefix and suffix. The verbs in (15c-d) are typical of verbs in that they usually must surface with prefixes. The stem domains of the following forms are in bold.

- (15) a. **xoo** ‘year’
 b. **seghò** ‘my age’
 c. **nàatso** ‘you are strong’
 d. **nàade** ‘you live’ (MKR 2002)

1.3.1.2. Prefixes

Athapaskan languages are prefixing languages. In Tłıchǝ Yatı̀, the prefixes are usually of the shape *cv*, and prefixes attach to most parts of speech in the language, such as nouns, adverbs, postpositions and verbs. Verbs are especially rich in prefixing.

Verbal prefixes can be classified into disjunct prefixes and conjunct prefixes.

Conjunct verbal prefixes are usually of an inflectional nature, and occur closest to the stem. These prefixes are considered functional items (see Rice 2000) and are very limited in their phonetic shape: except for [ts’] and [ʔ], conjunct prefixes cannot begin

with glottalized or aspirated stops or affricates. Nor can they begin with a voiced fricative except [w] (Ackroyd 1982, 17). The allowable consonants which can occur in the conjunct domain are the following: n, d, s, ts',ʔ, h, t, x, wh, w, g, y.¹¹ The most common conjunct vowel is [e].

The conjunct domain seems to be conforming to the shape of a single syllable (Saxon, personal communications 2002), as will be briefly discussed in chapter 3. The following are examples of verb stems inflected with conjunct prefixes, from Ackroyd (1982), augmented with morpheme glosses. The conjunct prefixes are bolded.

- (16) a. **netse** / **ne**=tse/
 2sS=cry
 ‘you cry’
- b. **whida** / **wh-i**=da /
 *s-1sS.impf=sit
 ‘I am seated’
- c. **whihtsj** / **wh-i-h**=tsj/
 *s-1sS.prf- CL=make
 ‘I made it’
- (Ackroyd 1982)

Disjunct prefixes, further sub-classified as preverbs, quantificational elements and incorporates by Rice (2000), occur further from the stem and have no such phonological restrictions, except, like stems, they cannot begin with [h] or [r] (Ackroyd 1982, 17). Disjunct morphemes have more derivational meanings, and are considered lexical items, like roots (Rice 1993),(2000). Some examples of verbs with disjunct prefixes, taken from the Dogrib Dictionary, are given below. The disjunct prefixes are in bold, and morpheme glosses are added.

- (17) a. **k'ebe** / **k'e**=be/
 around=swim
 ‘swim around’
- b. **ts}wi** / **ts}i**=wi/
 spoiled=affect
 ‘it gets spoiled’

¹¹ It is possible that this limited inventory is due to a large number of accidental gaps since the conjunct prefixes are a closed class of morphemes (Hargus personal communications).

	h.	det'qcho	'eagle' (big duck)	
	i.	sahcho	'grizzly bear' (big bear)	(57)
iv.	Past tense marker – <i>ilè</i>			
	j.	tehk'à ilè sekwò le ?ajà	'I was fat, but I lost weight'	
	k.	newhile dewhò ilè	'I thought you were lost'	
	l.	sets'à?indì ilè	'she paid me'	(163)
v.	Future marker –(x)a			
	m.	kò gorehtsj xa	'I'm going to build a house for myself'	
	n.	dechita gots'ò ?anende xa ni	'are you going out into the bush?'	
	o.	ifà dehtè xa le	'I'm not going to sleep yet'	(166)

Although the future, past tense, negative and augmentative suffixes are not discussed further in this thesis, the diminutive suffix will be dealt with in more detail in chapter 4, as will some of the other vocalic suffixes in the language, introduced below.

The suffixes given above in (18) differ from the other set of suffixes in the language—the vocalic suffixes which have no segmental value of their own. These four suffixes, given below in (19), are realized as vowels, but hold no vocalic quality of their own. They do, however, hold prosodic features such as moraic value, tone and nasality. The nominalizing suffix in (19a) is an exception since it is realized as [-i] in certain specific environments, but usually the suffixes all take the quality of the stem vowel. The nasal quality of the stem vowel spreads to the suffix vowel as well, unless, like the locative suffix in (19b), the suffix is already specified for a nasal quality.

(19)	Stem	Derived Form	Shape
a.	Nominalizing suffix		
	wedaj?q it is closed	wedaj?qò bottle cap	-μ
	dae?ò it is suspended in water	dae?òò canned fruit	
b.	Locative suffix		
	tʃ'à bay	tʃ'àḅ beach	-ḅ

theme is not a phonological domain. The verb theme is often structurally discontinuous as in the examples below. I have bolded the morphemes which belong to the verb theme, and provided a morpheme gloss.

- (20) a. **gots'ede**
 /go-ts'e=de/ (MKR 2002)
 areal-UHS=talk
 'talk'
- b. **nà?ets'edlò**
 /nà#?e-ts'e=dlò/ (DDBE 1996, 76)
 CON-UO-UHS=laugh
 'laugh'
- c. **whihtsi** (Ackroyd 1982, 63)
 /wh-i-h=tsi/
 *s-1sS.prf-CL=make
 'I made it'
- d. **yahti** (DDBE 1996, 122)
 /ya#h=ti/
 th#CL-talk
 'pray, speak, preach'

1.3.2.2 The Verbal “template”

Structures within the Athapaskan verb are often considered typologically unusual. A rich literature on the complex morpho-phonemics of Athapaskan verbs has developed to account for structures such as that of the verb theme mentioned above. The figure in (21) illustrates the order that the prefixes in Tłjchq̄ Yatìl would combine in the ‘verb word’, if they could all be present in the same word, which they cannot. This schema, due to Davidson 1963, is taken from Rice (2000), and does not include a placement for the conjugation markers. The disjunct/ conjunct boundary is between what Davidson refers to as the included noun, more frequently termed an incorporated noun, and the

number prefix:

(21)

Indirect object¹⁴ - postposition - adverbial prefixes - iterative mode¹⁵ - theme prefix - included noun - number prefix - direct object - deictic and 3 plural¹⁶ - aspect prefix - modal prefix - subject pronoun - classifier - stem

(Davidson 1963: as cited in Rice 2000, 403)

Traditionally, the Athapaskan verb has been accounted for with a templatic model (Kari 1989), where each prefix holds a position in relation to the verb root. The template shows how there are sets of prefixes within each position, but only one can occur at a time. This model is now accepted as mostly descriptive since it is limited in its ability to account for the abstractions of many of the morphemes (Rice 2000, McDonough 2000); however, it provides a thorough description of the sequentially ordered affix class positions. The chart in (22), based on that from Ackroyd's 1982 grammar (p.62) and Svendsen (2000, 17), lists positions of the various verbal prefixes and provides a slightly more visual representation of how verbal prefixes are ordered in Tłı̄ch̄o Yatı̄ than that in

(21).

(22)

Disjunct prefixes:

00	object of incorporated postposition
0	incorporated postposition
1	adverbial
2	distributive
3	customary
4	incorporated stem

Conjunct prefixes:

5	number
6	direct object
7	supplementary subject
8	theme/aspect
9	conjugation
10	mode
11	subject
12	classifier

¹⁴ This prefix is also called the object of the incorporated postposition.

¹⁵ The iterative mode is referred to as the customary in the chart in (22). The distributive is not by Davidson in (21).

¹⁶ These prefixes are referred to as supplementary subject prefixes in the chart in (22).

	<i>Disjunct Prefixes</i>						<i>Conjunct Prefixes</i>							<i>Root</i>	
	00	0	1	2	3	4	5	6	7	8	9	10	11		12
nàwhehzhè 'I hunted'			nà								whe	i (*ñ pf) 17	h	l	zè
etayeehchi 's/he takes it home'			eta					ye		de	ø	ø	ø	h	chi
eghàlaeda 's/he works'	e	ghà				la					e (*ɣcnj) 18	ø	ø	ø	da
seghànɨwa 'give them to me'	se	ghà									ne	ø	ne	ø	wa

The first example in the chart in (22), *nàwhehzhè* 'I hunted' is typical of how in Tłı̄chǝ Yatì, often the surface representation doesn't correlate with the morphemes present underlyingly since there is a great deal of fusion in the output, and many restrictions on which morphemes can be realized within the same word. The [l] classifier in position 12, for example, doesn't surface in the language except to block devoicing, and the perfective marker in position 10 marker [i] doesn't appear with either the [d] or [l] classifier (Ackroyd 1982).

The second and third examples show how prefixes in the conjunct domain seem to disappear or combine. The thematic /de-/ prefix, for example, in *etayeehchi* 's/he takes it home' is only realized with vowel length intervocalically. This is a process that will be discussed in Chapter three, as will the process seen in *seghànɨwa* 'give them to me', where the conjugation prefix /ne-/ and the 2sS prefix combine and are realized as [nɨ-].

¹⁷ This mode prefix is realized as a nasal high vowel, but traditionally comes from the Proto Athapaskan palatalized /*ñ/ perfective marker.

¹⁸ The historical realization of this conjugation marker had the quality of /*ɣ/ in Proto Athapaskan.

These two processes will be examined as evidence of how the language is reducing syllable structure. It is this type of morphophonemic process, as well as the phonology of the stem, that this thesis examines: The complex issue of the ordering of prefixes in the Tłı̄chʔ Yatı̄ verb will not be the focus of the thesis.

The purpose of this section on the morphological structure of the language is to allow the reader a basic understanding of the Tłı̄chʔ Yatı̄ verb and how it is put together, as well as introducing some of the issues around coalescence and deletion of underlying segments. The following section briefly outlines the theoretical framework and assumptions adopted for the analysis in the following chapters.

1.4 Goals

Like other Athapaskan Languages, Tłı̄chʔ Yatı̄ has a number of phonological processes which take place within the boundaries of the morphological units known as the stem domain and the conjunct prefix domain. These processes include nasalization, vowel assimilation, and the historical processes of stem simplification and coda reduction. It is the purpose of this thesis to examine these processes in Tłı̄chʔ Yatı̄ and to suggest that although they seem at first glance to be quite separate processes, they are, in fact, all related to one another by having the same functional goal. Specifically, I shall argue that there is, metaphorically speaking, a conspiracy¹⁹ in the language which works to simplify prosodic structure.

This constraining tendency demonstrates a preference for smaller, less marked

¹⁹ For a short history of the term “conspiracy” in linguistic theory, and how it has influenced OT, see McCarthy (2002, 53-57). As I write below, I use the term here as a metaphoric description of a common target, and offer no theoretical argument with its use.

structures, and derives economical representation of morphemes under the family of *STRUC markedness constraints (Zoll 1993, Prince & Smolensky 1993). There are two main levels to the account I present within this thesis: The first is the argument that a constraint such as *STRUC (σ) exists and restricts the realization of syllables in the language, the second is that the rankings of this constraint and others in its family have been rising in the phonological grammar of Tɬichɔ Yatì. The result of this simplicity conspiracy is the reduction of syllable structure in the language.

This thesis addresses three domains where the simplicity conspiracy is at work in the language: the domain of the syllable, the conjunct domain and the stem domain. The first chapter in this thesis provides an introduction to Tɬichɔ Yatì, its phonological inventory, and a very brief phonological and morphological sketch. Chapters 2, 3 and 4 offer pieces of evidence in support of a high-ranked set of constraints which result in unmarked structures wherever the morphology allows. Chapter 2 establishes how the Tɬichɔ Yatì syllable has been reduced in structure over time, focusing on the process of hiatus resolution to exemplify how syllables are currently being reduced in number. Chapter 3 looks at a similar process of simplification in the conjunct domain, where onsets are no longer realized, and long vowels are being created. The last chapter looks at how the stem domain has evolved into a simple, mono-syllabic shape, a shape which is maintained even with the addition of most vocalic suffixes. I propose that the shared result of all the processes discussed in chapters 2, 3 and 4 is to reduce prosodic structure by allowing fewer syllables to be realized in output forms. This can be explained by assuming that they are all functioning under the conspiracy of simplicity and the family of *STRUC constraints, and most significantly, STRUC(σ).

I use the term “conspiracy” throughout this thesis to describe how a number of apparently unrelated processes have a common target. I offer no theoretical argument for the use of this term, but use it only as a metaphoric description of that common target. The history of the term “conspiracy” in linguistics comes from Kisseberth (1970) where it is used to describe how several different phonological rules in the language of Yawelmani Yokuts “conspire” to serve a similar purpose by either passively avoiding or by actively eliminating *CCC clusters. This term was relevant in the 1970’s due to the geopolitical climate at that time (McCarthy 2002) and still is, but has no bearing on the nature of the language itself or on the speakers of the language. I am using it here to describe related phonological processes only. I choose to use this word in this thesis because the circumstances Kisseberth (1970) describes are very relevant to the processes in Tłı̄ch̄o Yatı̄l described in this thesis, where processes of vowel assimilation, allomorphy selection, coda reduction and the incorporation of suffixes into the stem domain all serve the similar purpose of reducing the number and shape of syllables in the language.

1.5 Theoretical assumptions

This thesis draws upon a variety of theoretical works and hinges upon a number of basic assumptions. This section outlines what these assumptions are and how they are couched in the theoretical frameworks of Optimality Theory, the notion of constraint reranking, allomorphy selection, Positional Faithfulness, and most significantly, the existence of a *STRUC(σ) constraint which results in outputs with fewer syllables.

There are three phonological domains of Tłı̄ch̄o Yatı̄l discussed in this thesis: the

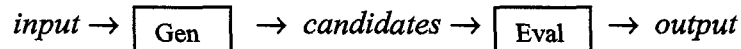
domain of the syllable, the conjunct prefix domain and the stem domain. All three of these domains are moving towards or maintaining a simple target shape despite morphological complexity. The reduction of structure and maintenance of non-complex prosodic shapes in these domains occurs historically, but in some ways is still active. This thesis employs a number of current phonological theories to support the hypothesis that both the historical and synchronic processes, which are discussed in chapters 2, 3 and 4, are governed largely by one increasingly powerful family of constraints against structure, and especially one overriding constraint against syllables.

1.5.1 General Optimality Theory Framework

In order to express the form and nature of the constraints involved in the analysis, I depend on a constraint driven theory—that of Optimality Theory, which assumes constraints evaluate potential output. The crucial feature of Optimality Theory, developed by Prince and Smolensky (1993), is violability, and thus the theory assumes that constraints are violable. Under this framework, constraints are universal, but each language has its own ranking of constraints. OT assumes that a surface form of a language is “optimal” since it reflects the resolution of the competing demands of universal markedness constraints and universal faithfulness constraints. The markedness constraints guard against a surface form which is too marked cross-linguistically, and faithfulness constraints work to preserve identity.

Below in (23) is a schema of how McCarthy (2002) describes the universal elements of the OT architecture:

(23) Basic OT architecture



(McCarthy 2002, 10)

There are a number of further assumptions that I make in this thesis, outlined in the following sections, surrounding the issues of historical change, allomorphy selection and positional faithfulness, all of which fit into the basic OT framework.

1.5.2 Constraint Reranking

Although this thesis does not offer an in-depth historical OT account of the changes the language is undergoing (such as stem and syllable simplification), the historical perspective is vital in looking at these processes. The hypothesis I present in this thesis assumes that a family of constraints has been climbing in the ranks of the phonological grammar over a long period of time, and that the progressively higher ranking of constraints against structure is the cause of the changes the language is undergoing in the area of prosodic structure. This hypothesis is in keeping with other work on diachronic and synchronic sound change such as Zubritskaya's (1995) OT work on Russian Phonology, which claims that sound change is due to the shifting of constraint rankings, Anttila and Cho (1998) who represent linguistic variations with different rankings in constraint lattices, and Ham (1998) who analyzes diachronic change as the reranking of violable constraints in his examination of geminates in West Germanic.

Zubritskaya (1995) notes that changes of assimilation processes can be accounted for in OT through the grouping of functionally similar constraints into families and the decreasing or increasing ranking of those families. I make the assumption then that the

historical change in Tłı̄chǝ Yatı̄l is driven by re-ranking of constraint hierarchies in the grammar.

1.5.3 Allomorphy Selection

Allomorphy selection is the theoretical topic of chapter 3. In order for the account to be successful, an assumption must be made that more than one allomorph can be present in the input, and EVAL determines which allomorph is the optimal one for the output of each word. This assumption is important since the theory of OT is a non-derivational one, and in more traditional generative phonology, allomorphy was dealt with by deriving one phonologically similar form from another or with multiple lexical specifications. Selecting the appropriate form in the case of multiple lexical entries is a well-suited task for OT. Kager (1996) wrote on allomorphy in affixes in an OT framework, and Hargus (1997a) follows from this work and, using the Athapaskan language of Witsuwit'en, presents an argument that there are cases of allomorphy that require allomorph ranking. She claims that the rankings are not arbitrary, but follow from a constraint which picks the shortest candidate. Her discussion of such a constraint, (referred to as Brevity) in Witsuwit'en verbal prefixes is relevant to the discussion I present in chapter 3 of the 2sS and /de-/ conjunct prefixes, since both depend on a high ranking constraint discouraging the realization of affixes with larger structures.

My assumptions regarding allomorphy also follow from Rubach and Booij (2001), who offer an OT account of Polish Iotation, and claim that although the allomorphs themselves are arbitrary, their distribution is not—it is determined by prosodic markedness interleaved with faithfulness constraints, morphological constraints and other phonological constraints. I make the assumption then that the distribution of

prefix allomorphs in Tłı̄chʔ Yatı̄ is determined by constraint rankings.

1.5.4 Positional Faithfulness

In order to deal with discrepancies between the phonology of conjunct prefixes and that of the stem and disjunct prefixes, I make another theoretical assumption within the constraint driven framework of OT. I crucially assume that a separate set of faithfulness constraints governing lexical items is necessary in Athapaskan languages like Tłı̄chʔ Yatı̄. This set of constraints is ranked more highly than regular input/output correspondence constraints in the language. This assumption follows from the theory of Positional Faithfulness by Jill Beckman (1998) and from an analysis of disparities in word domains in the Athapaskan language of Navajo by John Alderete (2002).

The premise of Positional Faithfulness comes from the long standing observation that certain phonological and morphological positions hold more prominence than others, and so maintain phonological distinction where it might have been lost in a less prominent position. Beckman (1998) accounts for this observation through the theory that this relationship between prominence and distinction is derived by faithfulness constraints surrounding morphological and phonological position. The areas of prominence where phonological contrasts tend to remain, as well as areas of non-prominence, are as follows:

- | | |
|--|--|
| <p>a. Privileged positions</p> <ul style="list-style-type: none"> • Root-initial syllables • Stressed syllables • Syllable onsets • Roots • Long vowels | <p>b. Non-privileged positions</p> <ul style="list-style-type: none"> • Non-initial syllables • Unstressed syllables • Syllable codas • Affixes, clitics, function words • Short vowels |
|--|--|

(Beckman 1998, 1)

It must be noted that where contrast is lost in Tłıchʉ Yatı̄ syllables, and where syllables themselves are lost in words, is in keeping with what is considered areas of non-prominence. In chapters 3 and 4 we will see that root-initial syllables maintain full contrast in their vowels and onsets, and it is the second syllable of the root where the onset is no longer realized. The other morphological category where onsets are disappearing is that of affixes, particularly inflectional morphemes. Thus an assumption is needed of a separate ranking of faithfulness constraints protecting segments in privileged positions from context-free faithfulness constraints, which supports Beckman (1998).

Alderete (2002) presents an analysis based on the premise of Positional Faithfulness Theory (Beckman 1998, Lombardi 1999) which explains the relationship between morpho-syntactic and phonological structure of Navajo verbs. As in Tłıchʉ Yatı̄ and other Athapaskan languages, there are structural disparities in Navajo word domains such as the difference in consonant distribution in conjunct domains and disjunct domains. Alderete (2002) lays out these differences in terms of the “Privileged domain” and the “Restricted domain” which correspond to lexical items (including roots and disjunct prefixes) and functional items (including conjunct prefixes). In order to account for the disparities between the privileged and restricted domains, he claims there are two sets of faithfulness constraints, one for lexical categories, generalized as **LEXCAT-FAITH** which take precedence over the one for functional categories, **FUNCCAT-FAITH** (Alderete, 2002).

His account depends on the critical assumption that disjunct prefixes and roots are

lexical categories while conjunct prefixes are functional categories, and that lexical categories allow richer phonological structure and resist more phonological alternations than do functional categories (Rice 1993; Rice 2000, Alderete 2002). This work is central to the argument of this thesis because it employs the idea of a different set of constraints specific to lexical items in an account of an Athapaskan language.

By assuming that faithfulness constraints surrounding the integrity of roots and other lexical items are ranked above context-free constraints affecting all positions including conjunct prefixes and suffixes which are non-lexical items, it is possible to account for the difference in behaviour of the two categories, as well as the difference between the phonological distribution of segments in the conjunct prefix domain and the stem domain in the Tłjchq̓ Yatìl verb. Rice (2000) identifies lexical items in Athapaskan languages as those which pattern similarly to independent words and only rarely enter into phonological processes. (This idea is first defined on page 34 and is carried through the rest of her book.) She identifies disjunct prefixes as lexical because they usually have well-defined lexical meanings, and are much more diverse in phonological shape and quality than the conjunct prefixes. Conjunct prefixes, according to Rice, contrast with disjuncts as functional items which are often affected by phonological processes, and are limited in meaning and shape. Thus I assume too that in Tłjchq̓ Yatìl, conjunct prefixes fall into a functional category, since they are largely inflectional, and stems fall into a lexical category, since they have semantic content.

The two theoretical assumptions I make and put into practice in Chapters 3 and 4 are that in Tłjchq̓ Yatìl, like Navajo and other Athapaskan languages, there are two morphological categories which affect phonological wealth and processes, functional and

lexical, and that faithfulness constraints governing lexical items are more highly ranked than context-free faithfulness constraints due to their morphological prominence.

1.5.5 Existence of the *STRUC constraint family

The final and most significant theoretical assumption I make in the OT framework concerns the existence of the *STRUC family of markedness constraints. This family encompasses all markedness constraints against phonological structure, and was discussed by Prince & Smolensky (1993)²⁰ with Cheryl Zoll, and documented in a footnote of the OT manuscript. This idea was used by Zoll in her 1994 dissertation. The most significant of these constraints, and the constraint my account attributes the most power to is:

*STRUC(σ) ‘No syllables’ (Zoll 1994).

The high ranking of this constraint is largely what I claim drives the conspiracy of simplicity in the language which results in monosyllabicity in the various domains. The target prosodic shapes of the language are small structures, and this constraint, and others of its family, work to eliminate output candidates with too much structure. This assumption of a constraint such as *STRUC(σ) allows a common factor in each domain in Tłjchq Yatil I discuss in this thesis: the syllable domain, the conjunct domain, and the stem domain.

Independent of Optimality Theory, I make the following assumptions as well. In order to establish syllable structure in chapter 2, I depend heavily on the traditional notion of a mora as a unit of weight in a syllable. I assume a distinction between heavy

²⁰ This idea comes from Prince and Smolensky (1993 Ch 3, n.13): It is “an idea that there is a broad family of constraints *STRUC (pronounced “star-struck”) that militates against all structure whatsoever, thereby implementing a very general representational markedness theory” McCarthy (2002, 47).

and light syllables: a heavy syllable in Tłı̄chọ Yatı̄ is bimoraic, and a light syllable is monomoraic. I also assume that not all coda consonants are heavy, since in Tłı̄chọ Yatı̄ they are not. In order to describe how a Tłı̄chọ Yatı̄ syllable may contain more than one tonal value I draw upon Blevins' (1993) account of Lithuanian syllable structure, in making the assumption that Tone Bearing Units (TBU) can be moras, as opposed to syllables or segments. According to this assumption, then, a heavy syllable can bear two tone values.

The next three chapters draw upon these assumptions in order to make the claim that a family of *STRUC markedness constraints, which act upon prosodic structures like syllables and the stem domain, are moving up the ranks in the grammatical constraint hierarchy in Tłı̄chọ Yatı̄, and effecting a movement towards smaller structures in the face of the complex morphology of the language.

1.6 Summary of Chapter 1

This chapter offers a general introduction to the morphology and phonology of Tłı̄chọ Yatı̄, has established some of the theoretical framework the rest of the thesis depends upon, and has defined the goal of this work, and so acts as spring board for the rest of the thesis. The main points that are integral to the rest of the chapters are that Tłı̄chọ Yatı̄ is similar to other Athapaskan languages of the Mackenzie Basin, but differs in the direction of some of its innovations. The phonological processes of Tłı̄chọ Yatı̄ which are relevant here are those which create or maintain simple prosodic shapes in the three domains of the syllable, the conjunct domain and the stem domain. These three

phonological domains, and the simple structures that are created or maintained within them are the topics of the following three chapters. The syllable domain is discussed in chapter 2 and is the foundation on which the rest of the thesis rests, chapter 3 addresses the conjunct domain, and the last chapter focuses on the stem domain.

Chapter 2

Reduction within the Syllable Domain

2. Introduction

The Tłı̄chʉ Yatı̄ syllable is the main focus of this chapter. More particularly, this chapter examines the change in allowable syllable shapes over time, and the change in the number of syllables being realized in certain words. The goal is to describe the diachronic and synchronic change surrounding Tłı̄chʉ Yatı̄ syllables and to illustrate the extent to which patterns of syllable loss and retention reflect a tendency in the language to reduce complexity in structure. There are two pieces of evidence given in this chapter which support the existence of such a tendency or conspiracy. The first is that over time the language has simplified allowable syllable shapes by reducing contrast in codas. The second piece of evidence is the strategy of assimilation, which resolves hiatus and results in fewer syllables being realized in the speech of contemporary speakers than would have been the case 100 years earlier.

The first section of this chapter, section 2.1, offers an account of the syllable structure in the language and provides a comparison of syllable shapes in Tłı̄chʉ Yatı̄ with those of the closely related languages of Slave and Dene Sų́liné. It begins with establishing a historical movement away from closed syllables whereby voiced codas disappear and voiceless codas are neutralized to [h]; this is followed by a discussion of the implications of these changes. The last part of this section discusses synchronically heavy syllables in the language and makes the crucial assumption that two adjacent vowels of the same quality are always tautosyllabic. As we will see, this assumption is a

pivotal one in the analysis presented in this thesis.

The second part of this chapter, section 2.2, discusses how the number of syllables in a word in Tłıchq Yatı̄ can be reduced through the merging of two distinct syllables into one, and offers an analysis of these phenomena within the theoretical framework of OT. The resolution of vowel hiatus through assimilation is the first environment discussed in this thesis that results in fewer syllables being realized in words. The loss of syllables in this way is analyzed as evidence for the reduction of structure.

The way these two phenomena can be accounted for is through the increased ranking of a family of constraints which restrict the realization of structure in a language—the family of *STRUC. Specifically, the two constraints of this family which are crucial in the Tłıchq Yatı̄ processes of reduction are *STRUC (coda) and *STRUC(σ). I claim here that this family of markedness constraints has been climbing in the ranks of the grammar of Tłıchq Yatı̄, and it is this which is currently creating a conspiracy of simplicity in the language. The conspiracy is therefore the link between the phenomenon of the historical movement of coda reduction in Tłıchq Yatı̄ and that of the relatively recent processes reducing the number of syllables in words.

2.1 Syllable shapes

Due to highly ranked *STRUC constraints against codas and complex onsets, syllable structure has become very simple in Tłıchq Yatı̄ -- the optimal shape is *cv*. There are other allowable syllable shapes in the language, as discussed in the previous chapter and below in section 2.1.2, but they are all consistently simple as well. There are no complex onsets and no complex codas in the language. This simple shape is the first

motivating factor for positing highly ranked constraints against structure. This section on the Tłıchq Yatı̄ syllable offers a discussion of the historical evolution of the syllable, and an account of the synchronic shapes, including the shape of a heavy syllable. Tone is also discussed in terms of how it relates to the syllable.

2.1.1 Historical change in Tłıchq Yatı̄ syllables

The allowable shape of a Tłıchq Yatı̄ syllable has changed from that of its mother language, Proto-Northeastern Athapaskan. The most significant change is the loss of coda consonants. The development of more complex syllables into the more simple shapes of the contemporary language provides the first piece of evidence to support my hypothesis. If simple prosodic structures are not optimal in this language, what is motivating these changes?

2.1.1.1 Loss of Proto-Northeastern Athapaskan coda contrast

The conspiracy of simplicity has likely been active in the Athapaskan language family to varying extents for centuries. The purpose of this section is to show how this tendency in Tłıchq Yatı̄ is even stronger than in other closely related languages. The conclusion that can be drawn from this is that the constraints active in creating or maintaining simple shapes must be more highly ranked in Tłıchq Yatı̄ than in the other languages. The loss of codas in this language is the evidence this section provides for the high ranking of constraints against complex structure in syllables.

According to historical work done by Lynda Ackroyd (1976) and Robert Howren

(1971b) there is a branch of Proto-Athapaskan which developed into Proto-Northeastern Athapaskan, and from that language Tłı̄chǝ Yatı̄l, Slave and Dene Sų́lıné evolved.

Proto-Athapaskan had a much wider distribution of consonants in coda position than any of the present-day NEA daughter languages due to processes of final consonant neutralization (Saxon, 1979). Each obstruent series of the Proto-language is represented by only one member in root final codas in the NEA languages. Therefore of a large number of root final contrasts available in PA, only a few existed in PNEA. The data in (1) is an example of this reduction. The velar series of PA, given in the second column, is reduced in coda position to just one segment in PNEA, and that segment is not realized at all in some current Slave and Tłı̄chǝ Yatı̄l cognates.

(1) Coda Neutralization

	PA	Dene Sų́lıné	Slavey	Hare	Tłı̄chǝ Yatı̄l	gloss
PNEA *x	*nǝǝʔ	naghé	-ndaá'	-dá'	-daà	eye
	*š ^w ek'	zεghé	-zee	-zégé'	-zeè	spit
	*χax	hah	xah	xah	xah	goose

(Saxon 1979, 7)

The data in (1) gives examples of how root final coda contrast has been reduced. This process, however extends to codas in other positions in the language as well. I therefore use this data as representative of all codas in the language, not just of root finals.

As the data in (1) indicates, the codas of the NEA languages are much more restricted than those of Proto-Athapaskan. However, the degree to which codas have been retained varies from language to language. Dene Sų́lıné is the most conservative of the group; Hare has innovated the most with respect to stem initial consonants, and

Tł̥ichq̥ Yatì has innovated the most with respect to final consonants, vowels and tone reversal (Ackroyd 1976).

The overall tendency in NEA is to reduce final consonants to [h] and from there to nothing. The rule for this neutralization is given in (2)²¹.

(2) Final consonant neutralization

$$C \rightarrow h / _ \{ \#, \\ [-nasal] \quad \quad \quad C \}$$

(Saxon 1979, 12)

The data below in (3) indicates how this process is evident especially in Tł̥ichq̥ Yatì codas. Not all codas neutralize to [h] in Tł̥ichq̥ Yatì; most disappear altogether. The stem final consonants of the comparative Tł̥ichq̥ Yatì, Dene Sł̥iné, Slavey, and forms in (3) are representative of how codas are retained in these languages. As the form in (3b) indicates, like most other segments, the sonorant segment /n/ is no longer realized as a coda in Tł̥ichq̥ Yatì, but the nucleus of the syllable retains its nasal quality.

(3) [h] only allowable coda in Tł̥ichq̥ Yatì²²

		Dene Sł̥iné	Slavey	Hare	Tł̥ichq̥ Yatì
a.	rope	tł̥'uli	tł̥'uh	tł̥'u	tł̥'ih
b.	star	tł̥én	tł̥é	wé'	whò
c.	hill	shéth	shíh		shih
d.	flour	tł̥és	tł̥éh	léh-	tł̥è
e.	charcoal	tł̥'és	tł̥'éh	tł̥'é'	tł̥'èh
f.	smoke	tł̥er	tł̥eh	le	tł̥o
g.	knife	bes	mbeh	beeh	beh

²¹ According to Rice (1989,93) in Slave it is specifically syllable final non-sonorants which neutralize to [h] syllable finally. I have not systematically examined whether or not this is the case in Tł̥ichq̥ Yatì, but from the data in this thesis this correlation does not appear to be consistent. We would expect to see *tł̥é* 'flour' in (3d) with an [h] coda if it were.

²² Forms come from the Hare dictionary (Rice 1978), the South Slavey Topical Dictionary (1993), the Dogrib Dictionary, (DDBE 1996), and the *Dene (Chipewyan) Dictionary* (Elford & Elford 1998).

Dene Sų́iné has retained much more of the consonantal contrast in coda position than the other three languages. As we can see from the examples in (3), both sonorant and non-sonorant codas can be retained. Slavey has retained some contrast in the underlying representations, but that contrast only surfaces in the presence of suffixes. In non-suffixed forms, all syllable-final non-sonorants neutralize to [h] phonetically in Slavey and Hare (Rice 1989, 93)²³. Glottal stop is also an allowable codain Hare. Tų́ichq Yatì reduces codas even more extremely than that—it takes the tendency of Northeastern Athapaskan languages to reduce codas the furthest. As the next two data sets illustrate, all codas besides [h] disappear completely in Tų́ichq Yatì, even in underlying representation.

The data in (4) provides examples of suffixed forms which show how the only coda contrast retained in Tų́ichq Yatì words is between [h] and [∅], while cognate Slave forms do retain some contrast in suffixed forms. The contrast in the Slave forms, however, does not occur when the segments are in coda position. In Slave, stem final codas are resyllabified as onsets when a vocalic suffix is added. The presence of these segments in onset position in the forms below are evidence that they exist in the underlying representation.

(4) Coda contrast not retained in UR of Tų́ichq Yatì ²⁴

		Slavey	Hare	Tų́ichq Yatì
a.	scab	-ludé	-luré	-lii
b.	smoke	-ledé	-leré	-łòð

²³ [h] was not a possible coda in PA.

²⁴ The Slave and Hare suffixed forms come from Rice (1989, 94, 218), the Tų́ichq Yatì is taken from the Dogrib Dictionary, (DDBE 1996) and personal communications between me and Leslie Saxon and Philip Rabesca.

c.	star	-dhéné	- wéné	-whòò
d.	knife	-mbehé	-bée	-beè
e.	guts	-ts'ié	-ts'iyé	-ts'ì
f.	spit	-zeé	-zéegé	-zeè
g.	vein		-ch'ire	-ch'ì

The forms in (4b) can be compared to those in (3f) as an example of the difference in phonetic realization of the underlying stem final consonant when followed by a vocalic suffix. The coda of the word ‘smoke’ is neutralized to either an [h] coda or no coda in all three non-suffixed forms, but when a vowel initial suffix is added, the underlying quality of the stem final consonant is revealed. In the Slavey form the stem final consonant is realized as a [d] and re-syllabified into an onset. The same situation occurs in Hare, where an underlying stem final [r] is re-syllabified into an onset. The Tłıchq Yatı̀ form, however, does not realize any stem final consonant in suffixed forms. There are no codas remaining to resyllabify intervocally.

If an underlying contrast still existed in Tłıchq Yatı̀, we would expect it to reveal itself in words like those in (4). Instead, the opposite happens: even those forms which retain an [h] coda lose the final segment with the addition of a vocalic suffix—this phenomenon will not be discussed here, but will be addressed in chapter 3. These suffixed forms therefore show that the reduction is not just phonetic as it is in Slave forms—the only possible contrast that exists in a Tłıchq Yatı̀ coda is between [Ø] and [h]. The following section outlines briefly some of the factors that result in this loss of coda contrast in Tłıchq Yatı̀.

2.1.1.2 Tłıchq Yatı̀ coda loss

The preceding discussion established how PNEA has greatly reduced contrast in coda position from that of PA, seen in data in (1), and how within the NEA group the Tłı̄chọ Yatı̄ syllable²⁵ has become the most restricted phonologically. The data presented in 2.1.1.1. leaves two things to explain: the first is why disyllabic stem domain shapes like those seen in Slave forms in (4) are not seen in Tłı̄chọ Yatı̄, and the second is how to deal with the vv sequences (bolded below) seen in the forms where the coda is not resyllabified into an onset:

Slave	Hare	Tłı̄chọ Yatı̄	
-ledé	-leré	-łòò	smoke
-dhéné	-wéné	-whòò	star

This section offers a discussion of why Tłı̄chọ Yatı̄ has innovated the farthest from the syllable structure of the PNEA language. I claim that two constraints of the *STRUC family, given below in (5) and (6), are ranked more highly in the phonological grammar of Tłı̄chọ Yatı̄, and are thus responsible for the current shape of the syllable in the language.

- (5) *STRUC (coda) No codas
 (6) *STRUC (σ) No syllables

The first prevents the realizations of codas, and the second prevents the realization of syllables. Therefore, forms like **-łòò** would be more optimal in the language than *-ledé* or *-leré*.

There is obviously a constraint in the language, such as that in (5), which prevents codas of any consonantal quality. As previously stated, the only coda that is allowable in

²⁵ Again, I use the root syllable, which in the case of the data in (3) is also the stem domain syllable, as representative of all syllables in the languages.

Tłichq Yatì is an [h], which is not perceptually salient. It is essentially placeless and featureless and can be analyzed as either a voiceless glottal fricative or a voiceless vowel²⁶. This segment is also unique in the inventory of Tłichq Yatì because it is restricted phonologically from onset position. As discussed in chapter 1, there is a phonetic [h] segment that often occurs as an onset in Tłichq Yatì, but it occurs in those circumstances as an allophone of the other velar consonants, /k/, /x/²⁷. In domains like the stem domain, which are not phonologically restricted, all other consonants of the inventory can fill the role of an onset, except [h]. And yet, this segment is the only possible coda allowed in a language that avoids codas whenever possible. The role the segment [h] plays in the phonology, therefore, is a special one. The violation an [h] coda makes against the constraint *STRUC (coda) is not fatal due to this special status.²⁸

If this assumption can be made, then the Tłichq Yatì forms given in (1), (3) & (4) would not fatally violate the constraint *STRUC (coda), but older forms, or those which may have retained consonantal contrast in coda position would have.

²⁶ If this segment can be considered a voiceless vowel in the inventory of the language it could not be considered a coda at all, and would not therefore violate *STRUC (coda) in any way. This possible analysis of the special status of the Tłichq Yatì [h] being due to its non-consonantal realization is not developed further here because if it were considered a voiceless vowel, it would have to be without weight, and an analysis of this possibility is outside the current scope of this thesis. This discussion also awaits phonetic study of the segment.

²⁷ It is possible that the phonetic quality of an [h] onset is different from that of an [h] coda. The coda [h] may, like nasality, be realized in current speech as a quality of a vowel (Joseph Martel personal communications).

²⁸ This constraint may be more effectively decomposed into *STRUC (coda)-place and *STRUC (coda)-placeless (Hargus personal communications).

	PA	Dene Sų́íné	Slavey	Hare	Tų́ichų́ Yatì	gloss
From (1)	*s ^w ek'	zəghé	-zee	-zégé'	-zeè	spit
From (3)		tthén	thé	wé'	whò	star
		łés	łéh	łéh-	łè	flour
From (4)			-mbehé	-bée	-beè	knife
			-ledé	-leré	-łòò	smoke

For example, the PA forms would violate such a constraint because they had codas. Most forms in Tų́ichų́ Yatì and Slave would not violate this constraint. Such a constraint would have to be slightly lower ranked in a language like Dene Sų́íné which still retains a much larger contrast in coda position. Yet, in Tų́ichų́ Yatì when an [h] coda is realized the coda has not disappeared altogether, therefore it still satisfies faithfulness constraints that require segments in the input be realized in the output (Max IO constraints).

If an underlying contrast like that which exists in Slavey and Hare, seen in (4), were maintained in Tų́ichų́ Yatì, the coda would be re-syllabified into an onset as it is in those languages too. This would of course create a new syllable, which would fatally violate the high ranking *STRUC(σ) constraint by adding another syllable to the stem. Thus the combination of the two constraints prevents the realization of any coda besides [h] and also prevents the creation of a new syllable through the resyllabification of a coda. This *STRUC(σ) constraint is very highly ranked in Tų́ichų́ Yatì, as the rest of the thesis will support, but it is clear through differences like the resyllabification of coda consonants that the family of *STRUC constraints surrounding the realization of syllables are not so highly ranked in Slave and Dene Sų́íné as they are in Tų́ichų́ Yatì.

Having established the historically innovative nature of Tų́ichų́ Yatì, as well as the phonological movement the Tų́ichų́ Yatì syllable has undergone away from structure,

the next section examines the nature of the synchronic syllable shapes.

2.1.2 Synchronic Tł̥ichq̣ Yatì syllables

As previously mentioned, the three domains in Tł̥ichq̣ Yatì where a preference for less structure has become evident are the stem, the conjunct domain and the syllable. This section explores the synchronic Tł̥ichq̣ Yatì syllable in order to build the ground work for the rest of the chapter which provides an account of how the syllable is affected by the *STRUC family of constraints. The lack of epenthesis in the conjunct domain is discussed here as well, which is relevant to the topic of syllable structure, and is an assumption that is essential to the discussion of conjunct syllables in chapter 3.

This section also brings to light the tendency in the language to maintain moraic value rather than the structure of the syllable itself, and establishes the crucial assumption that there are phonemically long vowels in the current language, even though in earlier forms of the language there were none.

2.1.2.1 Syllable shapes

According to Howren (1979) and Ackroyd (1982), the Tł̥ichq̣ Yatì syllable can have one of four shapes: **v**, **cv**, **cvc**, **vc**, where the only allowable coda is [h]. Clusters are not licit in either codas or onsets, and syllables must contain a vowel. The following are examples of each structure repeated from chapter 1:

- (7)
- | | | | | | | | |
|----|------------|-------------------|----------|----|--------------|--------------------|------------|
| a. | e.tse | 'he cries' | v.cv | c. | ti | 'water | cv. |
| | xo.e.t'j | 's/he is married' | cv.v.cv | | ne.chà | 'it is big' | cv.cv |
| b. | eh.jì | 'be hooked' | vh.cv | d. | teh.ji | 'mink' | cvh.cv |
| | kw'i.ah.nq | 'bee' | cv.vh.cv | | kwì.yeh.tsih | 'wear on the head' | cv.cv.h.cv |

(DDBE 1996)

As can be seen even from this small sample of data in (7), the shape **cv** is the most common syllable shape in the language. Thus I make the assumption it is the most unmarked syllable shape in the language. The unmarked status of **cv** is supported cross-linguistically as well. In the following section I introduce the existence of **cvv** and **cvvh** syllables as well as the **v**, **cv**, **cvh**, **vh** syllables described above.

There is a question surrounding vowel epenthesis in Tłjichq̄ Yatìl which should be included in a discussion of the syllable structure. Many Athapaskan languages have an augmentation that occurs on monosyllabic verb stems. Tłjichq̄ Yatìl is one such language. There is an [e] realized in certain environments which, according to Ackroyd (1982), is an epenthetic vowel inserted to create a (c)v(h) syllable structure and to ensure the existence of a pre-root syllable. The form in (8a) is an example of where an [e] is inserted word initially, when the first person subject prefix, [h-] must be realized within a syllable. (8d) is an example of where an [e] is inserted to augment the root.

- | | | | | | | |
|-----|---------|------|------------------|---------|-----|------------------------|
| (8) | Pronoun | | | Pronoun | | |
| a. | h- | ehse | 'I shout' | d. | Ø | eze 's/he shouts' |
| b. | ne- | neze | 'you shout' | e. | ge- | geze 'they shout' |
| c. | ah- | ahse | 'you (pl) shout' | | | (Saxon verb file 1987) |

This verb form in (8a) is an example of where a vowel is realized before the first person marker [h-] and before the stem syllable in the third person singular, but nowhere else in the paradigm. In this case the apparent insertion results in a **vh** syllable, not an

unmarked *cv* syllable. But, if *cv* is the most unmarked syllable structure, why would an epenthetic vowel not create a *cv* syllable, instead of a more marked shape like *vh*? This question could be answered by citing the nature of the phonemic /h/ as a segment which is not an allowable onset. Ackroyd's account of epenthesis is strengthened by the fact that the initial [e] in *ehse* is not maintained in the rest of the paradigm. If it were, we would expect to see a long vowel in the third person plural form, and probably in the second person singular form as well: **geeze* **neeze* which we do not.

Ackroyd claims that a verb stem in Tłı̄ch̄q Yatıl cannot surface without at least one syllable preceding it²⁹, and so [e] is also inserted in the conjunct domain in front of the stem in forms like (8d) or *etse* 'he cries' (1982, 21). In other literature on Athapaskan languages the insertion of this conjunct vowel is commonly viewed as a satisfaction of a disyllabic minimality constraint in verb stems. Hargus and Tuttle (1997) discuss this phenomenon, but propose that this vowel is realized for morphological purposes, not simply through phonological requirements. They posit a cross-family analysis wherein the vowel is a tense marker rather than simple augmentation: since all verbs are tensed, they all must be marked for tense. For the sake of this thesis I follow the analysis of Hargus and Tuttle (1997), and therefore reanalyze the verb initial [e] in the following words as a tense marker and not a result of epenthesis to satisfy a disyllabic stem requirement. The same analysis can also be applied to the forms in (8b&d) above.

- | | | | | |
|-----|-------|-------------------|------|-------------|
| (9) | ebe | 'be boiling' | edzi | 'sing' |
| | egh̄q | 'fight, make war' | edzi | 'breathe' |
| | | | | (DDBE 1996) |

The imperfective verb 'live' below in (10) should be compared to the verb 'shout' seen

²⁹ The previously mentioned verb *di* 'say' is, of course, an exception to this rule.

above in (8) because it is an example of a case where the initial vowel is derived from a historical conjugation marker [$*\gamma-$], and is realized as [e]. It is certainly plausible to argue, then, that if the origin of the [e] in (10a) is morphological, then the origin of the so-called inserted [e] is also morphological.

- | | | | | | | |
|------|----|-------|----------------|----|---------|-----------------------------|
| (10) | a. | ehda | 'I live' | d. | eda | 's/he lives' |
| | b. | ɨda | 'you live' | e. | ahda | 'you dual live' |
| | c. | diida | 'we dual live' | f. | ts'eeda | 'unspecified subject lives' |
- (Saxon verb file 1987)

Hargus and Tuttle make several convincing arguments for their pan-Athapaskan account of this vowel as an affix, but my reasons for following their account come from processes in Tłı̄chǝ Yatı̄l. The rest of this thesis will show a tendency for the language to reduce the number of syllables wherever possible, but retain moras, or vocalic units of weight. This tendency that we will see in later data sets counters the idea that all conjunct vowels are inserted to satisfy syllable constraints. Many current analyses of Athapaskan phonology assume that all conjunct vowels that come from Proto-Athapaskan schwa are inserted, following Speas (1984), and Wright (1984). The opposite position has also been taken, that the prefix vowel is underlying, but deleted in certain environments (Kari 1973), (Hargus 1988), (Rice, 1989). In Tłı̄chǝ Yatı̄l, however, vowels are retained in the conjunct domain, even when the onsets have disappeared. If all vowels were inserted in the conjunct domain, there would be no underlying vowel to maintain when an onset disappears. If the vowel were inserted just to satisfy syllable structure constraints, we would not expect it to remain once that syllable onset was deleted.

This phenomenon of a vowel being retained in the conjunct domain even once the syllable onset has disappeared is discussed in depth in the next chapter, and the argument

I make here, that conjunct vowels are not epenthetic in Tɕichɔ Yatì, is crucial to that discussion.

The next section discusses heavy syllables as well as the possibility of two tones surfacing within one syllable.

2.1.2.2 Heavy syllables

It is not uncommon in Tɕichɔ Yatì for two vowels to occur adjacently. If the two adjacent vowels are of different qualities they create an environment of hiatus. In the circumstances of hiatus in Tɕichɔ Yatì each vowel is a nucleus belonging to a separate syllable. These combinations are pronounced as separate syllables with distinct vowel qualities. The following forms in (11) are examples of vowel hiatus in Tɕichɔ Yatì:

- | | | | | |
|------|-----------------|--------------------|-----------------|--------------------|
| (11) | nà.ì.dla | ‘it is torn’ | nà.èh.dli | ‘it has been sewn’ |
| | cv.v.cv | | cv.vh.cv | |
| | dɔ.ah.xe | ‘fortunate person’ | ʔih.k’è.a | ‘sometimes’ |
| | cv.vc.cv | | cvc.cv.v | |
- (MKR 2002)

There are also words with two adjacent vowels of the same quality in the language, and those words are pronounced as though they have a long vowel and belong to the same syllable. I propose, therefore, that synchronically there are long vowels in Tɕichɔ Yatì as well as short vowels. Ackroyd notes that **cv** and **cvh** syllables can have phonetically long vowels, and gives the two examples below, with the corresponding representations that imply the vowels are not phonemically long:

- | | | | | |
|------|--------------|-------------|-------------------|--------------------|
| (12) | ʔe.nij.tl’è | ‘he wrote’ | cv.cv.cv | |
| | tà.riih.ch’i | ‘I tore it’ | cv.cv.h.cv | (Ackroyd 1982, 10) |

There is reason to believe that synchronically length is not simply phonetic and that the syllable structure of such forms should actually be represented as **cvv** and **cvvh**. This representation is based on the morphology of the language and the history of vowel combinations. Historically the language did not have long vowels. The combinations of vowels and the long vowels seen in the current language are all derived from more than one morpheme (Ackroyd 1982). This includes verbs like *ʔenijitʔè* /ʔe#de-i=tʔè/ ‘he wrote’, where the length is derived from two different vowels which assimilate. This process is addressed in section 2.2.

There is no evidence to suggest that the [h] coda in Tɕichɔ Yatii is moraic, whether or not it is a voiceless vowel. There are heavy syllables in the language due to vowel length, not moraic codas. The heavy syllables are those with the shape **cvv(h)**, since each vowel is associated with a mora. Thus a syllable with a long vowel, seen in data given in (13) and (14), is a heavy syllable—even when there are two tonal values associated to the long vowel.

(13)	goyatii cv.cv.cv̀	‘our language’	jii c̀v̀v	‘berry’
	ʔixèè cv.c̀v̀v	‘yesterday’	wèhdaà c̀vc.c̀v̀v	‘some’
	tsòmba cv̀.cv	‘money’	nàatso c̀v̀v.cv	‘you are strong’
	dii c̀v̀v	‘really, very’		(MKR 2002)

My assumption that two adjacent vowels of the same quality constitute a single syllable is crucial to this thesis and to my hypothesis that Tɕichɔ Yatii is simplifying its

structure due to highly ranked constraints like *STRUC (σ). There are a number of reasons that I make this claim: The first piece of evidence comes from the way these combinations are referred to by my consultant, Mary Koyina Richardson—she calls them ‘dragged vowels’. There is a distinct length difference between the dragged vowels and regular vowels.

The second piece of evidence is that these vowels are pronounced as though they belong to the same syllable—they are pronounced within the same ‘beat’. This pronunciation is very different from the way two adjacent vowels of different qualities are pronounced. Two adjacent vowels of different qualities are pronounced as two distinct syllables.

The third argument for making this assumption makes it possible to link all the phenomena discussed in this thesis with the common hypothesis of the conspiracy of simplicity. The assumption that two adjacent vowels of the same quality exist within the same syllable leads to an account of how the process of two adjacent vowels assimilating to the same quality result in the reduction of structure through the loss of one syllable and the lengthening of another, and it therefore ties each of the processes discussed in this thesis together: the hiatus resolution, the disappearance of the conjunct onsets, and the assimilation of the suffix vowels. All of these processes create a long vowel and result in one fewer syllable being realized. Therefore an assumption of long vowels leads to a simple and cohesive account of an otherwise unrelated set of processes.

In order to further justify an account of the Tɬichɔ Yatì syllable which includes structures like the $c\grave{v}\grave{v}$, $cv\grave{v}$, $c\grave{v}v$ and cvv as seen in (13), I make the uncontroversial proposal that long vowels are bimoraic, and that each mora is a tone bearing unit. Tɬichɔ

assumes a one to one relationship between mora and tone and requires branching nuclei, designating the first or second mora within the syllable as the element capable of carrying tone. In the case of Tḥichḳ Yatì, both moras are capable of carrying tone in a heavy syllable, since consonants are never moraic. Following Juliette Blevins (p.243), the syllable shapes identified above can be correlated with a moraic representation below in (15).

(15)	cv	cṽ	cvv	cvṽ	cṽv	cṽṽ
	[μ]σ	[μ]σ	[μμ]σ	[μμ]σ	[μμ]σ	[μμ]σ
		L		L	L	LL

Based on this account, the remainder of this thesis depends upon the assumption that Tḥichḳ Yatì has heavy and light syllables, and that each mora in a syllable is a Tone Bearing Unit. Codas in the language are not moraic.

2.2 Loss of Syllables

The conspiracy of simplicity is evident in the way the Tḥichḳ Yatì syllable has evolved over the years. The difference in the allowable syllables of the contemporary language as compared to those of the past can be cited as evidence that a family of constraints, the *STRUC family, is strengthening, or moving up in its ranking within the grammar of the language. This section looks at another piece of evidence for this possibility: the tendency in Tḥichḳ Yatì for the number of syllables in a word to be reduced in certain circumstances. There are two different circumstances that this section examines where two syllables collapse or contract into one, thereby reducing the number of syllables in a word. In both cases, the mora of the collapsed syllable is incorporated or

assimilated into the previous syllable. The fact that there are fewer syllables being realized in words of the languages suggests a constraint militating against syllable structure altogether, and not just against complex syllable structures. These two sections therefore offer evidence for one constraint of the high ranking constraint family against prosodic structure. Specifically, there is a constraint within this family which prevents, as much as possible, the realization of syllables: *STRUC (σ) ‘No syllables’ (Zoll 1993)

All of the processes discussed in this section are current innovations, and in some cases, they are not used by the older, more conservative speakers of the language. This being the case, not all these processes are completely regular, and they indicate how the phonological grammar of a viable language is always undergoing change. Tɔ̃chɔ̃ Yatì has many processes, morphological as well as phonological, which are in flux.

2.2.1 Hiatus Resolution

The first syllable-reducing phenomenon this section addresses is that of resolution of hiatus through processes of assimilation. In many words Tɔ̃chɔ̃ Yatì allows vowel combinations (hiatus) in certain situations, such as with the addition of the diminutive suffix [-a]. However, in other circumstances, hiatus is not allowed. Instead, processes of vowel assimilation³⁰ occur to resolve the hiatus. The forms in (16) are words where hiatus occurs in the input, but where the surface qualities of the vowel do not all correspond with the underlying qualities.

³⁰ What I refer to as ‘vowel assimilation’ throughout this thesis would be considered ‘vowel elision’ with compensatory lengthening by Casali 1998.

- | | | | | |
|------|----|----------|------------|--------------------------|
| (16) | a. | jii | /jie/ | 'berry' |
| | b. | nàawo | /nàowo/ | 'culture' |
| | c. | gigaàt'ì | /gigoàt'ì/ | 'they appear' (MKR 2002) |

Two things happen in hiatus resolution: one, the simplification of vowel qualities, i.e. the assimilation of one vowel to the quality of its neighbour, and two, the concomitant reduction of the number of syllables—recall that two identical vowels form one syllable and not two. By resolving the hiatus situations that exist in the underlying representation of Tḥichḡ Yatì, then, each of these words is realized with one syllable less than it would have had if assimilation had not taken place. I suggest that this assimilation process is motivated by the preference in the language for fewer and smaller structures.

I use the term 'assimilation' when referring to this process mostly for the sake of consistency. Causley (1995) describing this same phenomenon also refers to it as such. The term 'lengthening' or 'coalescence' may also be appropriate, but my conception of the process that occurs in forms like those in (16) is that one vowel is a target and one is a trigger. I maintain throughout this thesis that the moras of both vowels are always retained. I do not assume any theoretical position with the use of this term.

The rest of this section provides an OT account of hiatus resolution: I propose that the assimilation processes can be accounted for by the increasing ranking of the *STRUC family of constraints and the decreased ranking of a family of alignment constraints. The other crucial factor involved in the assimilation processes is the high ranking faithfulness surrounding the vowel [a]. The forms in (16), then, are examples showing a difference between the number of syllables in the input and the number of syllables in the output due to these kinds of constraints. The following section describes the hiatus resolution phenomena in Tḥichḡ Yatì, and section 2.2.1.2 provides a brief

account of them.

2.2.1.1. Assimilation Patterns

Trisha Causley presented a paper at the Athapaskan Morpho-syntax Workshop in 1995 on the patterns of vowel sequences in Tł̥ich̥o Yatì. The handout from this talk outlines the situations where hiatus occurs, and where it is resolved through assimilation or coalescence. This section makes use of data from that handout, as well as some of my own data, and explores what the patterns of assimilation are in the language. Because Tł̥ich̥o Yatì is a polysynthetic language with very complex morphology, many circumstances where hiatus occurs or does not occur cannot be explained through pure phonology³¹. The examples below indicate some of the environments where assimilation does or does not occur.

- | | | | | | |
|------|----|--|----|---|------------|
| (17) | a. | ʔaahtł̥'è
/ʔe-ah=tl̥'e/
UO-2pS=write
'(you guys) write' | b. | weyliik'q̥
/we-yì#de=k'q̥/
ObO-inside#th=burn
'it's burning inside it' | |
| | c. | bebia
/bebì-a/
baby-dim
'baby' | d. | nàidla
/nà#ì=dla/
th#prf=tear
'it is torn' | (MKR 2002) |

Forms, like (17 a-b) have undergone hiatus resolution through assimilation, but forms like (17c-d) do not undergo this process. It is necessary to establish the patterns surrounding hiatus resolution in order to offer an analysis of it.

³¹ An example of the kind of processes which are morphologically driven is where an /e/, which comes from the [*ɣ] conjugation marker, coalesces with a preceding /e/ of a conjunct prefix to produce an /a/ : *shèts'aaze* 'unspecified subjects ate a meal' /shè # ts'e - e = ze / (Saxon verb file 1987). This process is a common one, but there is no phonological motivation for it, so I deem it morphological. I do not attempt to account for processes such as this, but discuss them only in context of how it creates hiatus situations like in (22e) since the [a] does not assimilate.

The following data comes from Causley (1995), but the morpheme glosses are my addition. The forms in (18) are examples of circumstances where assimilation can be heard. The situations where there is optionality come from the difference between innovative pronunciations compared with conservative pronunciations. The conservative pronunciations, where given, are listed first and retain the input vowel quality of both vowels in a sequence.

(18) *Vowel sequences with [a]*

nàahwhò	nàetò ~ nàatò
/nà#ah=whò/	/nà# e=tò/
th#2pS=cut	th#prf=break
'you (pl) cut it up'	'it is broken'
k'àowo ~ k'àawo	
'boss'	

Vowel sequences with [o]

kàgoahwhe ~ kàgaahwhe	gojdi ~ goḡdi
/kà#go-ah=whe/	/go-ne/ḡ=di/ ³²
out#pl-2pS=(pl)go	th-2sS=be.alive
'go (pl) out!'	'you (sg) are alive'
goèkw'òḡ ~ goḡkw'òḡ	
/go=èkw'ò-ḡ/	
1pP=jaw-poss	
'our jaw'	

Vowel sequences with [e]

weylek'ò ~ weylik'ò	eghàlaeda ~ ààlaada
/we-yì#de=k'ò/	/e-ghà-la#e=da/
ObO-inside#th=burn	UO-IP-hand#th=work
'it's burning inside it'	'he's working'

³² The second person singular morpheme is reprinted in the UR as /ne/ḡ-/ because I propose an account of allomorphy selection in chapter 3 which determines which of the two allomorphs is selected in each output form.

weàgĩa ~ waàgĩa³³
 /we=àgĩa/
 3p=friend
 'his/her friend'

yeodzi³⁴ ~ yoodzi
 /ye=go=dzi/
 house=areal=corner
 'corner'

Vowel sequences with [i]

niila
 /ni#i=la/
 arrive#1sS.prf=handle(pl.obj)
 'I put them down'

sejkw'o ~ sijkw'o nì ?
 /se- i_ =kw'o-nì/
 1sO-ASP.2sS=hear-Q
 'do you hear me?'

(Causley 1995)

The forms in (19) are examples of words where hiatus is not resolved through assimilation. Again, the forms come from Causley (1995) augmented with morpheme glosses.

(19) nàidi³⁵ goihde
 'medicine' /go-i-h=de/
 th-prf.1sS-1sS=speak
 'I spoke'

niahdè (ha)
 /ni#e-ah=dè-ha /
 arrive#*n-2pS=arrive-FUT.
 'you (pl) are going to arrive'

(Causley 1995)

From this data, Causley (1995) makes the following generalizations about hiatus and

Assimilation patterns in Tłjchq Yatì:

(20)

- Assimilations are independent of boundary type
- Assimilation may take place in any VV sequence involving /e/
- The vowel /a/ never assimilates, but may trigger assimilation in an adjacent /o/ or /e/. It does not seem to trigger assimilation in /i/.

³³ This root is bisyllabic, but it is likely that the final /a/ comes from the diminutive suffix historically, and the form *àgĩa* has been lexicalized.

³⁴ This form is recorded as *yeezdzi* ~ *yeodzi* in DDBE (1996). It should be noted that the morpheme *ye-* 'house' only occurs in a few lexicalized forms such as this one, and only as a bound root.

³⁵ Leslie Saxon spells this word *nàèdii*, and it is spelt *nàèdi*, in the Dogrib Dictionary (DDBE 1996).

- The vowel /o/ may assimilate when it precedes or follows /a/, but not /i/.
- The vowel /i/, aside from its optional coalescence with a preceding /o/, does not assimilate to a contiguous vowel. (Causley, 1995)

In light of both Causley's data and my own, I would suggest that some of these generalizations simplify the processes too much. The first assumption, *assimilation is independent of boundary type*, for example, is an important assumption, but there are problems with it. There are a number of morphological boundaries to take into account in these assimilation processes: boundaries between noun stems and prefixes, and stems and suffixes, and verb stems and prefixes and suffixes, and also boundaries between different classifications of prefixes, such as the disjunct/conjunct boundary in verbal prefixes. This latter boundary is marked in various ways, some of which affect whether or not assimilation occurs. An example of how such a boundary can effect a difference in whether or not hiatus is resolved is the difference in behaviour of the 2sS prefix vowel when preceded by a disjunct prefix, rather than a conjunct prefix, as the following examples indicate. The vowels in question are bolded:

(21)

- a. When a *conjunct* vowel of 2sS /ne/i/ is preceded by a *disjunct* vowel /à/, the conjunct vowel assimilates to the quality of the disjunct vowel:

gots'ǎǎdi
 /go-ts'ǎ# **ne/i** =di/
 1pO-IP#2sS=help
 'you help us' (MKR 2003)

- b. When a *conjunct* vowel of 2sS /ne/i/ is preceded by another *conjunct* vowel, /e/ the first conjunct vowel deletes. The remaining conjunct vowel /i/ and the preceding disjunct vowel /a/ do not assimilate.

netɬ'ǎ?eè naihsà
 /ne=ɬ'ǎ?eh-ù na#de- **ne/i** -h=zà/
 2pP=pants=poss ITER#th-2sS-CL=dry (clothes)
 'dry your pants!' (MKR 2003)

The phenomenon seen in (21) will be discussed below in section 2.2.2., and the distinction in faithfulness rankings between disjunct prefixes and conjunct prefixes will be discussed in section 2.2.1.2. This example is given here simply to highlight how assimilation processes are not totally independent of boundaries. The conjunct/disjunct boundary in this case does have an effect on which vowels assimilate.

Another counterexample to this claim about boundaries, as well as to the second generalization listed in (20), which states *assimilation may take place in any VV sequence involving /e/*, is the fact that stem vowels never assimilate to the quality of suffix vowels³⁶. The example in (22a) shows how the vowel [e] fails to assimilate due to its morphological role, despite being adjacent to [a]. The rest of the forms in (22) provide other examples of situations where [e] does not always assimilate in VV sequences. The data examined in this chapter comes from a diversity of sources, and as patterns may differ from dialect to dialect, and as the details of dialectal patterns are not known, there is a level of variety in the forms regarding patterns of assimilation. The roots are bolded in the following words.

- | | | | |
|------|----|-------------------|-------------------------------|
| (22) | a. | ʔihk' èa | 'sometimes' |
| | b. | dexè ɖ ɖià | 'you will feel...' |
| | c. | nàè h dli | 'it has been sewn' |
| | d. | gòet' ɨ | 'our relatives' (MKR 2002) |
| | e. | gogea d e | 'they spoke' (Verb file 1987) |

The form in (22e) is worth highlighting here for several reasons: Like the other forms in (22) this word is an example of where the vowel [e] doesn't readily assimilate to a following [a], even though the [a] is just a conjunct vowel. However, the [a] in this word

³⁶ There are a few very infrequent exceptions to this generalized statement where the root vowel does assimilate to the quality of the suffix vowel, such as *sɨnàà* 'I'm happy' which comes from /sɨnìl-a/, and *xòtsaa* ~ *xòtsoa* 'suddenly' (Saxon personal communications 2003).

has been derived morphologically—it comes from a conjunct vowel representing a perfective marker. Although there is no assimilation between the two conjunct vowels [e] and [a] in *gogeade*, the pronunciation of this word sounds as though the initial [e] in the sequence becomes a glide. In perfective paradigms, however, where this [a] appears, the unspecified subject/1plural forms [ts'e -a ...] do assimilate. Compare the examples given in (23).

(23)	a.	sègeaze /sè#ge-a =ze/ th#3pS-prf=(pl)eat 'they ate a meal'	sèts'aaze /sè #ts'e-a =ze/ th#1pS-prf=(pl)eat 'we ate a meal'
------	----	---	--

The difference in the outputs of these vowel sequences in the two words may be due to the quality of the preceding consonants. There are other examples in the language where an onset spreads certain features to following vowels, including historical processes of vowel neutralization³⁷. In this case the segment [g] is high and the vowel [a] is low, so the articulatory space may discourage the [e] from assimilating to the [a]. Another possible reason assimilation does not occur in (23a) is to retain distinctiveness between the 3pS prefix and the /go-/ prefix which would assimilate when followed by an [a]:

[gea....] /ge-a-...../ compared to [gaa....] /go-a-...../ .

The next generalization Causley makes is that *the vowel /a/ never assimilates, but may trigger assimilation in an adjacent /o/ or /e/. It does not seem to trigger assimilation in /i/*. The claim regarding [ai] combinations not assimilating is not entirely true either,

³⁷ An example of onset feature spreading is when a labialized onset will spread rounding to the following vowel: whèda ~ whòda 'sit down!'. There is also a historical process in Tłìchq Yatìl of vowel neutralization affected by preceding consonants. The [*u] from the proto language is reanalyzed as [i] following alveolar segments and [o] following dorsal segments in Tłìchq Yatìl.

as the examples below in (24) show. Granted, examples such as these are not common.

- (24) taa /tai/ 'three'
 mɔ̄laa /mɔ̄lai/ 'white person' (MKR 2003)

And finally, as Causley admits, patterns of assimilation between combinations of [o] and [i] are not clear, as the following two examples indicate:

- (25) goihde 'I spoke'
 goɣɔ̄dì ~ k'aɫa goɣɔ̄dì 'you (sg) are still alive' (Causley 1995)

My purpose in offering a critique of Causley's generalizations is not to disprove or discredit them—they remain valid and useful as general patterns—but simply to highlight the complexity of the patterns. The majority of situations where hiatus is not resolved in Tɣichɔ̄ Yatì may be due either to morphological considerations or to the fact that there is variation in the language in which situations of hiatus are resolved through assimilation and which are not. The generalization that Causley makes that is robust, and the one I'd like to emphasize here, is that in Tɣichɔ̄ Yatì the segment [a] does not assimilate in any context (1995). This fact is crucial to the analysis outlined in the next section.

2.2.1.2 Factors in the shifting assimilation patterns

This section proposes a general account of the assimilation processes discussed in the previous section. It is my hypothesis that the movement towards assimilation of vowel combinations in the output forms of the language is driven by a shift of constraint rankings in the phonological grammar. There are a number of factors involved in this sound change in Tɣichɔ̄ Yatì. In order to account for the hiatus resolution seen above, I propose an account focusing on three of these factors. The three factors that I propose

are significant are the rising ranking of the *STRUC constraint family, represented by *STRUC (σ); the decreasing ranking of the Alignment constraint family, represented by constraints like Align L(stem, σ), and finally the high ranking of the vowel-specific faithfulness constraint Max-[a]. The following sections further develop and explain each of these three factors as well as illustrate each one with examples from the data in section 2.2.1.1.

2.2.1.2.1 Factor number one: *STRUC family

According to my hypothesis, the family of *STRUC constraints (Zoll 1993, Prince & Smolensky 1993) is evident in the phonological simplification seen in Ṭìchọ Yatì over time, and the loss of syllables through assimilation is an example of this. Since structure continues to be reduced in the language I assume that this family of constraints continues to gain importance in the phonological grammar of the language. I attribute the greatest relevance to the constraint *STRUC (σ). It is evident in situations of assimilation as a means of hiatus resolution, as well as the other processes in the language which result in the reduction of the overall number of syllables realized. This process of assimilation is also my first main piece of evidence that this constraint family has been shifting upwards in the constraint rankings. I suggest that this constraint is the first and most significant factor in the account of hiatus resolution.

The word for ‘berry’ is an example of how structure is being reduced in the output. The word, *jì.e* or *jìi*, can be pronounced with hiatus or without. The second pronunciation is the more recent one. The output form *jìi* is realized with one fewer syllable than its more conservative counterpart, thus it violates *STRUC (σ) only once,

while an output form like *jie* violates the constraint twice, since it is composed of two syllables. Thus as this constraint rises, hiatus is more likely to be resolved through assimilation.

There is a possible alternative to building an analysis that depends upon the assumption that long vowels exist in the language and are the result of constraints against higher level prosodic structure, like that of a syllable. Such an account might claim that *jii* has undergone the simplification process of assimilation, but still maintains two syllables. If this were the assumption there would be no need for proposing the high ranking of a constraint like *STRUC (σ). The arguments for assuming long vowels do exist, provided in section 2.1.2.2, counter the possibility that an assimilated form like *jii* still maintains two syllables. Therefore, an account without such a constraint as *STRUC (σ) lacks a unifying factor for all the other processes this thesis discusses. In the account offered here, a constraint such as *STRUC (σ) which militates against the structure of a syllable is necessary as a motivating factor to the assimilation which results in the loss of a syllable and the concomitant creation of a long vowel. Evidence that the family of constraints against structure continues to rise in the grammar of Tłı̄chq Yatı̄ comes from the phonological changes in structure seen within the last 100 years, like the resolution of hiatus.

2.2.1.2.2 Factor number two: Alignment constraint family

At an earlier period one could assume isomorphism in the pronunciation of words like *nàetò* ‘its broken’ and *goèkw’òqò* ‘our jaw’ in which hiatus marked morpheme boundaries. Today, however hiatus sometimes exists, marking morpheme boundaries,

but due to assimilation, sometimes it does not, as more innovative forms of those words show: *nàatò* ‘it is broken’ and *godkw’òò* ‘our jaw’. We can account for this change in part by assuming that constraints in the Alignment family (Prince & Smolensky 1993, McCarthy and Prince 1993), which ensured isomorphism in the past, are no longer as highly ranked in the phonological grammar of Tɔ̀chɔ̀ Yatì.

In her dissertation on Russian phonology, Ekaterina Zubritskaya (1995) makes a similar point about the shifting of constraint rankings in situations of sound change. She notes that changes of assimilation processes can be accounted for in OT through the grouping of functionally similar constraints into families and the decreasing or increasing ranking of those families. When one family of constraints shifts up or down, all the others shift accordingly, so, as in the case of the *STRUC constraints, they move up in ranking, and others that were once more highly ranked must shift downwards to accommodate the change. Thus the phonological processes reflect the reranking of constraints in both directions. In the case of palatalization assimilation, Zubritskaya specifies that there must be a decrease in the ranking of the family of Alignment constraints. Thus constraints which protect phonological distinctions of morphological and phonological boundaries shift downwards, and other constraints, like markedness constraints against vowel combinations, for example, shift up.

Just as the *STRUC family is largely represented in this account by the one powerful constraint *STRUC (σ), the Alignment family can be represented in this account by the three constraints given in (26). I thus propose that the second factor in the realization of long vowels over hiatus is the decreasing ranking of the alignment constraints most relevant to this situation:

- (26) **Align L(root, σ)** The left edge of every root must coincide with the left edge of a syllable.
- Align L(disjunct, σ)** The left edge of every disjunct prefix must coincide with the left edge of a syllable.
- Align L(conjunct, σ)** The left edge of every conjunct prefix must coincide with the left edge of a syllable.³⁸

Specifically, the constraints relevant to the various situations of assimilation seen in data so far in this chapter align morphological boundaries of root, suffixes and prefixes (both conjunct and disjunct) with the edge of a syllable.

As mentioned above, where morphemes and syllables were once in a more isomorphic relationship, now in many cases assimilation occurs across morpheme boundaries--even across boundaries of phonological domains, like disjunct and conjunct phonological domains: $n\grave{a}et\grave{o} \sim n\grave{a}at\grave{o} / n\grave{a}\# e=t\grave{o} /$ 'it is broken'. If an alignment constraint like **Align L(conjunct, σ)**, which preserves the morphological conjunct prefix boundary by keeping it phonologically distinct from the disjunct prefixes preceding it, remained highly ranked, few circumstances of hiatus would be resolved through assimilation in current pronunciations. If this constraint was not decreasing in its ranking, then assimilations over any conjunct/disjunct boundary would be less likely to occur.

Another example of this overlapping of morphological categories in the phonology is again the word $go\grave{o}kw'q\grave{o}$ 'our jaw' which alternates with the form $go\grave{e}kw'q\grave{o}$:

$go\grave{e}kw'q\grave{o} \sim go\grave{o}kw'q\grave{o}$

³⁸ For a similar constraint used in an account of conjunct prefixes and hiatus resolution in Dakelh, see Gessner (2003, 85).

/go=èkw'ɔ̀-̀̀/

1pP=jaw-poss

'our jaw'

This noun illustrates how assimilation can currently take place over a morphological boundary between a noun stem and a prefix. Assimilation between a vowel of a prefix and a vowel of a stem, as seen in the recent form, would not be expected in the face of a high ranking alignment constraint $\text{Align L}(\text{root}, \sigma)$ protecting the boundary between the root vowel and the prefix vowel.

The two tableaux in (27) show how the ranking of the Alignment constraint and $\ast\text{STRUC}(\sigma)$ have shifted.

(27) *i.* goèkw'ɔ̀ ̀̀ 'our jaw'

/go-èkw'ɔ̀-̀̀/	$\text{Align L}(\text{root}, \sigma)$	$\ast\text{STRUC}(\sigma)$
☞ a. go.è.kw'ɔ̀ ̀̀		***
b. goð.kw'ɔ̀ ̀̀	*!	**

ii. goðkw'ɔ̀ ̀̀ 'our jaw'

/go-èkw'ɔ̀-̀̀/	$\ast\text{STRUC}(\sigma)$	$\text{Align L}(\text{root}, \sigma)$
a. go.è.kw'ɔ̀ ̀̀	***!	
☞ b. goð.kw'ɔ̀ ̀̀	**	*

In (27*i*) the Alignment constraint is ranked more highly than the constraint against syllable structure, and so candidate a. is optimal, and candidate b. fatally violates $\text{Align L}(\text{root}, \sigma)$. In (27*ii*) the rankings have shifted and so the innovative output in candidate b. is optimal.

Where at one time the boundary between the prefix /go-/ and the root vowel /e/ was maintained through hiatus, as it is in the output form of (27*i*), now the Alignment

constraint maintaining this distinction has decreased in ranking, and a highly ranked constraint against the maintenance of such structures has taken precedence in the grammar. If an output form like the output of (27ii) is optimal, where assimilation has taken place over the prefix/root boundary, Align L(root, σ) must be ranked lower than the *STRUC(σ).

In years past, then, or in conservative speech today, the two conflicting constraint families, the Alignment constraint and the *STRUC constraint, would have been in opposite positions, and the quality of the stem initial vowel would have been retained.

2.2.1.2.3 Factor number three: preserving sonority

The third factor that I take into account when looking at the environments and combinations of vowels which do or do not assimilate in Tɕichɔ Yatì is that of sonority. In any combinations seen so far, the vowel [a] never assimilates; it is often the trigger, but never the target.

(28)	a.	ʔihk'èa	'sometimes'
	b.	dexèidia	'you will feel...'
	c.	nàèhdli	'it has been sewn'
	d.	k'àowo ~ k'àawo	'boss'
	e.	sèts'aaze	'we ate a meal'
	f.	nàetò ~ nàatò	'it is broken'

For example, in (28a-c) there is no assimilation, but when the vowel [a] is involved in an assimilation process, it is always the trigger, as in (28d-f). Hence it is never the target.

In this way, the vowel [a] must be distinguished from all the other vowels of the Tɕichɔ Yatì inventory—it holds special status in the language. I hypothesize that it is due to its sonority that the vowel [a] never assimilates. I propose that there is a very

highly ranked segment-specific faithfulness constraint maximizing the quality of this vowel. I suggest that such a high ranking is driven by a requirement in the language to preserve sonority. The vowel [a] is the most sonorous vowel in the Tɬɨchɔ Yatìl inventory, as well as universally, and thus it is protected with a highly ranked faithfulness constraint like that in (29).

(29) **Max [a]** Every low vowel in the input is present in the output.³⁹

I make this claim based on Prince and Smolensky's (1993) Universal Grammar scale of sonority where the sonority of [a] is greater than that of [e] and [o] which are in turn greater in sonority than [i] and [u] and so forth, and where the voiceless stops [p,t,k] are the least sonorous. According to this assumption [a] is the most optimal syllable peak cross-linguistically, due to the fact that it is the most sonorous vowel. This scale, then, may emerge differently in optimal syllable peaks depending on the individual constraint rankings of each language.

In order to determine where the constraint on each vowel as a syllable peak falls within the constraint hierarchy of Tɬɨchɔ Yatìl, it is necessary to determine the status of each vowel in the inventory repeated below from chapter 1.⁴⁰

	front		back			
	non-nasal	nasal	un-rounded		rounded	
	non-nasal	nasal	non-nasal	nasal	non-nasal	nasal
high	i	ɨ				
mid	e	ɛ			o	ɔ
low			a	ɑ		

The status of the vowels in this language are as follows: [e] is a mid central

³⁹ This constraint is relevant to both the segment [a] and the diminutive suffix [-a], discussed in the next chapter.

⁴⁰ The nasal vowels will be treated as the same vowel as their oral counterparts.

unrounded vowel. Causley (1995) calls this vowel the unspecified vowel in the inventory, since according to her account, the vowels of the inventory can all be distinguished with one feature:

i - [high]
 e - []
 o - [back]
 a - [low] (Causley 1995)

Rather than follow Causley's (1995) and (1998) accounts of Tłı̄chọ Yatı̄l vowels, which use feature specific constraints, I use segment-specific constraints in order to formulate a constraint around the segment [e], which Causley does not attribute with a feature. As previously mentioned it is the vowel that Ackroyd (1982) identifies as the epenthetic vowel, and it is also the vowel which assimilates the most frequently, according to Causley's generalizations. In light of these facts, the vowel [e] appears to be the least likely to be preserved in the language. A faithfulness constraint ensuring the realization of this vowel, such as Max-[e] given in (30) below, must therefore be less highly ranked in the phonological grammar of Tłı̄chọ Yatı̄l than faithfulness constraints surrounding the other vowels of the inventory.

(30) **Max-[e]** Every mid vowel in the input is present in the output.

The high vowel [i] is preserved more often than [e] in vowel combinations in the language, as is the round vowel [o]. The source of the vowel [i] is both the corresponding Proto-Athapaskan vowel [*i] in all environments and [*u] following coronal sounds. The back round vowel [o] comes from two sources in the proto-language as well. One source of Tłı̄chọ Yatı̄l [o] is the PA vowel [*ə] (Ackroyd 1976) and the other is [*u], which occurs as [o] in the context of non-coronals (Marinakis 2002). I have

not determined exactly what the assimilation patterns are surrounding these two vowels [i] and [o], but as the data in (31) shows, and as Causley (1995) states, if assimilation does take place between the two vowels, the vowel [o] is more likely to be the trigger than the target.

- (31) a. gojdi ~ k'ała goḡdi 'you (sg) are still alive'
 b. goihde 'I spoke' (Causley 1995)
 c. tsekoa giḡḡi 'they adopted a child' (DDBE 1996)

The constraint surrounding the realization of [i], therefore must be less highly ranked than that of the vowel [o]. The faithfulness constraints surrounding the realization of these two vowels are given in (32), and are ranked more highly than Max-[e].

- (32) **Max-[i]** Every high vowel in the input is present in the output.
Max-[o] Every round vowel in the input is present in the output.

The general ranking of the Max-[seg] constraints introduced so far then can be seen in (33) below:

- (33) Max-[a] >> Max-[o] >> Max-[i] >> Max-[e]

Evidence for this ranking can be found in forms like the word *weyiek'q* ~ *weyik'q* 'it's burning inside it', where again the second pronunciation *weyik'q* is the more recent pronunciation. Using the form *weyik'q*, the tableau in (34) demonstrates how a constraint like Max-[e] is ranked lower than faithfulness constraints on the other vowels of the language, like [o] and [i].

- (34) *weyik'q* 'it's burning inside it'

/ we-yi#e=k'q /	*STRUC(σ)	Max-[i]	Max-[e]
☞ a. we.yi.k'q	***		*
b. we.yi.e.k'q	****!		

c. we.yèe.k'ɔ	***	*!	
---------------	-----	----	--

The crucial ranking this tableau demonstrates is that of Max-[i] over Max-[e]. Candidate a. in the tableau above is optimal because it does not fatally violate either *STRUC(σ) or Max-[i]. If Max-[e] were not ranked lower than Max-[i], then candidate c. would have been the output rather than candidate a. Candidate b. is ruled out because of a fatal violation of *STRUC(σ). If the constraint as *STRUC(σ) were not so highly ranked then the optimal output would be candidate b., as indeed it once was, and still is in conservative speech. Therefore this tableau also provides evidence for how the *STRUC family is moving up in its ranking.

The constraint ranking between Max-[i] and Max-[o] is demonstrated in the tableau in (35) which evaluates the innovative form of the word *gɔɔdi* ‘you (sg) are alive’. This form of the word is an example of where an [i] assimilates to an adjacent [o].

(35) *gɔɔdi* ‘you (sg) are alive’

/ go-ne/i=d̩ / ⁴¹	*STRUC(σ)	Max-[o]	Max-[i]
a. g̩i.di	**	*!	
b. go.i.di	***!		
☞ c. gɔɔ.di	**		*

This tableau demonstrates the crucial rankings between both Max-[o] and Max-[i] and between *STRUC(σ) and Max-[i]. Candidate c. is optimal because it does not fatally violate either of the two more highly ranked constraints, *STRUC(σ) or Max-[o]. Candidate a. is less optimal than c. because it fatally violates Max-[o], and candidate b. fatally violates *STRUC(σ). Again, candidate b. would be the optimal candidate in a

⁴¹ The nature of the input morpheme for the 2sS will be discussed in chapter 3.

grammar where *STRUC(σ) had not been reranked this highly.

Despite the clear ranking established in the tableau in (35), assimilation patterns between [i] and [o] are not always so straightforward. Many words such as *goihde* ‘I spoke’ would not demonstrate such a clear ranking between Max[i] and Max-[o]. Therefore assimilation like that in (35) is not consistent throughout the language. It is very possible that the two constraints ensuring the realization of [i] and [o] are unranked with respect to each other in past grammars or in conservative grammars, and this unranked status is what causes the indeterminacy between them.

In the particular case of this word *gɔɔdi* evaluated in the tableau above, however, there may be a morphological reason this form is selected over the non-optimal candidate a. **giji*. The reason may be due to the nature of the [go-] prefix. This prefix often acts like a disjunct prefix rather than a conjunct prefix, and often retains its vowel quality like other disjuncts, which may be why it is the [o] quality that is the trigger in this case and the 2sS [i] is the target. As has been mentioned in chapter 1, and will again be discussed in chapter 3, disjunct prefixes belong to lexical categories while conjunct prefixes fall into functional categories, and this distinction can affect the realization of vowels in each domain. Lexical items tend to retain input qualities more often than functional items. The assimilation patterns of this 2sS [i] morpheme are discussed further in chapter 3.

Assimilation patterns involving the vowel [a], on the other hand, often transcend morphological boundaries. As discussed above, the low vowel [a] is the most sonorous vowel cross-linguistically, and in the Tłı̄chɔ Yatı̄ vowel inventory as well. Since this vowel never assimilates and frequently triggers assimilation, the faithfulness constraint

Max-[a] must be the most highly ranked of the Max-[seg] constraints surrounding vowels, as is proposed in (33): Max-[a] >> Max-[o] >> Max-[i] >> Max-[e]

However, in order to preserve the identity of this specific vowel in the face of *STRUC(σ) as well as the other segment preserving constraints, Max-[a] must be as highly ranked as *STRUC(σ).

The tableau in (36) demonstrates how the constraint surrounding the sonority of [a] is ranked just as highly as the markedness constraint *STRUC(σ).

(36) daàhkʷe /de-`-ah-kw'e/ '(you guys) sit down'

/de-`-ah-kw'e/	Max-[a]	*STRUC(σ)	Max-[e]
☞ a. daàh.kw'e		**	*
b. de.àh.kw'e		***!	
c. deèh.kw'e	*!	**	

This tableau establishes the crucial ranking between the faithfulness constraints Max-[a] and Max-[e] and reinforces the ranking between *STRUC(σ) and Max-[e]. In order for the correct candidate to be selected, the constraint maximizing the value of [e] must be lower ranked than Max-[a] which is in keeping with the sonority hierarchy. The candidate in (32a) is optimal because it only violates *STRUC(σ) twice, and does not violate Max-[a]. Candidate c. fatally violates Max-[a] and candidate b. fatally violates *STRUC(σ).

2.2.1.2.4 Combined Account

According to the account developed so far, the factors at play in the assimilation patterns of Tłìchq̄ Yatìl vowels are the shifting rankings between Alignment constraints and constraints against structure, and the rankings of segment specific faithfulness constraints. The rest of this section builds on these factors and introduces a few other

relevant constraints regarding well formed syllables.

There are other syllable structure constraints in Tḥichḳ Yatì that affect the output forms seen so far. One such constraint surrounding tone consistency, given in (37) below, must be active in forms such as *gòḳw'qò* 'our jaw', *weyìk'q* 'it's burning inside it', *daḥkw'e* '(you guys) sit down' evaluated in (27), (34) and (36) in the sections above.

(37) $*[V_{T1}V_{T2}]_{\sigma}$ Two different tones are not permitted in a syllable.

The motivation behind the formulation of such a constraint comes from the cross-linguistic grounds that a syllable with two tone values is a marked syllable. The unmarked syllable in Tḥichḳ Yatì is *cv*, as established in section 2.1, and therefore, shapes like *cv̂(h)* are much more marked. This constraint must have a lower ranking in the language than the $*STRUC(\sigma)$ constraint because these kinds of syllables are often the result of assimilation driven by $*STRUC(\sigma)$ and have become quite common in the language.

The tableau in (38) shows that the constraint $*[V_{T1}V_{T2}]_{\sigma}$ is not highly ranked in relation to $*STRUC(\sigma)$ and *Max-[a]*, since the optimal outcome is one of an assimilated vowel with two different tone qualities.

(38) *k'ḁawo* 'boss'

	/k'ḁowo/	Max-[a]	*STRUC(σ)	*[V _{T1} V _{T2}] _σ
☞	a. k'ḁa.wo		**	*
	b. k'ḁ.o.wo		***!	
	c. k'òo.wo	*!	**	*

The word *k'àowo*, would have been morphologically complex historically, and thus the hiatus seen in the older form would indicate the morphological boundary, but the meaning behind these boundaries has become opaque in this noun. It is the opacity of the morphological boundaries of this word which makes the constraint $*[V_{T1}V_{T2}]_{\sigma}$ the relevant constraint to conflict with $*STRUC(\sigma)$ rather than one of the Alignment constraints. Constraints on prosodic consistency are not in conflict with Alignment constraints in Tɛ̃chɔ Yatì phonology.

Once again, to enforce support for the first factor mentioned, the importance of the $*STRUC(\sigma)$ constraint, I note that there is evidence from older texts (Petitot 1886, 1888) and from the speech of elders that the pronunciation above is not one likely used 100 years ago, and it indicates that $*STRUC(\sigma)$ has moved up in the ranks of the phonological grammar in Tɛ̃chɔ Yatì in that time. For speakers who pronounce this word *k'àowo*, the $*STRUC(\sigma)$ constraint would not outrank the Max-[o] or the Max-[a] constraints, as shown in the tableau in (39).

(39) *k'àowo* 'boss'

/k'àowo/	Max-[a]	Max-[o]	*STRUC(σ)	*[V _{T1} V _{T2}] _σ
a. k'aa.wo		*!	**	*
☞ b. k'à.o.wo			***	
c. k'òo.wo	*!		**	*

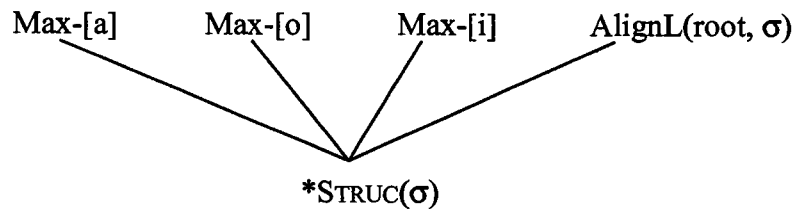
In this case, candidate a. and candidate c. are ruled out because they each fatally violate the Max-[seg] constraints. Candidate b. is optional because it does not fatally violate $*STRUC(\sigma)$ because the ranking of the faithfulness constraints are higher. This tableau representing the conservative rankings of these constraints does not rank

*[V_{T1}V_{T2}]_σ in relation to the Max-[seg] constraints, nor to the *STRUC(σ) constraint.

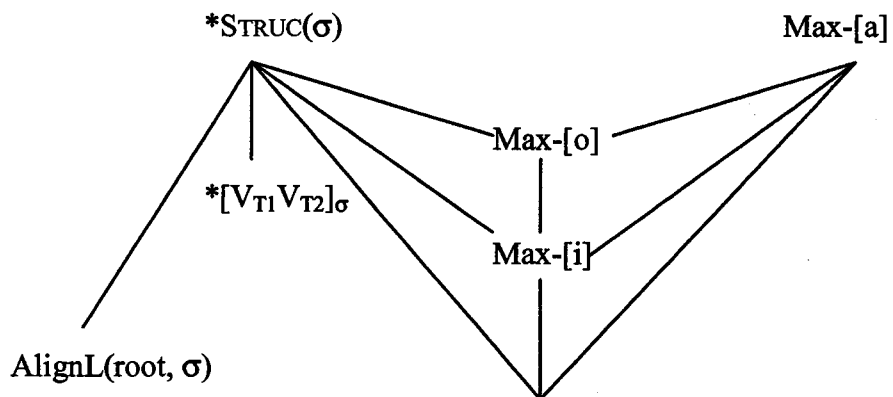
To summarize the rankings discussed in this section so far, there are two lattices given below in (40). The first lattice represents the more conservative ranking which would derive outcomes such as *k'àowo* seen in (39) above, where *STRUC(σ) is not ranked more highly than Alignment constraints or Max-seg constraints. The second lattice represents the rankings of a grammar which would produce innovative forms like *k'àawo* seen in (38), where Max-[a] is the only constraint introduced so far that *STRUC(σ) does not dominated.

(40)

Conservative



Innovative



Max-[e]

The shifting constraint rankings of Alignment and structure constraints interleaved with faithfulness constraints of specific vowels therefore make up my general account of subsequent shifting assimilation patterns in the language.

There are many forms, however, that do not follow the patterns outlined in this work. Many of these forms either do not always assimilate, or do not assimilate at all. Judging from the data I collected from Mary Koyina Richardson, I would estimate that assimilation does occur approximately 75 percent of the time, and 25 percent of the time either hiatus is not resolved, or it is resolved in a different way, for example, with gliding rather than assimilation⁴². This kind of gradual word by word, or morpheme by morpheme spread of a certain change, in this case vowel assimilation, makes a formal model difficult to illustrate. Anttila and Cho (1998) describe this challenge:

Due to external factors such as generational overlap language tends to change, not by quantal leaps from one invariant grammar to another, but glacially, accompanied by centuries of variation, with temporally adjacent dialects differing from each other minimally (41).

There are often morphological factors in language change as well, and these factors affect this particular sound change in Tɬɨchɔ Yatɨl by influencing which forms are more susceptible to the change than others. I suggest that the constraint rankings are not yet established in all cases, and that they are often dependant on other factors, so they are not necessarily fixed from speaker to speaker. This thesis attempts to present a generalization of these changes and does not presume to take all of these factors into

⁴² Although Casali (1998) refers to glide formation as a possible hiatus resolution strategy, it is beyond the scope of this thesis to address the possibility that gliding is another process in Tɬɨchɔ Yatɨl which results in fewer syllables in a word.

account. Examples that counter some of the generalizations and constraint ranking established in this section will be examined in the next section.

2.2.2 Unassimilated forms

As discussed above and as is expected in situations of sound change, there remain many forms that the syllable structure constraints outlined so far are unable to account for. Morphologically complex forms like those listed below in (41) are examples of where we might expect assimilation to occur, but where it does not.

- | | | | | |
|------|----|--|----|--|
| (41) | a. | ʔihk'èa
/ʔihk'è -a/
sometimes-dim
'sometimes' | b. | netsàleḡ
/ne=tsà-le-a- _ç /
ADJ=big-NEG-dim-dim ⁴³
'small' |
| | c. | dexèḡdia
/de#xè-de-ne/i=dì-ha/
ObO.refl-IP#th-2sS=feel-FUT
'you will feel...' | d. | nàèhdli
/nà#de-`h-d=li/
th#th-*s- CL=sew
'it has been sewn' |
| | e. | gòet'ḡḡ
/go-`et'ḡḡ/
1pP=relatives
'our relatives' | f. | goihde
/go-i-h=de/
Areal-prf-1sS=talk
'I spoke' |

(MKR 2002)

The diminutive suffix, which is the final [-a] seen in (41a-b), is the source of the word final hiatus in those forms. This suffix never assimilates to the stem vowel due to the undominated ranking of the Max-[a] constraint. This further resistance to assimilation offers more support for the claim that [a] holds special status. In (41a) this suffix does not spread its quality to the root vowel [e], nor to the negative enclitic [-le] in

⁴³ There is another, unrelated diminutive morpheme from that discussed in chapter 4 which, as seen in (41b), is a suffix of a nasal quality.

(41b).

The fact that root final vowels are never targets of assimilation when a suffix is attached suggests highly ranked faithfulness constraints protecting the quality of vowels belonging to lexical categories, such as roots.⁴⁴ These constraints which distinguish vowels belonging to lexical categories, and those belonging to functional categories will be discussed in chapter 3, and the fact that stem final vowels never lose their quality to suffix vowels, despite the high ranking of *STRUC(σ) will be discussed in chapter 4.

The forms in (41 e-f) offer counter-evidence to the constraint ranking given in the example tableaux (27ii.) evaluating *gòkw'qò* 'our jaw', and (35) examining the word *gòqòdi* 'you (sg) are alive'. The forms *gòet'ijj* and *goihde* have input vowel sequences which, unlike the forms in (27ii.) and (35), do not assimilate. The form in (41e.) *gòet'ijj* is parallel to *gòkw'qò* 'our jaw', and offers direct evidence that the system has not stabilized since the pronunciation of the word [gòet'ijj] is documented as such in my data and in the Dogrib Dictionary (1996), but it can also be pronounced as [gòot'ijj] by many speakers (Saxon, personal communications 2003). In the form (41f.) the [o] and the [i] are both conjunct vowels as they are in the example in (35), but unlike in *gòqòdi*, there is no assimilation in *goihde*. This may be attributed to shifting constraint rankings, or it could pertain to the morphological identity of the vowels. The [i] in the case of (41f.) comes from the perfective 1sS pronoun, where the [j] in *gòqòdi* 'you (sg) are still alive' is from the imperfective 2sS pronoun.

⁴⁴ It is also possible that the quality of root vowels is maintained because root vowels are stressed (Hargus personal communications).

Another example of where assimilation is expected according to the rankings of *STRUC(σ) and Align L(conjunct, σ) in relation to each other so far in this chapter, but does not occur, is *nàèhdli*, seen in the tableau below in (42). This is an example of where a word has not undergone the phonological change making its way through the language, or of where there is another factor influencing the realization of prefix vowels.

According to the account given above, the current phonology of the language ranks the alignment constraint below the structure constraint, but in a form like this, the rankings must be different than those which select candidates where assimilation does take place. In order for the correct candidate to be selected in (42) the constraints must be ranked Align L(conjunct, σ) above *STRUC(σ).

(42) *nàèhdli* 'it has been sewn'

/nà#`-eh-d=li/	Max-[a]	AlignL(conjunct, σ)	*STRUC(σ)
☞ a. <i>nà.èh.dli</i>			***
b. <i>nèèh.dli</i>	*!	*	**
c. <i>nààh.dli</i>		*!	**

In the case of this form, candidate a. is optimal because it doesn't fatally violate either Max-[a] or AlignL(conjunct, σ).

The expected ranking of structure over alignment would yield candidate c. as the optimal output candidate, but instead the quality of [e] is maintained, violating *STRUC(σ) and satisfying Align L(conjunct, σ). Although this form and others like it contradict the rankings established in the previous section, they act as further evidence of which constraints are shifting as assimilation becomes more prevalent in the language.

According to the hypothesis presented above, it is these two constraints which determine

whether the output is one which has undergone assimilation, and has one fewer syllable, or whether it remains faithful to the input structure. A word such as *nàèhdli* may eventually become assimilated due to the shifting in ranking of these two constraints, or it may retain both its prefix syllables due to other factors.

Further unassimilated forms include compounds where the initial stem does not assimilate the way it would when it is acting as an independent word. Certain stems that usually undergo assimilation hold out against assimilation when they are lexicalized in common compounds. The initial stems in the compounds given below in (43) tend to undergo assimilation in current speech, or at least alternate freely with the assimilated forms, but when part of a common compound they retain the non-assimilated forms.

(43)

- a. /jle/~ jli ‘berry’
- | | | | | | |
|-----|-----------|----------|------|---------|------------------|
| i. | jla | ‘raisin’ | iii. | jlecho | ‘plum’ |
| ii. | jletì | ‘wine’ | iv. | jlewà | ‘blueberry’ |
| v. | jlek’ootì | ‘juice’ | vi. | jlechàa | ‘jam’ (MKR 2002) |
- b. /fiwe/ ~ fiì ‘fish’
- | | | | | | |
|-----|--------------------|---------------|------|-----------------|---------------------------|
| i. | fièk’jì ~ fiwèk’jì | ‘fish roe’ | iii. | fiwecho | ‘big fish’ |
| ii. | fiwet’iì | ‘fish scales’ | iv. | fietsì ~fiwetsì | ‘pounded dried whitefish’ |
- c. /mòlai/ ~ Mòlaa⁴⁵ ‘French people, white people’
- | | | |
|-----|------------|---------------------------------------|
| i. | mòlaidiì | ‘groceries’ |
| ii. | mòlainèk’e | ‘city down south, outside of the NWT’ |
- d. /tai/ ~ taa ‘three’
- | | | |
|----|---------|-----------------------------------|
| i. | Taidzèè | ‘Wednesday’ (rather than taadzèè) |
|----|---------|-----------------------------------|

However, as the forms in (44) indicate, even the generalization stated above does

⁴⁵ This word is spelt with a short vowel in the Dogrib Dictionary, since it wasn’t the policy of the dictionary makers to necessarily document all long vowels. However, Saxon’s field notes, as well as my own, are consistent in transcribing this word with a long final vowel.

not always hold, as not all compound roots do maintain their disyllabic forms. Although the common compounds like *jìewà* ‘blueberry’ are never heard pronounced *jìiwà* (Saxon, personal communications), there are forms where assimilation does occur, since forms like *ʔeekòà*⁴⁶ ‘fish shack’, can also be heard.

(44) Exceptions (where assimilation occurs in compounds)

- | | | |
|------|-------------------------------|--|
| i. | ʔigotsè ~ ʔiwegotsè ~ ʔiwetsè | ‘stick-fish for dogfeed’ |
| ii. | ʔiekòà ~ ʔiwekòà ~ ʔeekòà | ‘fish shack’ |
| iii. | mòlaezòò | ‘black person’ << mòlaiezòò << /mòlai -dezò-μ/
white person-black-nom |
| iv. | mòlanòdaà | ‘cat’ (DDBE 1996) |

It may be possible to account for the forms that do not assimilate by claiming that the compounds have become lexicalized in their older form and so have retained the older pronunciation. Perhaps in the forms that do assimilate or are in variation with those that do, the forms were not used as frequently by some, and so, the two parts are recognized and pronounced in whatever way they exist individually in the speaker’s lexicon. Another possibility is that there are two forms of some roots, a free root and a bound one used in compounds: *jìe-*, *jìμ* (Hargus, personal communications). I draw the conclusion, therefore, that the hiatus retained in the stems of compound forms is not phonologically motivated, but is motivated by a need to maintain their morphological distinction in order to protect the integrity of the root in its older form.

2.2.3 Summary

Most of the cases of assimilation seen in the data presented above in section

⁴⁶ It should be noted that in this form the [i] assimilates to the following [e] rather than vice versa as other forms have shown thus far.

2.2.1.1 are recent forms. Like the form [k'aaʷo] in (34), the variant of the word where hiatus has been resolved through assimilation is often not a variant that would have been heard 100 years ago. These forms, as well as the other circumstances of syllable deletion discussed in this chapter support my argument that *STRUC(σ) is becoming more highly ranked in the language. However, the unexplained assimilation patterns pointed out in section 2.2.2, and the compound forms given in (43) above indicate the recentness of these processes. I suggest that, coupled with the morphological motivation behind the retention of certain combinations, other occurrences of hiatus or assimilation may be inconsistent due to an unsettled ranking of constraints surrounding their realization.

I do not attempt to place this movement towards assimilated forms in Tłı̄chʷ Yatı̄ into a theory or predictive model of linguistic change because this study is not large enough to determine the implicational hierarchies necessary to predict the direction the sound change is taking, or will take in the future. Instead I will simply state that this change is slowly making its way through the language motivated by the climbing constraint of *STRUC(σ), and it is occurring in a gradual word by word spread.

2.3 Summary of Chapter two

The Tłı̄chʷ Yatı̄ syllable and the constraints surrounding the realization of syllables and vowels in Tłı̄chʷ Yatı̄ have changed dramatically in the recent history of the language. In some cases, the language continues to change, and the new systems have not been fully stabilized. Under the pressure of constraints against structure, and particularly codas, the syllable structure itself has stabilized into simple shapes, but some of the patterns of where syllables are lost and where they are retained are not so clear. In

section 2.1.2.2 I argue for an assumption to be made that is crucial to my hypothesis that Tɬichɔ Yatì is simplifying its structure due to highly ranked constraints against structure. The assumption I make is that two adjacent vowels of the same quality exist within one syllable, and so when hiatus is resolved through assimilation, there is one less syllable realized in the output structure of the word. In these cases, then, a syllable is lost, and a long vowel is created in the language. This assumption then allows me to link the processes of syllable reduction with hiatus resolution and in the next two chapters it will link conjunct onset loss and stem simplification together as well.

It is clear that there is a tendency in the language towards simple structure—a conspiracy of simplicity, as I have termed it—and this chapter has provided evidence that this tendency is driven by constraints in the increasingly high ranking *STRUC family. More specifically, the tendency to lose syllables through processes of assimilation seen in this chapter is driven by the *STRUC(σ) constraint. In order for this constraint to have such an effect, however, other constraints have been shifting as well, such as the lowering of the Alignment constraints, which in the past would have prevented the assimilation of a syllable from one morphological category into that of a different morphological category. Some of the data examined in this chapter also hints that despite the lowering of the ranking of this alignment constraint, the grammar of the language continues to distinguish morphological domains with phonological dissimilarity. Evidence for this will be provided in the next chapter which examines syllable reduction in the verbal prefixes of Tɬichɔ Yatì.

The next chapter deals with vowel assimilation as well, but in more specific contexts—those of the loss of onsets due to a pattern of the 2sS morpheme [ne-] ~ [j] in

the imperfective verb forms, and the loss of the onset of conjunct prefixes of the shape [de-]. The patterns of these specifically shaped morphemes have become somewhat more established than the general patterns of hiatus and assimilation.

Chapter 3

Reduction in the Conjunct domain

3. Introduction

This chapter discusses another phonological domain in Tłı̄ch̄o Yatı̄ where syllable reduction can be seen to take place—that of the conjunct verbal prefixes. Like circumstances of hiatus resolution which result in a long vowel and one less syllable, there are conjunct syllables which are also being reduced and a long vowel is often what remains. The loss of syllables in the conjunct domain, where a prefix may lose its onset and be absorbed by the syllable to its left, is analyzed in this chapter as further evidence for the reduction of structure.

The two main phenomena discussed in this chapter are the disappearance of certain conjunct prefix onsets, and the corresponding incorporation of the remaining mora into the preceding prefix. Specifically, the two processes I discuss here are the loss of the [n] onset consonant intervocalically in the 2nd person singular subject morpheme [ne- / i, and the loss of the intervocalic [d] onset of any conjunct prefix which holds the shape of [de-]. The intervocalic [d-] is realized as [r-] in conservative forms and is not realized at all in innovative forms. The [ne-] prefix is realized as a nasalized vowel with no onset. The following data is an example of how [ne-] and [de-] are reduced in contemporary pronunciations, and how this reduction results word medially in a long vowel.

(1) Contemporary Conservative

2sS [ne-]	a.	nààzè	nànezè	‘you hunt
	b.	gots’àadi	gots’ànedi	‘you help us’
	c.	sèetj	sènetj	‘you eat a meal’
conjunct [de-]	d.	ʔeehtl’è	ʔerehtl’è	‘I write’
	e.	geeghɔ	gereghɔ	‘they snore’
	f.	ts’eeko	ts’ereko	‘we are coughing’

(Saxon verb file 1987)

The account I provide for each of these processes is one which depends on the highly ranked *STRUC(σ) preventing the realization of syllables wherever possible, and the assumption of Positional Faithfulness (Beckman, 1998), namely that languages protect positions of prominence, like word initial syllables. I propose in this chapter that the highly ranked constraint against syllable structure acts to select the most appropriate allomorph—one which violates this constraint the least.

The boundary between the prefixes of the conjunct domain and those of the disjunct domain is marked in a few different ways. There are certain phonological processes, for example, which occur solely in the conjunct domain, like the neutralization and deletion of intervocalic coronal consonants, [n] and [d]. Another way this distinction is marked is by the way certain morphemes are realized across this boundary. The 2sS prefix, for example is realized differently when it follows a disjunct vowel than when it follows another conjunct vowel: the allomorph realized following a conjunct vowel is [j], as opposed to the nasalized vowel length following a disjunct vowel. These two distinctions are discussed below in section 3.1 which also provides a discussion of why syllables are more easily lost in the conjunct domain than they are in the disjunct domain. It is possible that faithfulness constraints surrounding the maintenance of conjunct

syllables may be less highly ranked than the markedness constraint *STRUC(σ) in this domain due to the functional nature of the conjuncts. Their functional nature and consequent possible difference in constraint rankings is an important assumption for the sake of this account.

Section 3.2 offers a description of the imperfective 2sS morpheme, and examines the specific phenomenon of the deletion of the onset which results in the reduction of a syllable. This section offers a brief account of this phenomenon, where the highly ranked constraint *STRUC(σ) acts with other highly ranked constraints to select the most appropriate allomorph to mark the 2sS in different morphological environments.

Section 3.3 offers a parallel description and account of all [de-] shaped conjunct prefixes which also undergo intervocalic consonant loss. In order to account for the selection of a [de-] allomorph word initially and an [e] intervocalically the account presented in this section introduces a constraint which encourages onsets word initially, and again claims that the high ranked constraints in the phonological grammar select which allomorph is realized in the output.

3.1 The character of conjunct prefixes

3.1.1 Conjunct vowels vs. disjunct vowels

As was mentioned in chapter one, there are distinctions in the kinds of prefixes which attach to the verb root in Athapaskan languages. Voice/valence markers, traditionally referred to as classifiers, appear closest to the root, then the conjunct prefixes, and then the disjunct prefixes:

disjunct prefixes # conjunct prefixes - classifier = root

The distinction between the conjunct prefixes and the disjunct prefixes is the significant one for the purposes of this chapter. Conjuncts prefixes tend to play an inflectional role, such as person marking and aspect, and are closer to the verb stem. Disjunct prefixes, which include preverbs, quantificational elements, and incorporates, tend to be more derivational (Rice 2000, 74).

That there *is* a distinction between conjunct and disjunct verbal prefixes in Athapaskan verbs in function and phonology is largely unquestioned (Kari 1989), (Hargus 1988), (Rice 1989), Randoja (1990), Hargus and Tuttle (1997), (Rice 1993; Rice 2000) (Alderete 2002), (Gessner, 2003). The conjunct prefixes have a much more limited phonological inventory than the others, and, as this section discusses, there are processes that occur within the conjunct domain that do not occur in the disjunct domain. What characterizes this distinction and explains this difference in phonology between the two sets of verbal prefixes has been the subject of debate, however.

There have been arguments from scholars like McDonough (1990, 1996) that the disjuncts in Navajo are actually clitics, and not really affixes at all. Sharon Hargus (1997) examines the disjunct prefixes in another Athapaskan language, Witsuwit'en, and determines that they are indeed affixes and not clitics or separate words. The arguments that Hargus provides for Witsuwit'en also apply to Tłı̨chọ Yatı̨: The disjunct prefixes interact morphologically with their stems in that they show restrictions on ordering and subcategorization, which is unlikely to occur with clitics. For example, in Tłı̨chọ Yatı̨, the [na-] 'back, again' disjunct prefix is subcategorized to appear with verbs with a [d-] voice/valence marker, glossed throughout as a classifier:

(2) telà /te=là/ 'he is sinking' (DDBE 1996, 95)

disjunct prefixes, as well as noun and verb roots, belong to lexical categories and conjunct prefixes belong to functional categories, and places that within the framework of Positional Faithfulness Theory which relates morpho-syntactic relationships to phonological structure (Beckman 1998). Following from Alderete (2002), Beckman (1998) and Rice (2000), this account assumes that the inflectional role of the conjunct domain is what affects its segmental wealth in Tłjchq Yatìl as well as in the other Athapaskan languages—there is a limited set of segments that occur within the conjunct domain (see chapter one). It is a phonologically restricted domain because it encompasses functional categories, and so the prefixes in this domain are not subject to the constraints on lexical items in the phonological grammar of the language.

This difference in ranking may be a factor in why syllables have been lost in the conjunct domain in the recent history of the language, but not in the disjunct. The nature of the specific segments that are lost is discussed in the next section. The alternations between the segments [n] and [d] in the conjunct domain do not take place in the disjunct domain.

3.1.2 The status of [n] and [d]

The purpose of this section is to provide some insight into the background of the two segments which are no longer being realized intervocalically in the conjunct domain. As previously mentioned, the conjunct verbal prefixes have a limited phonological inventory. Even within this inventory, though, the segments [d] and [n] have special status in this domain. It should be noted too, that due to their alveolar place of articulation, these segments are two of the most unmarked sounds of the language.

There is a neutralization process which has affected Tłıchǝ Yatı̄ conjunct consonants [n] and [d] in the past. I make note of this process as a side point for the sake of completeness. A short discussion of the variable nature of these two consonants may provide insight into the analysis I present in the rest of the chapter. Ackroyd (1982) makes note of the particular behaviour of [n] and [d] in conjunct prefixes. According to her observations there was a recent process of neutralization within this domain, where [d] and [n] became neutralized in all environments except those of the 2sS morpheme, [ne-] and a neuter semantic marker, [ne-] (28). Two areas of neutralization are given below in (4). The first area of neutralization is before a nasal vowel, where an [n] will be realized as an [n], but the segment [d], in onset position will also surface as [n]. This can be seen in the examples (4a&c). The second area of neutralization is before oral vowels. The two examples in (4b) show how both [n] and [d] are realized as [d] preceding oral vowels.

- (4) /**ne-*/ a. **nj̄j̄** ‘you (sg) are afraid’
 b. **dej̄j̄** ‘he is afraid’ (Ackroyd 1982, 25)

Neutralizations like this do not occur in disjunct prefixes or roots, nor do these neutralizations remain active in the language. Despite the neutralized environments like those in (4), the two sounds are not allophones of the same phoneme within the conjunct domain. Contrast is maintained in a number of morphemes, such as the 2sS markers [nee-] and [ne-]. The perfective form, [nee-], which derives from the [ne-] 2sS marker and the [e] from the [**ɣ*] conjugation marker is an example of where an [n] is followed by an oral vowel. This pronominal form has recently spread by analogy to most perfective paradigms in the language (Saxon 1999). The imperfective 2sS [ne-] prefix appears with

an oral vowel as well, and it also appears word initially, as in the word, *nejì* ‘you (sg) are breathing’. Therefore there is a contrast retained between [d] and [n] preceding an oral vowel if the nasal consonant marks the 2sS. This thesis does not look at the [nee-] 2sS perfective—instead the focus is kept on the loss of the [n] onset in the imperfective paradigms, since it is the 2sS imperfexctive [ne-] that is often realized without an onset.

As the previous paragraph discusses, there are morphological factors involved in the alternations surrounding conjunct [n] and [d], and there must be contrast maintained between the two segments in order to retain morphological contrast, especially in person marking. These [n]-initial morphemes, like the 2sS, currently contrast with a [d] initial morpheme as well, the recently derived first person dual subject prefix, [dii-]. Although the [d-] prefix of [de-] shaped conjunct prefixes disappear intervocalically, as will be discussed later in the chapter, this process does not affect a [d]-initial conjunct prefixes. There are two situations where a conjunct /d/ is maintained before an oral vowel: The 1 dualS prefix [dii-], is one morpheme which now occurs both word initially, as in *diiʔè* ‘we (dual) are leaving by boat’, and word medially, as in *godìzhq* ‘we (dual) are smart’. The other is the reflexive pronoun [ʔede-], where the [d] is intervocalic, yet is still realized, as in *ʔedets’ò* ‘he scratches himself’, and *ʔedek’ò* ‘he stretches himself’ (Ackroyd 1982, 25).

Ackroyd also makes a special point in her Dogrib Grammar (1982) of describing a process of lenition that the segment [d] underwent. In the late 1970’s and early 1980’s a prefix initial [d] in the conjunct domain was realized as [r] intervocalically by

conservative speakers (23)⁴⁷. Innovative speakers at that time did not realize any consonant in that position. In the same environment where it was realized as [r] then, [d] is not realized at all now. The segment [n] in onset position is no longer realized intervocalically in the conjunct domain in contemporary Tɬɨchɔ Yatɨ either. This is evident by comparing conservative second person singular forms, like that in (5a), with more recent pronunciations, like the one in (5b). The forms in (5c-d) show how the [d] lenited to an [r] in the older forms no longer used by speakers under 75, and in the contemporary form in (5e), the [r] has reduced to [Ø] intervocalically.

- | | | | | |
|-----|----|-------------|-------------------|---------------------|
| (5) | a. | k'enembe | 'you swim around' | (Ackroyd 1982, 100) |
| | b. | k'eɛbe | 'you swim around' | (MKR 2002) |
| | c. | dɛk'ò | 'it is lit' | |
| | d. | wek'erehk'ò | 'I am burning it' | (Ackroyd 1982, 23) |
| | e. | wek'eehk'ò | 'I am burning it' | (MKR 2002) |

Again, morphological contrast plays an important role in these processes. The two prefixes discussed above, the 1dS prefix, [dii-] and the reflexive [ʔede-] pronouns do not undergo the lenition process of the [de-] conjunct prefixes.

- | | | | | |
|-----|---------|----------|--------------------------------|--------------------|
| (6) | [dii-] | diiʔè | 'we(dual) are leaving by boat' | |
| | | godiiɬhɔ | 'we (dual) are smart' | (MKR 2002) |
| | [ʔede-] | ʔedets'ò | 'he scratches himself' | |
| | | ʔedek'ò | 'he stretches himself' | (Ackroyd 1982, 25) |

It may be relevant that these prefixes are either disyllabic or bimoraic—their moraic weight might be the reason that they do not contract the way other prefixes do. As we will see below there is high ranking faithfulness surrounding the retention of moras in the language, and there is also a high ranked markedness constraint that prevents three vowels from being realized in a row. These constraints will be established in the rest of

⁴⁷ This process of intervocalic [d] lenition is the only source of [r] in the language (Ackroyd 1982, 23).

this chapter.

The purpose of this section is not to determine the phonological or morphological processes of prefixal [n] and [d] in the past, it is merely to point out some similarities in patterns between the two segments. The two conjunct prefixes examined in the rest of this chapter are the 2sS [ne-] prefix and the [de-] conjunct prefix. My account of the contraction of these two prefixes is that this contraction is the result of interactions in the grammar between *STRUC(σ) and other high ranked constraint.

Section 3.2 below looks at the 2sS morpheme which can be marked with a [ne-] prefix in the imperfective. This [ne-] prefix is not often realized in this shape unless it is word initial—it is realized as either [i] or as length in the preceding syllable ([ĩ]), depending on whether it is preceded by a conjunct prefix or a disjunct. The [de-] prefixes are discussed and accounted for below in section 3.3.

3.2 The reduction of [ne-] 2sS prefix

3.2.1 Distribution of the 2sS allomorphs

There are three ways the 2sS morpheme can be realized in imperfective verbs in Tłı̄ch̄o Yatı̄: it is realized with [ne-] word initially, as in (7a-c), as nasalized vowel length when preceded by a disjunct prefix (7d-g) or the [go-] areal prefix as in (7h-k).

(7) Two realizations of imperfective 2sS marker

[ne-] word initially:

- | | | | |
|----|--------|---------------------|------------------------|
| a. | nedo | ‘you are drinking’ | |
| b. | neze | ‘you are screaming’ | |
| c. | neht’è | ‘you are cooking’ | (Saxon Verb file 1987) |

[ĩ] following disjuncts:

- | | | |
|----|-------|--------------|
| d. | k’ebe | ‘s/he swims’ |
|----|-------|--------------|

- | | | | |
|----|----------|--------------------|------------|
| e. | k'ẹ̀ẹ̀be | 'you are swimming' | |
| f. | nàde | 'he/she lives' | |
| g. | nàḁde | 'you live' | (MKR 2002) |

[i] following [go-]:

- | | | | |
|----|------------|-------------------|------------------------|
| h. | whàḁegokḁ | 's/he savours it' | |
| i. | whàḁegḁḁkḁ | 'you savour it' | |
| j. | gode | 's/he talks' | |
| k. | gḁḁde | 'you talk' | (Saxon Verb file 1987) |

The realization of vowel length and nasalization seen in the forms in (7d-k) results in an output form where there is one fewer syllable than an output form with a word medial [ne-] realization.

The third way the 2sS is marked is with an [i] when preceded by another conjunct vowel as shown in (8). Unlike the forms in (7), the forms in (8), where the prefix is preceded by a conjunct prefix, maintain a separate syllable for the realization of the 2sS morpheme, but the prefix is not realized with its own onset.

(8) The realization of the 2sS, as [i] following conjuncts:

- | | | | |
|----|------------|---------------------------|---|
| a. | nàʔedlò | 's/he is laughing' | |
| b. | nàʔjdlò | 'you are laughing' | / nà#ʔe-ne/i=dì / |
| c. | wek'eek'ḁ | 'I am burning it' | |
| d. | wek'eihk'ḁ | 'you are burning it' | / we-k'e#de-ne/i-h=k'ḁ /
(MKR 2002) |
| e. | tàet'à | 's/he saws O into pieces' | |
| f. | tàjt'à | 'saw O into pieces!' | / tà#de-ne/i=t'à / |
| g. | O xèedi | 's/he feels O...' | |
| h. | O xèjdi | 'you feel O...' | / xè#de-ne/i=dì /
(Saxon Verb file 1987) |

This distinct behaviour difference between a 2sS prefix following a disjunct vowel and following a conjunct vowel is one of the most tangible pieces of evidence that the two sets of prefixes comprise two different phonological domains. As mentioned

above, in the past, the allomorph of the 2sS morpheme was realized consistently as [ne-] in the situations in (7a-k), but now this form only appears obligatorily word initially. In other environments in (7d-k) the 2sS is marked with a nasalized vowel which is incorporated into the preceding syllable. The morphological identity of the 2sS prefix is maintained with a mora and nasal quality. It is important to note that this fusion into the preceding syllable only occurs if the preceding vowel belongs to a disjunct prefix.

In the cases of the forms in (8) the 2sS is marked by [j] and the preceding conjunct vowel [e] is deleted. Alderete (2002) notes that for Navajo, as argued by Kari (1976), vv sequences in the conjunct domain are treated differently than they are in the disjunct domain. The first vowel in the sequence is deleted in conjunct vv sequences, but vv sequences at the disjunct-conjunct boundary are not resolved. This is perfectly in keeping with the data in (8), where the conjunct vowel preceding the 2sS marker is deleted and any remaining disjunct prefix vowel and [j] remain in unresolved hiatus:

- (8f) **tàit'à**
 /*tà#de-ne/j=t'à* /
 th#wood-2sS=saw.into.pieces
 'saw O into pieces!'

In the forms in (7), however, vv sequences composed of a vowel of a disjunct prefix and the vowel of the 2sS are resolved with assimilation.

The following data, additional to (7e) and (7g), further exemplify the process where the 2sS surfaces in the verb complex without an onset, as a vowel with nasalization. The disjunct prefixes are bolded in the morpheme gloss, and the 2sS prefix is in italics. The data in (9) indicates how the nasal vowel assimilates to the quality of the preceding disjunct vowel, but retains its own mora. The nasal quality of the 2sS spreads

throughout the syllable, and in the case of (9d) phonetically raises the quality of the vowel as well.

- | | | | | |
|-----|----|---|----|--|
| (9) | a. | nàatso
/nà#ne/ _i =tso/
th#2sS=strong
'you are strong' | b. | nàade
/nà# ne/ _i =de/
th#2sS=live
'you live' |
| | c. | gots'àadi
/go#ts'à-ne/ _i =di/
1pO#IP-2sS=help
'you help us' | d. | k'jilea ⁴⁸
/k'e# ne/ _i =le-ha/
around#2sS=handle(pl.obj)-FUT
'you will carry' |
| | e. | dàatlo
/da# ne/ _i =tlo/
th#2sS=dance
'you dance' | f. | wenaadi
/we-na# ne/ _i =di/
3O-th#2sS=remember
'(you) remember it' |
| | g. | nàazè
/nà# ne/ _i =zè/
th#2sS=hunt
'you hunt' | | (MKR 2002) |

The words in (9) are all realized with one fewer syllable than their input form.

The significance of the disappearance of the prefix onset and the assimilation of the vowel into the preceding syllable is that it effects a prosodic change in the conjunct domain. The prefixes are being realized in such a way as to reduce their structure as much as possible while maintaining a morphological contrast. The process in (9) is the focus of the section below which provides a brief analysis illustrating the role played by the ubiquitous *STRUC(σ) constraint.

3.2.2 Selection of the [i] 2sS allomorph

⁴⁸ The prefixes of this form are morphologically identical to those in the form (7e) *k'eqbe* 'you are swimming', but for some reason such as personal speech variation, there is a phonetic raising of the prefix vowels in this form. I do not address this phonetic difference between the two forms.

My account of this change in how the 2sS is realized is one of allomorphy selection where the distribution of prefix allomorphs in Tłı̄chǫ Yatı̄l is determined by constraint rankings. I make the assumption in this section that allomorphy selection is the process which determines the correct output candidates. Nothing crucial hinges on this assumption. It makes for an account which fits cohesively into the rest of the thesis and shows how the constraint *STRUC(σ) is at the root of the process. The term ‘allomorphy’ refers to a number of alternating forms of the same morpheme with different shapes. I do not argue that the different allomorphs are an example of suppletion. It is very likely that the three manifestations of 2sS are phonologically related since the segments [n] and [i] are both coronal, and all three are realized with a mora. What I am examining here is why one form is used in a particular environment rather than another.

Hargus (1997a) develops an Optimality Theory treatment of allomorphy in the realization of the perfective marker, conjugation prefixes and the areal prefix in the Athapaskan language of Witsuwit’en. The idea she presents in this work is consistent with the account I present here, where the allomorphs which are the most phonologically concise are usually the optimal ones. I also follow an assumption by Rubach & Booij (2001) who provide another OT account of allomorphy selection. I assume that allomorphs are idiosyncratic, but their distribution is not. Distribution is governed by phonological markedness constraints interspersed with faithfulness and morphological constraints. This assumption extends to the allomorphs of the 2sS in Tłı̄chǫ Yatı̄l since, as the data in (7) and (8) indicates, each allomorph is used in a specific phonological as well as morphological environment. The highly ranked constraints in the grammar of

Tłjchq Yatil act to select the appropriate allomorph for the output form. The allomorph which does not fatally violate the active constraints is selected for the particular environment.

I make the claim here that there are two allomorphs of the 2sS morpheme: [ne-], which occurs word initially, and [j], which occurs elsewhere. The assimilation of the selected allomorph, or the lack thereof, can then be accounted for with the same assumptions outlined in the previous section, where lexical categories have more highly ranked faithfulness constraints to preserve their vowel qualities in the face of *STRUC(σ). First, though, I would like to suggest that the high ranking of *STRUC(σ) selects the allomorph [j] over [ne-] to mark the 2sS in non-initial position, even where [ne-] was used in the past.⁴⁹

Where there appear to be numerous allomorphs of the 2sS imperfective morpheme, [ne], [a], [e], [j] and [o], I suggest that there are just two possible input shapes, [ne-] and [j]. What appears on the surface to be numerous allomorphs are actually just two different realizations of the 2sS morpheme, and the [j] actually has the same input shape [j], which assimilates to the quality of the disjunct vowel in the forms in (9). The [j] does not assimilate after a conjunct vowel [e], as seen in (8), even though both prefixes in such a combination are functional items and so both must be ranked with constraints on functional categories.

The reason that this morpheme [j] assimilates to the quality of a disjunct vowel, as

⁴⁹ This form is still used in a variety of contexts, though it may be now stylistically quite marked.

it is seen to do in the forms in (9) is in keeping with the idea of separate rankings of faithfulness constraints. As discussed in section 3.2 above, the faithfulness constraints surrounding segments belonging to a lexical morpheme are ranked more highly than those governing segments belonging to a functional morpheme. Thus a conjunct prefix vowel adjacent to a disjunct prefix vowel will assimilate to the quality of the disjunct prefix vowel. In other words, the vowel of the lexical category will be the trigger and the vowel of the functional category will be the target. Therefore there must be constraints like the one in (10), protecting the phonology of lexical items in the input which distinguishes the functional category of the conjunct domain prefixes from the lexical nature of the disjunct prefixes.

(10) **Max-[seg]_{lex}** Input segments of lexical items must be in the output

A constraint like that in (10) would be ranked more highly than regular input/output faithfulness constraints such as those introduced in chapter 2:

Max-[seg]_{lex} >> Max-[seg]

The constraint which promotes the realization of the vocalic allomorph of the 2sS morpheme over the full [ne-] syllable is the same constraint which discourages the realization of its quality in the forms in (9): *STRUC(σ). Therefore I propose that the following tableau is an example of the interactions of the constraints:

(11) k'ɛɛbe 'you are swimming'

/k'e#i=be / or /k'e# ne =be/	Max-[e] _{lex}	*STRUC(σ)	Max-[i]
a. k'ɛɛ.be		**	*
b. k'e.i.be		***!	
c. k'e.ne.be		***!	*
d. k'ij.be	*!	**	

The [i] allomorph is what has been selected for the output by the active constraints surrounding this word, but it is the assimilated form that is optimal. Candidate a. in the above tableau is optimal because it does not fatally violate *STRUC(σ), nor does it violate Max-[e]_{lex}. It is the lexical category of the [e] in the disjunct prefix [k'e-] 'around' that allows the quality of the vowel to be maintained. Candidates b. and c. are ruled out because they fatally violate *STRUC(σ), by creating a syllable. Candidate d. is ruled out because the faithfulness constraint governing lexical vowels is more highly ranked than that protecting the functional vowel [i], and so an output form which satisfies Max-[i] and violates Max-[e]_{lex} must be eliminated.

In this way, these highly ranked constraints select the form the 2sS morpheme will take in the output. Since the two forms of the 2sS morpheme are both listed in the UR, either would also satisfy a constraint such as Realize Morpheme, which ensures morphemes are somehow realized in the output. Candidate a. is optimal in this case because the 2sS is marked in such a way that it does not add a syllable and the lexical identity of the disjunct vowel is maintained.

In order for a candidate such as *k'ei.be, to be eliminated in a tableaux such as that in (11) there must also be a high ranked constraint against diphthongs in the language. A form such as *k'ej.be which retains the qualities of both vowels in the form of a diphthong, would not fatally violate *STRUC(σ), but tautosyllabic sequences of non-identical vowels do not exist in the language, with rare exception. I therefore claim there is an active *DIP constraint, given below, expressing the markedness of such sequences in Tłjchq Yatìl.

- (12) *DIP Avoid diphthongs (Casali 1998, 27)

Another high ranked constraint, Realize Morpheme (RM), given in (13), ensures the realization of all morphemes in some way. This kind of constraint, which requires every underlying morpheme to receive some phonological exponence, is necessary in cases where a phonological target of “as few syllables as possible” is triggered by a very high ranking markedness constraint.

- (13) **Realize Morpheme (RM):**

Let α be a morphological form, β be a morphosyntactic category form from which $F(\alpha-\beta)$ is derived to express a morphosyntactic category β . Then RM is satisfied with respect to β if $F(\alpha-\beta) \neq F\alpha$ phonologically.

(Kurusu 2001, 38)

This constraint is satisfied if the outcome has some phonological property which distinguishes it from the base form. That phonological property, however is not necessarily phonological substance. For more detail see Kurisu (2001).

The next tableau looks at a form where two syllables are maintained due to the combination of morphemes such as those in the forms in (8) and again below:

naj̄t̄te
 /na#e-ne/i=te/
 ITER # prog-2sS=(sg) go (progressive)
 ‘walk back!’

There are three prefix vowels in a row in the input form of this word: a disjunct /a/ followed by a conjunct vowel and the 2sS morpheme. Three vowels in a row with no intervening consonant, however, is not a licit combination in the language, despite the high ranking faithfulness constraint which ensures the maintenance of moraic value whenever possible, given in (14). Even if all three vowels are distinct syllables, such a combination is not possible, (*naej̄t̄te). The following constraints must therefore come

into play in determining the output form of this word:

- (14) **Max- μ** A mora in the input must be maximized in the output.
 (15) *** $\mu\mu\mu$** Three or more moras cannot occur in an uninterrupted sequence

These two constraints result in the elimination of syllables and the maintenance of moras, but limit syllables to only two moras each, since a sequence of three moras in a row, with no intervening consonant, is prohibited.

In the case evaluated in the tableau below in (16), the conjunct prefix [e] must somehow be realized in the face of *STRUC(σ), and so RM is necessarily active. This tableau also indicates what the rankings of the highly ranked *STRUC(σ) must be in relation to Max- μ and * $\mu\mu\mu$, in order to select the optimal candidate when the input form of a word presents two options for the 2sS morpheme. A crucial ranking between RM and *STRUC(σ) is established.

- (16) *nait̩e* ‘walk back!’

<i>/na#e-\dot{i}=t̩e/</i> or <i>/na#e-ne=t̩e/</i>	* $\mu\mu\mu$	*DIP	RM	*STRUC(σ)	Max- μ
a. <i>na.i.t̩e</i>				***	*
b. <i>na.e.ne.t̩e</i>				****!	
c. <i>na̩̩.t̩e</i>			*!	**	*
d. <i>na.e.i.t̩e</i>	*!			****	
e. <i>naa.i.t̩e</i>	*!			***	
f. <i>nai.t̩e</i>		*!		**	

Candidate a., with the [i] 2sS marking is chosen due to the high ranking of * $\mu\mu\mu$ and *STRUC(σ). The optimal candidate also satisfies Realize Morpheme (RM) by not assimilating [i] to the disjunct vowel. Candidates b. and d. fatally violated *STRUC(σ), and candidate e. fatally violates * $\mu\mu\mu$. Candidate c. violates RM, and candidate f. fatally

violates *DIP and therefore neither are optimal.

The form that is optimal, candidate a., is selected due to the lack of assimilation between the disjunct vowel [a] and the 2sS vowel [i]. The lack of assimilation is a morphological indicator which is enough to mark the existence of that morpheme in the output, therefore RM is fatally violated by candidate c., but it is not by candidate a.

To further explain why candidate a. satisfies RM, but candidate c. does not, I present a parallel verb form that does not contain the conjunct prefix seen in the input of the tableau in (16). According to the formulation of the constraint RM, given in (13), it cannot be satisfied unless there is a base form of the word in the language without the morpheme in question that is realized with a phonological difference distinguishing it from the other form in the language, (see Kurisu (2001) for details). I present a parallel form because the [e-] progressive prefix in *najtɛ* ‘walk back!’ is inflectional, but the progressive root cannot be realized without it.

- | | | | | |
|------|----|--|-----------------------|---|
| (17) | a. | <i>najtɛ</i>
/na#e- ne/i =tɛ/
ITER # prog-2sS=(sg)go(prog)
‘walk back!’ | impossible base form: | * <i>nəʔtɛ</i>
*/na#ne/i=tɛ/
* ITER # 2sS=(sg)go(prog)
*you walk (non-progressive) |
|------|----|--|-----------------------|---|

- | | | |
|---------------------|----|--|
| parallel base form: | b. | <i>nəʔtɛ</i>
/nəʔ# ne/i= tɛ/
CON#2sS=(sg)go
‘(you) go (to a place)’ |
|---------------------|----|--|

If the form *nəʔtɛ* can be used as a parallel base form to the form *najtɛ*, we can see that the exponence of the conjunct prefix in *najtɛ* is the unresolved hiatus between the disjunct prefix vowel and the conjunct prefix vowel. If this prefix were not represented there would be assimilation across the conjunct/disjunct boundary the same

way as in (17b).

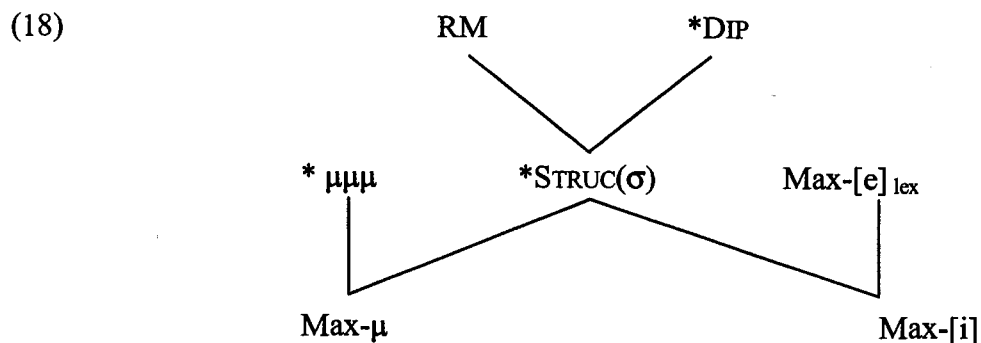
There is another candidate that needs explanation in the tableau in (16) as well. Even with the inclusion of RM there is a shortcoming in this ranked constraint set because it would also predict a form like **naanette* where the [ne-] prefix is realized, and the conjunct vowel is as well. A form like this would satisfy a RM constraint, but not violate **μμμ* and **STRUC(σ)* any more than the optimal candidate above. This form, however, could not be used because an [n] would not appear in that context—only the [j] form of the 2sS morpheme would have been realized following a conjunct vowel. This form could be ruled out in the synchronic grammar with a constraint limiting the allowable shapes of the conjunct domain itself.⁵⁰ Due to the limited scope of this thesis, I avoid a discussion of the specific constraints and constraint rankings of the conjunct domain that keep it distinct in phonological structure from the phonology of the rest of the language.

3.2.3 Summary

The focus of this section was on the description and analysis of the imperfective 2sS morpheme in Tɬɨchɔ Yatii. The claim made here is that there are two possible input forms of the morpheme. The constraints of the phonological grammar and morphological factors determine how the 2sS is marked. In order to determine why each allomorph is realized in each circumstance a number of constraints were introduced surrounding the

⁵⁰ There may be a prosodic restriction on the conjunct domain limiting its shape and length, but this area needs much further study, especially in the examination of the bisyllabic conjunct prefix, the reflexive prefix [ʔede-], and the bimoraic 1 dual prefix [dii], and the way they interact with other conjunct prefixes. I suggest that further study in this area is needed to determine the different set of constraints active in the phonology of the conjunct domain in Tɬɨchɔ Yatii.

prosodic structure of the language, the realization of each morpheme and the differences between faithfulness constraints governing lexical items and regular faithfulness constraints. A lattice of how these constraints interact in the tableaux so far is given below in (18).



3.3 Reduction of the [de-] conjunct prefixes

The [de-] prefixes of the conjunct domain have had a wide range of realizations throughout the years in Tɬɨchɔ Yatiì, such as [de-], [re-], [d-], [n-], [ne-] and [e-]. Only the two forms, [de-] and [e] are accounted for in this chapter. This section offers a description and discussion of the alternations that the onsets of these prefixes have undergone, and the contemporary shapes they hold. As this section will show, the [de-] ~ [e] alternation can be accounted for without the introduction of any other constraints than those already discussed.

3.3.1 Description of [de-] alternations

As previously mentioned, in the past there were widespread alternations between $d \sim r \sim n \sim \emptyset$ in the onsets of conjunct prefixes in Tɬɨchɔ Yatiì (Ackroyd 1982, 22). In

contemporary speech, however, [r]'s are no longer heard⁵¹, and the alternation is between $d \sim n \sim \emptyset$. This alternation, discussed above in further detail in 3.1.2., can be currently limited to an alternation between a conjunct consonant and no consonant. I focus here on the alternation which is essentially the disappearance of an onset, rather than on the $n \sim d$ alternation as such, but the two processes may be related in the sense that their consonantal quality does not need to be retained for their morphological identity to be retained.

The first rule Ackroyd mentions in her discussion of these conjunct prefixes is the alternation between [d]~[r], which is no longer active in the language. The relevant aspect of this process is that it has been taken a step further to reduce all intervocalic /d/'s to [∅](zero) (*ibid* 29). The target of this deletion is any [de-] conjunct prefix preceded by another prefix vowel—this includes [de-] prefixes derived from [ne-] prefixes, like the forms in (19g). The following data illustrate that a long vowel remains when a prefix onset disappears completely. This is not a process which affects disjunct prefixes or roots.

(19)	a..	<i>de-</i>	'noise'		
		degho	/ de=gho /		's/he snores'
		geegho	/ ge-de=gho /		'they snore'
	b.	deko	/de=ko /		's/he is coughing'
		geeko	/ge-de=ko /		'they are coughing'
	c.	<i>de-</i>	neuter semantic class marker		
		dezø	/ de=zø /		'it is black'
		goozø	/go-de=zø /		'it is dark' (an area)
	d.	<i>de-</i>	'fire'		
		dèk'ò	/ de`=k'ò /		'it is lit/burning'
		wek'eek'ò	/we-k'e#de-h=k'ò /		'I am burning it'

⁵¹ There are a few exceptions to this rule; the word for 'frog' *ts'ari* or *ts'ali* is one.

e.	<i>de-</i>	inceptive		
	deʔè		/de=ʔè /	‘s/he leaves (by boat)’
	geeʔè		/ge-de=ʔè /	‘they leave (by boat)’
f.	<i>de-</i>	thematic		
	deʔì		/de=ʔì /	‘s/he is stealing O’
	ts’eeʔì		/ts’e-de=ʔì /	‘we are stealing O’
g.	<i>de-</i>	completive	<i>*ne-</i> (historical form)	
	detè		/de=tè /	‘s/he goes to sleep’
	geetè		/ge-de=tè /	‘they go to sleep’ (MKR, 2002)

As previously noted, there is a strong tendency in the language to maintain the prosodic structure of a mora. This tendency can be seen in the data we’ve discussed so far in this chapter, as well as what was seen in the previous chapter. In the situations of assimilation as hiatus resolution in section 2.2.1., the disjunct vowel always becomes long after the conjunct vowel assimilates. The morpheme therefore loses its featural identity, but not its moraic realization. The same is the case for the realization of the 2sS in the forms in (9), such as *dqatlo* ‘you dance’ and *wenqadi* ‘(you) remember it’, where the morphological identity is maintained through the maintenance of the mora and the nasal feature. The data in (19) shows the same pattern of retaining the mora, but losing the featural identity of the segments of the morpheme. The consonant is often not retained, but the mora is, as we can see by the long vowel in the third person dual and the unspecified subject forms.

The data in (19) indicates that, as with the 2sS morpheme, there are two allomorphs for each [de-] conjunct prefix in the language: [e] and [de-], and where they are each realized is dependent on both phonology and morphology:

deko	‘s/he is coughing’
geeko	‘they are coughing’

As the data shows, [de-] occurs word initially, and [e-] occurs following a preceding vowel of a conjunct prefix. The following section follows the analysis of allomorph selection developed earlier in this chapter.

3.3.2 Account: Positions of prominence and non-prominence

In order to offer a brief account of the disappearing onset of the [de-] conjunct prefixes, I make use of the same assumptions and constraints as in the preceding sections, and also draw upon tenets of Positional Faithfulness. To recap, I assume a different ranking of faithfulness constraints for the vowel qualities of morphemes belonging to the lexical category from those belonging to the functional category. I assume the high ranking of a prosodic markedness constraint *STRUC(σ), a lower ranking of Alignment constraints like those introduced in chapter 2, and very high rankings of RM (Realize-morpheme) and * $\mu\mu\mu$.

As previously discussed, there is an important high ranking constraint protecting the realization of moras in the language, Max- μ , but as the data so far has shown, the moras do not have to be maintained as syllables and the onsets of syllables do not have to be maintained either in many contexts. There is a clear discrepancy between the phonological significance of maintaining consonants in the language compared to that of maintaining moraic segments.

This section follows the last in making the claim that the realization of the [de-] prefixes as [e] intervocalically and [de-] word initially is another instance of where the constraint *STRUC(σ) works with other constraints to select the most optimal output. The importance of the phonological position of the prefix within the word is also highlighted below.

Non-initial position, functional prefix domains, and root final syllables are environments where coda contrast is lost in Tłı̄ch̄o Yatı̄ syllables, and where syllables themselves are lost in certain words of the language. This state of affairs is in keeping with what are considered areas of non-prominence. Beckman's (1998) theory of Positional Faithfulness (PF) briefly outlined in chapter 1, describes areas of prominence where contrasts tend to remain, such as root-initial syllables, as well as areas of non-prominence, such as non-initial syllables, syllable codas, and functional morphemes, where contrasts tend to be lost. According to PF, the pattern of the [de-] prefixes, where they are realized with an onset word initially but without an onset word medially, is not unexpected. These prefixes are functional affixes, and the positions where the onsets are lost in Tłı̄ch̄o Yatı̄ are in non-initial syllables. When [de-] occurs word initially (and the same holds for the [ne-] 2sS as well) the onset is realized, as the examples in (19) show.

In order for the vocalic allomorph to be realized intervocalically and the allomorph which retains the [d] onset to be realized word initially, it is possible that a positionally specific faithfulness constraint may be active in the grammar. However, such a constraint, as in (20), which specifically protect onsets, cannot be high ranking enough in the language to effect this distribution.

(20) **Onset(σ_1)** Output syllables in word-initial position must have onsets

A constraint like (20) cannot be high ranked in the phonological grammar of Tłı̄ch̄o Yatı̄ because there are many words in the language which begin with an onsetless syllable, such as those in (21).

(21)	etse	's/he cries'
	eda	's/he is living'
	àgı̄a	'friend'

idzi ‘hand game’
 eji ‘s/he is singing’

Rather than introduce $\text{Onset}(\sigma_1)$ I depend again on the $\text{*STRUC}(\sigma)$ constraint with conflicting general faithfulness constraint $\text{Max-}[\text{seg}]$ and the RM constraint to select the appropriate allomorph in the output. This constraint interaction is also relevant in determining the output of the 2sS $[\text{ne-}] \sim [\text{j}]$ alteration examined in the previous section. The realization of word initial $[\text{de-}]$ would violate $\text{*STRUC}(\sigma)$ whether or not it was realized with an onset, but word medially when the $[\text{e}]$ allomorph is incorporated into the preceding syllable, $\text{*STRUC}(\sigma)$ is not fatally violated. The faithfulness constraint $\text{Max-}[\text{seg}]$ is violated if the onset, like any other segment in the input, is not realized, but since $\text{Max-}[\text{seg}]$ is lower ranked than $\text{*STRUC}(\sigma)$, the onset is not realized intervocalically.

The following set of tableaux show how these three constraints interact to select the optimal output forms *geetè* ‘they go to sleep’ and *detè* ‘s/he goes to sleep’. As can be seen in (22) and (23), I assume only one input shape for $[\text{de-}]$, and the constraints select how it is realized optimally.

(22) *geetè* ‘they go to sleep’

$/\text{ge-de=tè}/^{52}$	RM	$\text{*STRUC}(\sigma)$	$\text{Max-}[\text{seg}]$
☞ a. <i>geetè</i>		**	*
b. <i>gedetè</i>		***!	
c. <i>getè</i>	*!	**	**

The tableau in (22) supports the previously established ranking of constraints necessary in order to select the correct candidate, and the optimal candidate is one which does not violate RM or $\text{*STRUC}(\sigma)$.

⁵² In this language, underlying representations must crucially contain vowels.

(23) detè /de=tè/ 's/he goes to sleep'

/ de=tè /	RM	*STRUC(σ)	Max-[seg]
a. etè		**	*!
☞ b. detè		**	
c. tè	*!	*	**

The optimal output candidate in (23) is also one which does not fatally violate either RM or *STRUC(σ). Both candidates a. and b. violate *STRUC(σ) the same number of times, but candidate b. is selected over candidate a. because the violation of Max-[seg] breaks the tie. Therefore the form is phonologically concise, but morphologically faithful, despite the lack of onset. Candidate c. is ruled out in both (22) and (23) because it violates RM by not representing the prefix with any exponence at all in the output.

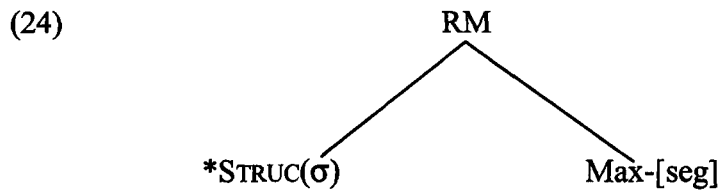
Once again, the constraint *STRUC(σ), in cooperation with RM selects which form of the [de-] conjunct prefix will be used in the output in each phonological position.

3.3.3 Summary

This section describes the phenomena of syllable reduction in conjunct domain [de-] prefixes. It offers a brief description of the behaviour of the segment [d] from a number of different conjunct prefixes and how these prefixes are realized without onsets intervocalically. More significantly, this section also establishes the influence of the high ranked constraint against syllable structure on how allomorphs are selected in EVAL for specific phonological environments.

The patterns seen in this section are more consistently observed than those in the previous chapter which discussed hiatus resolution, and have a more straight-forward explanation. The relevant factors involved in the selection of the vocalic allomorphs in

word medial positions and the *cv-* shaped allomorphs in word-initial position include the rising constraint *STRUC(σ), the functional role of the conjunct prefixes, the necessity of realizing every input morpheme, and a tendency to retain onsets in prominent positions, such as word initially. A summary lattice of the constraints used in section 3.3 to determine which allomorph of a [de-] prefix is optimal in a given word is drawn below in (24).



3.4 Summary of Chapter three

The goal of this chapter is to present, and account for, another circumstance in Tɬɨchɔ Yatì where syllables are being lost and long vowels are being created. The loss of syllables in the conjunct domain can be linked to the process of hiatus resolution seen in the previous section, since in both cases the high ranking constraint *STRUC(σ) plays an active role in ensuring as few syllables are realized as possible in the output. Both can be said to take part in the simplicity conspiracy. All the processes discussed so far are relatively recent developments in Tɬɨchɔ Yatì and so are also evidence that the constraints responsible are climbing in rank within the phonological grammar.

This chapter has built on the idea introduced in chapter one, that the phonology of the conjunct domain is in some ways distinct from that of the disjunct domain and from other lexical categories. The data examined in this chapter, especially the allomorphy of the 2sS prefix, also highlights the fact that despite the lowering of the ranking of

alignment constraints like $\text{AlignL}(\text{root}, \sigma)$, $\text{AlignL}(\text{disjunct}, \sigma)$ and $\text{AlignL}(\text{conjunct}, \sigma)$ introduced in the previous chapter, the grammar of the language continues to distinguish morphological domains with phonology. This remains an area where more research and analysis is needed.

A formal listing of the constraints seen in this chapter is summarized below in (25), where RM and $*\mu\mu\mu$ are undominated in the language. $*\text{STRUC}(\sigma)$ is dominated by RM in the grammar of the language and the generalized constraint $\text{Max-}[\text{seg}]_{\text{lex}}$ dominates the generalized constraint $\text{Max-}[\text{seg}]$.

- (25) $*\mu\mu\mu \gg \text{Max-}\mu$
 $*\text{DIP} \gg * \text{STRUC}(\sigma)$
 $\text{RM} \gg * \text{STRUC}(\sigma) \gg \text{Max-}\mu$
 $\text{RM} \gg * \text{STRUC}(\sigma) \gg \text{Max-}[\text{seg}]$
 $\text{Max-}[\text{e}]_{\text{lex}} \gg \text{Max-}[\text{e}]$

The next chapter examines how the conspiracy of simplicity affects the third and last domain of this discussion: the stem domain. Over the years most roots have simplified in shape to one syllable, and now this target shape has become optimal even for those stems with a vocalic suffix. This last chapter offers the stem domain as my final piece of evidence for the tendency in the language for structure to be reduced.

Chapter 4

Simple Stems

4. Introduction

The three prosodic domains this thesis examines are the syllable, the conjunct domain, and the stem domain, the last of which is the focus of this chapter. Having established my hypothesis that there is a conspiracy in the language to simplify structure, having provided an account of the syllable within that hypothesis, and having provided evidence that the syllable-count in words is decreasing in certain contexts, this last chapter offers the last pieces of evidence to support my simplicity hypothesis. Due to the high ranking of the constraint against syllable structure, stem domain syllables maintain a mono-syllabic profile even with the addition of a vocalic suffix.

This chapter discusses the historical evolution of root shapes in Tłı̄chq̄ Yatı̄, and provides a synchronic account of their monosyllabicity which accords with the account of hiatus resolution in chapter 2 and conjunct syllable loss in chapter 3. The constraints against structure have become so highly ranked in Tłı̄chq̄ Yatı̄ that the stem domain has become almost exclusively mono-syllabic, and remains mono-syllabic even when a vocalic suffix is added. When such a suffix is added to a mono-syllabic stem domain in the related languages Slave or Dene Sų́líné the output typically yields two syllables. This difference suggests that constraints like *STRUC(σ) are not quite as highly ranked in related languages as they are in Tłı̄chq̄ Yatı̄.

This chapter is organized into two sections, the first addresses the evolution of the root syllable shape, and the second discusses the vocalic suffixes and how they attach to

the root and become incorporated into the stem domain. A discussion of the differences between stem shapes of Tłıchq Yatı̄ and cognate forms of Slave and Dene Sułı̄né is given in the first section of this chapter. The data provided in this section shows how stems which were historically disyllabic have become bimoraic, mono-syllabic stems in Tłıchq Yatı̄. This evolution of the stem shape can be seen as evidence that the optimal stem shape in Tłıchq Yatı̄ is mono-syllabic—a prosodically simple shape.

Section 4.2 examines the vocalic suffixes of Tłıchq Yatı̄ and makes a claim that the grammar of the language allows for morphological additions to the stem without allowing for major changes in the complexity of its structure. These suffixes become incorporated into the syllable of the stem domain rather than create a new syllable as they tend to do in related languages. The final section on suffixes offers a discussion of the exceptional behaviour of the diminutive suffix and supports the notion introduced in chapter 2 that the high ranked *STRUC(σ) constraint may actually be ranked lower in the grammar than markedness constraints on vowel quality.

The major claim of this chapter is that both the historical change and the current maintenance of the Tłıchq Yatı̄ mono-syllabic stem domain are a product of the ‘simplicity conspiracy’ in the language driven largely by the *STRUC(σ) constraint.

4.1 The Tłıchq Yatı̄ Stem Domain

This section provides a context for the assimilation processes discussed later in the chapter by reviewing the differences between roots and stems, and offering a brief description of how disyllabic roots in Tłıchq Yatı̄ have mostly simplified to mono-

syllabic shapes.

4.1.1 Synchronic root shapes

As discussed in Chapter one, Tłı̄chq̄ Yatı̄ roots are morphologically required elements of a word which provide a basic lexical meaning and which can be modified by prefixes and suffixes. I use the term “stem domain” in this thesis to describe the phonological domain which includes the root of both nouns and verbs as well as the classifier prefixes and a set of suffixes. The target, or optimal shape for the stem domain tends to be mono-syllabic.

Roots which were historically disyllabic maintain a bimoraic status, but have lost the consonants of the second syllable. The next section shows how mono-syllabic stem shapes in the language have been derived historically. Like the circumstances of syllable reduction discussed in the previous chapter, syllables have been lost in the stem domain as well and in most circumstances are realized as compensatory lengthening.

4.1.2. Historical root changes

It was established in section 2.1 that root final consonants in Tłı̄chq̄ Yatı̄, like all codas in the language, have undergone neutralization to the point that the only allowable final consonant is [h]. The prosodic shape of the root has also undergone simplification over the years. This section provides a comparison of disyllabic stems in Slavey, Hare and Dene Sų̄liné with Tłı̄chq̄ Yatı̄ cognates in order to establish the historical movement of the Tłı̄chq̄ Yatı̄ stem away from the more complex disyllabic shape to the more simple mono-syllabic shape.

There are some disyllabic nouns in the language, but many nouns in Tłı̄chǫ Yatı̄ı which have alternative disyllabic forms or disyllabic cognates in neighbouring languages, emerge as mono-syllables. In most of these cases, as the data in (1) indicates, the historically observable final syllable is realized synchronically as lengthening of the remaining root vowel. The forms below are compared with the related languages of Slavey and Hare and Dene Sų́ı́né as well as the Proto-Athapaskan forms to show how the historically disyllabic shape has been retained in other languages, but not in Tłı̄chǫ Yatı̄ı. The forms in (1a&f) show that some of the few disyllabic noun roots in the language alternate with the more innovative monosyllabic forms.

(1) Monosyllabic Tłı̄chǫ Yatı̄ı roots and disyllabic cognates⁵³

PA	Dene Sų́ı́né	Slavey	Hare	Tłı̄chǫ Yatı̄ı	gloss
a. *ʔa:c'əʔ ~*ʔa:ʒəʔ ⁵⁴	-'ádhé	-ʔádhé ~ ʔáá	-'áwé'	-ʔadè ~ -ʔàà	hips
b. *č'ədəʔ ~ *č'ə'dəʔ	ts'éré	ts'édé'	ts'éré'	ts'òò	blanket
c. *ʒenə	dzine	dzene	dzine	dzeę	day
d. *kəł'ə	chile	-chee	-shile	-chii	younger brother
e. *təʒ	tədhe	tədhe	tewe	too	night
f. *gi'gə	jíyε	jíe	jíyé'	jı̄e ~ jı̄i	berry

In order to lend support to my hypothesis that long vowels exist in Tłı̄chǫ Yatı̄ı and are derived through the processes of phonological structure simplification, I also

⁵³ Forms come from the *Dene (Chipewyan) Dictionary* (Elford & Elford 1998), Li 1932, the *South Slavey Topical Dictionary* (TLCDDBE 1993), the Hare dictionary (Rice 1978), the Dogrib dictionary (DDBE 1996), and personal communications between me, Leslie Saxon and Philip Rabesca on Tłı̄chǫ Yatı̄ı. PA forms come from an unpublished 1978 paper on Athapaskan tone by Michael Krauss, and Leer *to appear*.

⁵⁴ According to this reconstruction, tone is not expected in the daughter languages, but it does occur.

provide some mono-syllabic noun roots in Tḥichḳ Yatì and their cognates below in (2) from the same sources as in (1).

(2)	Dene Sḥliné	Slavey	Hare	Tḥichḳ Yatì	gloss
	gah	gah	gah	gah	‘rabbit’
	tu	tu	tu	ti	‘water’
	ke	ke	kie ⁵⁵	ke	‘shoe’

Verb roots in Tḥichḳ Yatì have undergone the same process of syllable reduction that nouns have except more thoroughly since there are currently almost no disyllabic verb roots in the language. (There are a few rare exceptions to this generalization, such as *eh̄ts’oa* ‘be curly’ and *neghoa* ‘be narrow’. The second syllable of the stem domain in these words derives historically from the diminutive suffix [-a], discussed later in the chapter.) Again, the verb roots that were historically two syllables often retain a long vowel. The comparative forms in (3) show how verb roots that still retain both syllables in Slavey are realized with a bimoraic syllable in Tḥichḳ Yatì.

(3) Disyllabic verb roots become monosyllabic in Tḥichḳ Yatì⁵⁶

	Slavey	gloss	Tḥichḳ Yatì	gloss
a.	-tḥóle	be soft	-tḥò	be soft, tender
b.	-ghozé	be rough	-ghoò	be a rough surface
c.	-jiré	old, rotten	-jire ~ -jii	be rotten
d.	-sháhdi	be dry	-zhàà	get dry
e.	-zéi	be crooked	-zò	crooked
f.	-tselé	be wet	-tsoò	be wet
g.	-tḥede	be smooth	-tḥò	smooth (area)

In both noun and verb roots in Tḥichḳ Yatì, intervocalic lenition of consonants almost

⁵⁵ In the orthography of the Hare dictionary (Rice 1978) the vowel [e] is spelled as *ie*.

⁵⁶ Slavey verb stems are taken from A Dictionary of the Verbs of South Slavey (Howard 1990), and Tḥichḳ Yatì forms from the Dogrib dictionary (DDBE 1996) and Leslie Saxon’s notes. Recall footnote 35 of chapter 2 where it was noted that DDBE 1996 is not consistent in representing vowel length in roots.

always results in a long vowel: VCV → VV

This pattern of the second syllable of the stem domain losing its onset, and becoming incorporated into the root initial syllable in the form of vowel length is very much in keeping with the patterns seen so far of assimilation and intervocalic consonant loss in the conjunct domain. The stem domain therefore exhibits the same pattern as any other element participating in the simplicity conspiracy. This data can be accounted for with the same account as that given in chapter two: due to the climbing of *STRUC(σ) up through the ranks of the grammar over the history of the language, forms with the fewest number of syllables in a given domain are more optimal in contemporary Tłıchq̄ Yatı̄.

4.2 Suffixes within the stem domain

This section looks at a number of suffixes in Tłıchq̄ Yatı̄, and how they differ in shape and behaviour from corresponding suffixes in the languages of Slave and Dene Sų́ı́né. Most significantly, it explores how the suffixes retain their morphological identity while still allowing the stem to maintain a specific shape. The vocalic suffixes of Tłıchq̄ Yatı̄ are the final piece of evidence I present in support of my hypothesis.

4.2.1 Synchronic suffix shapes

Tłıchq̄ Yatı̄ has a number of vocalic suffixes, as is discussed briefly in chapter 1. The suffixes in question in this chapter are the common nominalizing suffix, adverbial suffix, possessed noun suffix, and diminutive suffix, all of which consist of one mora. Examples of these suffixes are given in (4). The exponents of these suffixes are bolded

in the column that provides the derived forms.

(4)	Stem		Derived Form	
Nominalizing suffix				
/-i/	wedajʔo	‘be closed’	wedajʔoʔ	‘bottle cap’
Locative suffix				
/-ĩ/	tʃ’à	‘bay’	tʃ’àa	‘beach’
Diminutive suffix				
/-a/	di	‘island’	dia	‘small island’
Possessed noun suffix				
/-ũ/	yati	‘language’	goyatiĩ	‘our language’
Adverbial suffix				
/-ũ/	nezi	‘be good’	nezji	‘well, nicely’ (DDBE 1996)

The derived forms in (4) show the output values of the nominalizing suffix as a lengthening in the stem vowel, with the prosodic shape of a mora; the locative suffix as lengthening holding the shape of a mora with a nasal feature; and the possessed noun suffix and adverbial suffixes also as lengthening but with the shape of a mora with a low tone. The diminutive suffix has its own prosodic and segmental qualities as [a].

In the input these forms have a specific prosodic shape and some have specific vowel qualities as well, but these shapes are manifested as vowel length in the output, with no specific quality but that of the stem vowel they are attached to. They do, however maintain their prosodic features wherever the phonology allows. The input shapes of these suffixes are listed below in (5) and will be justified as such in the following section:

(5)			input	exponence
Nominalizing	wedajʔoʔ	‘bottle cap’	- i	- o
Locative ⁵⁷	tʃ’àa	‘beach’	- ĩ	- a

⁵⁷ The locative suffix is important to mention here as one of the vocalic suffixes because it demonstrates the

Diminutive	dia	‘small island’	-a	- a
Possessed noun	goyatiì	‘our language’	-ù	- ì
Adverbial	nezjì	‘well, nicely’	-ù	- ì

To generalize, then, the output form of a vocalic suffix in Tłı̄chọ Yatı̀ adds a mora to the stem vowel, and whatever features the input form has are associated to that mora. Nasality of a suffix vowel will spread to the stem vowel, but tone will not. Nor will quality spread from the suffix vowel, or be realized at all if quality is specified in the input, unless the suffix is the diminutive. The diminutive suffix always retains its input shape in the output, which is in keeping with the high ranking of the constraint Max-[a] introduced in chapter 2.

4.2.2 Historical suffix shapes

Given their close historic relationship, the suffixes in Tłı̄chọ Yatı̀ correspond to suffixes in the other Northeastern Athapaskan languages. In order to examine the historical shapes of these suffixes, then, I offer a comparison here between these morphemes in Tłı̄chọ Yatı̀ and those of the corresponding suffixes in the neighbouring languages of Slave and Dene Sų́liné. These forms given below in (6)-(10) show how the vocalic suffixes have retained their segmental quality in related languages, but have lost them in the nominalizing suffix and the possessed noun suffix in Tłı̄chọ Yatı̀. The stem domains of the words have been underlined, and the various forms of the suffixes have been bolded.

typical characteristic of spreading its prosodic qualities of length and nasality to the stem vowel. I do not have enough forms to include this suffix in the rest of the discussion and account, however, so it will not be analyzed further in this chapter.

Some examples of corresponding forms of the nominalizing suffix in Tłıchǝ Yatı̀

Yatı̀, Slave and Dene Sų́ı́né are given in (6).

(6) *Nominalizing suffix*

Tłıchǝ Yatı̀	Slave	Dene Sų́ı́né	gloss
dechıtè k'e tèwheh <u>chii</u>	dechıtée k'e tetheh <u>chúdhı</u>	dşchentél k'ε theł <u>chúdhı</u>	
			'rug'
ehkw'i ahodi ni <u>woo</u>		t'ąhı bat'óhodi <u>hi</u>	'believer'
(DDBE 1996)	méh déhkéts'ıtladi	bək'ε hokánats'εdı <u>ı</u>	'ladder'
	(Rice 1989)	(Elford & Elford 1998)	

As the data in (5) indicates, the suffixes in Slave and Dene Sų́ı́né that correspond to the nominalizing suffix in Tłıchǝ Yatı̀ both consistently hold the shape [-ı]. This is the shape and quality of the input form of the nominalizing suffix in Tłıchǝ Yatı̀ as well, but the output of the suffix is most often realized as simply a lengthening of the final vowel of the stem it attaches to. The evidence for the input shape [-ı] comes from special contexts of emphasis like that in (7c), where the suffix takes the form of [-ı].

- (7)
- | | | |
|----|---------|-------------------------------------|
| a. | nechà | 'it is big' |
| b. | nechàa | 'the one which is big; the big one' |
| c. | nechàıı | 'the one that is BIG!' |
- (Saxon 1995)

I assume, therefore that the more marked [-ı] shape which corresponds comparatively with the parallel suffixes in Slave and Dene Sų́ı́né is actually the historical form, and that this shape is used for pragmatic or contextual reasons in order to preserve or emphasize its function. Since this suffix is sometimes realized as [-ı] in Tłıchǝ Yatı̀ I assume its input form is also [-ı], even though it is most frequently realized as vowel length.

The possessed noun suffix, exemplified in (8), has no input vowel quality in

Tłıchọ Yatıı, but holds a specific shape in both Slave and Dene Sųtiné.

(8) *Possessed noun suffix*

Tłıchọ Yatıı	Slave	Dene Sųtiné	gloss
<u>dlòodıı</u>	dloo- <u>ndıé</u>		‘peanut butter’
<u>gozhıı</u>	goʔıh <u>zhıné</u>		‘shadow’
<u>sedzèè</u>		<u>sedzıné</u>	‘my birthday’
<u>gonokw’òò</u>	gochıé <u>tth’ené</u>	dene nené <u>tth’ené</u>	‘backbone’
<u>ıt’ògòò</u>		k’áı <u>gúé</u>	‘caterpillar’
(DDBE 1996)	(SSTD1993)	(Elford & Elford 1998)	

Although it is natural to assume that the possessive suffix in Tłıchọ Yatıı historically shared the same value and shape as the corresponding suffixes shown in (8), it no longer surfaces that way. Now this suffix maintains the shape of a mora with low tone, and does not surface as [-è] unless [e] is the quality of the stem vowel it attaches to. Therefore, unlike its NEA sisters, modern Tłıchọ Yatıı has lost the quality of this suffix⁵⁸.

The possessive suffix can be likened to the adverbial suffix below in (9) which shares the shape [-ù].

(9) *Adverbial Suffix*

Tłıchọ Yatıı	Slave	Dene Sųtiné	gloss
<u>taà</u>	<u>taú</u>		‘three times’
<u>neziı</u>		<u>hųzuú</u>	‘well’
(DDBE 1996)	(Rice 1989: 382)	(Li & Scollon:378-379)	

As the two examples in (9) show, the adverbial suffix historically held a distinct shape and quality of [-ú] in the neighbouring languages and historical records show that

⁵⁸ There are situations where this suffix assimilates in the other NEA languages as well such as in the Slave dialect of Hare. See Rice (1989, 221) for details.

the suffix was once realized as [gù <*-Guʔ] in earlier forms of the languages (see Saxon 2003). The [-ú] value can be seen in Slave forms, but in contemporary Tłı̄chọ Yatı̄l, this suffix is only ever realized as vowel length with a low tone attached. I suggest, then, that the input shape of this suffix in Tłı̄chọ Yatı̄l is the same as the possessed noun suffix [-ù]. Like the possessed noun suffix, the adverbial suffix in Tłı̄chọ Yatı̄l has been reduced from its historical shape, and has lost its specific vowel quality.

The diminutive suffix in Tłı̄chọ Yatı̄l shares the vowel quality of [a] with the corresponding Slave and Dene Sų́lıné diminutizing suffixes, seen in (10).

(10) *Diminutive Suffix*

Tłı̄chọ Yatı̄l	Slave	Dene Sų́lıné	gloss
tia	tuah		'little lake/pond'
satsòą	satsòą		'coin'
djı̄ts'ea (DDBE 1996)		denı̄ts'iaze	'pepper'
dea (MKR 2002)	deehah (Rice 1989)	desaze (Elford & Elford 1998)	'creek'

Again, based on cognate forms it may be assumed that the diminutive suffix in Tłı̄chọ Yatı̄l has become simplified from what must have been a more structurally complex morpheme at one time. The diminutive suffixes of Slave and Dene Sų́lıné are both more complex in shape than the diminutive [-a] in Tłı̄chọ Yatı̄l. Besides the forms seen in (10), Slave diminutive forms also include [-zaza] and [-yaa] (see Rice 1989, for details of distribution and relatedness)⁵⁹. Never the less, the suffix in Tłı̄chọ Yatı̄l maintains its

⁵⁹ There are a number of diminutive suffixes in the Slave dialect complex. In Slavey, the suffix [-yaa] is absolute, and generally means 'young', while [-ah] tends to mean 'small', and the morphologically

identity much more clearly than the other vocalic suffixes of the language.

The innovative tendency in Tłıchq Yatı̀ is evident when comparing examples of the suffix shapes of these three closely related languages. The shapes of the suffixes are listed below in order to compare them with what I project PNEA the forms to be.

(11) *Comparative suffix shapes*

	Tłıchq Yatı̀ ⁶⁰	Slave	Dene Sų́ı́né	PNEA
nom	-i	-i	-i	*-i
poss	-ù	-é	-é	*-é
adv	-ù	-ú	-ú	*-gú
dim	-a	-yaa, -zaza, -ah, -a	-aze	*-yaza

The suffix shapes shown in the chart in (11) suggest that both Dene Sų́ı́né, the most phonologically conservative of the Mackenzie Basin NEA languages, and Slave retain much more of the structure of the historical suffixes in the output than Tłıchq Yatı̀ does.

As the data presented in this section all show, the suffixes retain specific values and shapes in Dene Sų́ı́né, and in Slave for the most part as well. In Tłıchq Yatı̀, however, all but the diminutive suffix assimilate to the quality of the stem vowel. The stem in Tłıchq Yatı̀ incorporates these vocalic suffixes as often as possible, deleting [h] codas whenever necessary (as discussed in section 2.1) in order to retain a simple shape. In these related languages a new syllable is almost always created with the addition of any of these suffixes (see, for example, Rice 1989 p.217-220).

The simplification these suffixes have undergone can be attributed to the

unrelated form [-tsele] is comparative. The diminutive can be reduced to [-a] as well, and there is also a form [-zaa] or [-aza] found in Fort Liard Slavey. (See Rice 1989, 240-242).

⁶⁰ Tłıchq Yatı̀ has opposite marked tone to its sister languages of Slave and Dene Sų́ı́né as well as to PNEA forms.

simplicity conspiracy, and therefore can be accounted for through the same analysis offered in the previous chapters: constraints against structure have already gained and are continuing to gain importance in the language. Section 4.2.3 offers a more detailed account of how the anti-structure constraint, *STRUC(σ), prevents most of these suffixes from maintaining their own syllable when they attach to the stem.

4.2.3 How and why suffixes incorporate

This section seeks to establish that the target stem domain shape in Tɬɨchɔ Yatì is mono-syllabic, and that the incorporation of the suffixes into the root syllable is driven in part by *STRUC(σ). Each suffix is described and accounted for below, using an OT framework to determine the conflicting constraints surrounding the realization of them. The account offered here interleaves segment-specific faithfulness with the family of prosodic markedness constraints that drive the simplicity conspiracy.

4.2.3.1 Nominalizing suffix

The nominalizing suffix is used very productively in Tɬɨchɔ Yatì to form nouns, relative clauses and nominalizations (Saxon 1995). The input form of this suffix is [-i], and holds the prosodic shape of a mora, but in the output it is rarely realized with this quality. This suffix, like the others, attaches to the root vowel and the output form manifests itself by lengthening that final vowel. As the forms in (12) show, the suffix mora takes on all the features associated with the stem vowel except tone. The suffixed form is in the second row, and the suffix is bolded.

- | | | | |
|------|----|-------------------|-----------------------------|
| (12) | a. | tɬi nakweè wheda | the dog is first |
| | | tɬi nakweè whedaa | ‘lead dog’ |
| | b. | hodoòdzo | s/he slides again and again |

	Hododdzoo	‘Slide’ (place name)
c.	ɬèt’è ɬekɔ	‘the bread is sweet’
	ɬèt’èɬekɔɔ	‘cake’
d.	whék’ò	‘it is cold’
	whék’òo	‘fridge’
e.	ʔɛɬech’àts’eeʔi	‘we are hiding from each other’
	ʔɛɬech’àts’eeʔii	‘hide-and-peek’

(Saxon 1995)

The constraints determining the output form of this suffix must ensure some aspect of the morpheme is realized so the meaning is evident, but at the same time, the optimal output forms must conform to the prosodic well-formedness constraints. By losing its segmental value as it does in the majority of cases, as seen in the forms in (12), the nominalizing suffix does not fatally violate the constraint *STRUC(σ). The loss of its input value, however, does not necessarily interfere with its morphological identity, as the rest of this section will show. This account of the nominalizing suffix makes use of markedness constraints on syllable structure and faithfulness constraints surrounding contiguity and input moras.

Morphologically specific alignment constraints are not necessary to ensure the suffixes attach to the right edge of the stem. Instead, a high ranking of the faithfulness constraint on moraic contiguity seen in (13) ensures that the position of the mora is consistent with the input.

- (13) **Contiguity** The portion of S_1 standing in correspondence form a contiguous string, as does the correspondent moras of S_1 .

The tableau in (14) shows this correspondence with the word *whék’òo* ‘fridge’, and how the constraint Contiguity and the constraint *STRUC(σ) determine the shape and placement of the nominalizing suffix.

(14) *whək'ò* 'fridge'

<i>whək'ò</i> - /nom-i/	*STRUC(σ)	Contiguity
a. <i>whək'ò</i>	**	
b. <i>wheək'ò</i>	**	*!
c. <i>iwhək'ò</i>	***!	*
d. <i>whək'òi</i>	***!	

Candidates c. and d. fatally violate *STRUC(σ), and candidate b. fatally violates Contiguity since the mora of the suffix is not realized in the correct correspondence to the input.

The other constraints active in determining the shape of *whək'ò* - [nom-i] are a prosodic constraint restricting the length of syllables, defined in (15), and a conflicting faithfulness constraint, seen in (16).

(15) * $[\mu\mu]_{\sigma}$ No bimoraic syllables

A constraint against bimoraic syllables is justifiable cross linguistically, since universally, *cv* is a less marked syllable than *cvv*. This constraint, however, must be ranked quite low since it is violated by all optimal forms containing the vocalic suffixes.

Max- μ , in (16), previously introduced in chapter 2, ensures the realization of morphemes by discouraging the deletion of moras.

(16) Max- μ Every mora in the input must be present in the output

This constraint is an important one in Tḥçḥ Yatiḥ, since moras are almost always retained, but with the high ranking of the constraint Realize Morpheme (RM) introduced

in the previous chapter, Max- μ may be unnecessary for the selection of the optimal output candidate in the tableau in (17). The tableau does demonstrate how RM must be ranked higher than the prosodic markedness constraint against bimoraic syllables, $*[\mu\mu]\sigma$. There is nothing in this tableau, however, that establishes the ranking of the Contiguity constraint in relation to $*\text{STRUC}(\sigma)$ and RM.

(17) whek'òò 'fridge'

whek'ò - /nom-i/	RM	*STRUC(σ)	Contiguity	* $[\mu\mu]\sigma$
☞ a. whek'òò		**		*
b. whek'ò	*!	**		
c. wheek'ò		**	*!	*
d. whek'òì		***!		

The brief account developed so far in this section has established constraints on syllable structure, contiguity and moraic faithfulness which can explain why the nominalizing suffix does not usually create a new syllable when it attaches to the stem syllable. However, in order to account for why it is the suffix vowel that assimilates to the stem vowel in the case of this suffix, rather than the stem vowel assimilating to the suffix, I turn again to the principles of Positional Faithfulness (Beckman 1998) discussed in section 1.4 and in chapter 3. According to this theory, there is a cross-linguistic tendency for high ranking faithfulness constraints surrounding privileged positions such as roots, and especially root-initial syllables. Affixes belong to the category of non-privileged positions. Therefore it follows that the vowel quality of an affix such as a nominalizing suffix is less likely to be retained than the vowel quality of a stem or root initial syllable. It has also been established in chapter 2 that the ranking of the $*\text{STRUC}(\sigma)$ constraint is in most cases higher than the ranking of constraints maximizing vowel

quality. As we will see, this generalization applies to the other suffixes discussed in this paper as well except the diminutive.

4.2.3.3 Possessed noun and Adverbial suffixes

As seen in section 4.2.2, the possessed noun suffix, which Saxon also refers to as *the suffix for described nouns*, has the same shape synchronically as the adverbial suffix: both are realized as vowel length and restrict their tone to the last mora. They have very different functions though: the adverbial suffix derives adverbs from nouns, verbs and other parts of speech in Tłjchq̄ Yatì and the possessed noun suffix is used when a noun has a descriptive word or phrase with it, or when possessed (Saxon 1995). Both suffixes hold the prosodic input shape of a mora with low tone and undergo the same processes of incorporation into the existing syllable as the nominalizing suffix, seen above. Since these two suffixes hold the same output shape in the language the account developed here is relevant to both; however, for the sake of brevity I will just discuss the possessed noun suffix here.

As the data in (18) show, the possessed noun suffix links to the segmental and nasal features of the root vowel when it attaches to a stem, but does not link tone. The suffix maintains its own tone. The suffix applies to possessed nouns, like those seen in (18a-e), and to compound words as well, like those in (187f-g), where the first member of the compound describes what the second part (the head) is being used for.

(18)	a.	yati	‘language’	goyatiì	‘our language’
	b.	sòq̄mba	‘money’	gisòq̄mbaà	‘their money’
	c.	dzę	‘day’	nedzęę	‘your birthday’
	d.	beh	‘knife’	sebeè	‘my knife’
	e.	choh	‘down, feathers’	wechoò	‘its down’

f.	tə	‘bucket’	titə̀̀	‘water bucket’
g.	k’oh	‘cloud’	n̩hts’ik’ò̀	‘wind clouds’

(Saxon 1995)

As mentioned above, despite the possibility that the possessed noun suffix has a historical shape of [-è], and in the neighbouring languages of Slave and Dene Sų́líné the suffix retains this value, this value is never realized in Tł́chə́ Yatì except for situations like (18c&d) where the root vowel has the same segmental quality. This prefix only ever occurs as a long vowel with low tone, and so I do not project any specification for the quality of this suffix in the input. I assume the input shape is /-̀̀ / since this suffix, unlike the nominalizing suffix, never surfaces with any specific quality. Both the possessed noun suffix and the adverbial suffix link to the segmental and nasal features of the root vowel. It is important to note that none of the suffixes take on the tone value of the root vowel, but they all take on the nasal value of the root vowel.

As the data in (18) indicates, the possessed noun suffix behaves like the nominal suffix in the way that it creates a long vowel in the stem syllable by assimilating to the quality of the stem vowel. Three forms stand out however-- those seen in (18d,e&g). These forms have a coda in the input root shape, but once the suffix is attached, the coda is no longer realized. This is the case if any of the vocalic suffixes attach to a stem with a coda. In all cases, the coda is dropped and the suffix attaches to the stem vowel.

Because the input stem domain syllables of these two forms have [h] codas, we might expect blocking of the assimilation to occur, but clearly this does not happen. If the coda were retained when a vocalic suffix is attached, resyllabification would have to occur, as it does in some dialects of the neighbouring language of Slave, briefly discussed in section 2.1 (see Rice 1989b and 1989a p.217-220 for details). The coda is not retained,

however, and resyllabification does not occur, so the stem domain remains one syllable even with the suffix attached. This maintenance of a single syllable stem domain shape even with an intervening underlying coda can be seen as further evidence for the highly ranked *STRUC(σ) constraint. Recall that [h] is an exceptional segment in Tɬɨchɔ Yatiɨ since although sometimes the segment [h] is heard phonetically in onset position, it is not an allowable onset phonologically in the language. Its lack of resyllabification could be analyzed as evidence for a constraint against [h] onsets in the language. As we will see, however, such a constraint is unnecessary.

A more general faithfulness constraint surrounding the realization of all input segments interacts with *STRUC(σ) to prevent the realization of the [h] codas in forms like (18d,e&g). Such a constraint, Max-[seg], discussed in chapters 2 and 3, is parallel to the specific segmental constraints introduced in chapter 2 but is needed to protect the input value of consonants as well as vowels.

As the tableau in (19) shows, the ranking between Max-[seg] and * $[\mu\mu]_{\sigma}$ is not crucial. The violation of either of these constraints is not fatal when the other output options involve adding a syllable to the output. Once again, according to this account, the constraint *STRUC(σ) prevents the realization of the suffix as an extra syllable in the stem.

(19) wechoð 'its down'

we-choh - /poss-ɨ/	*STRUC(σ)	Max-[seg]	* $[\mu\mu]_{\sigma}$
☞ a. wechoð	**	*	*
b. wechohè	***!		
c. wechoè	***!	*	

Both candidate b. and candidate c. are ruled out by fatal violations of *STRUC(σ).

The optimal candidate is one which is realized without the root final /h/, and so violates Max-[seg], but does not fatally violate *STRUC(σ). A crucial ranking is established in this tableau between *STRUC(σ) and Max-[seg], but not between between * $[\mu\mu]_{\sigma}$ (no long vowel) and Max-[seg] (maximize segment).

The presence of tone in these suffixes also brings to light the necessity of a constraint that ensures the realization of underlying tone in the language, and in particular the realization of the vocalic suffixes. Max-Tone, defined in (20), is therefore necessary to maintain the tonal quality of the morphemes in the output.

(20) **Max-Tone** Every tone in the input must be present in the output

The realization of tone is necessary for the purpose of morphological contrast.

Many words in Tɬɨchɔ Yatil are differentiated only by tone. The possessed noun suffix maintains its tonal value even when it assimilates to the quality and nasality of the stem vowel. It must maintain its low tone in order to be distinguished from the nominalizing suffix. However, a syllable with two tone values is a marked syllable. I therefore reintroduce the conflicting constraint in (21), previously discussed in section 2.2.1.

(21) *** $[V_{T1}V_{T2}]_{\sigma}$** Two distinct tones are not permitted in a syllable.

This constraint militates against two different tonal values within one syllable.

Another prosodic markedness constraint is relevant here as well—one which ensures a nasal feature in a root vowel is spread to the suffix, or vice versa. So, the constraint in (22) compels nasal spreading within a syllable.

(22) *** $[V_{N1}V_{N2}]_{\sigma}$** Two distinct nasal values are not permitted in a syllable

But, when there is a difference in tone and/or nasality, the ubiquitous *STRUC(σ) constraint prevents the constraints in (21) and (22) from creating a new syllable, due to its

high ranking. Recall from chapter two that tone is associated to a mora in this language, and so in a bimoraic syllable there may be two tones—one associated with each mora of the syllable. In Tłjchq̣ Yatii, the only marked tone is low tone. The contrasting high tone is unmarked.

The tableau in (23) shows how Max-Tone must be ranked higher than the prosodic consistency constraint on tone, in order to preserve the morphological identity of the suffix.

(23) wedechj̣ị ‘its stick’

we-dechj̣ - [poss-μ̣]	Max-Tone	Max-μ	*[V _{N1} V _{N2}]σ	*[V _{T1} V _{T2}]σ
☞ a. wedechj̣ị				*
b. wedechj̣ị	*!			
c. wedechj̣ị	*!		*	
d. wedechj̣ị			*!	*
e. wedechj̣ị	*!	*		
f. wedechj̣ị		*!		

The optimal candidate is one which does not fatally violate either Max-Tone, Max-μ or *[V_{N1}V_{N2}]σ, but does violate *[V_{T1}V_{T2}]σ because two different tone values are realized in the same syllable. Candidate d. fatally violates *[V_{N1}V_{N2}]σ because the nasal quality of the root vowel does not spread to the suffix vowel, and candidates b., c., and e. all fatally violate Max-Tone. The final candidate fatally violates Max-μ. Any candidate with a suffix quality other than that of the stem vowel would fatally violate *STRUC(σ).

The tableau in (23) also captures the generalization that consistency of nasality within a syllable is more important than consistency in tonal value, according to the grammar of the language. This is evident in the output forms of stem syllables with suffixes incorporated into them, since, as previously mentioned, these vocalic suffixes

always assimilate to the nasal value of the stem, but never the tonal value.

Now, in order to see how these constraints rank in relation to the other constraints introduced so far, we look at the tableau in (24) which evaluates possible outputs for the word *gişòmbaà* ‘their money’.

(24) *gişòmbaà* ‘their money’

gi- şòmba- [poss- μ]	RM	*STRUC(σ)	Max-Tone	*[V _{T1} V _{T2}] σ
☞ a. <i>gişòmbaà</i>		***		**
b. <i>gişòmbaè</i>		****!		*
c. <i>gişòmba</i>	*!	***	*	*
d. <i>gişòmbaa</i>		***	*!	*

*STRUC(σ) prevents the realization of the possessed noun suffix with a specific quality, but Max-tone and RM ensure the morpheme itself is realized. The optimal candidate, (24a) is the one which violates the lower ranked prosodic markedness constraints the most times and the *STRUC(σ) constraint the fewest times. Candidate b. and d. satisfy RM, but fatally violate *STRUC(σ) and Max-Tone respectively. Candidate c. violates RM.

The next section will build on the analysis presented above, and make use of the constraint rankings already established in order to account for the diminutive suffix as well as some morphologically complex forms where more than one suffix is incorporated into the stem domain.

4.3.3 Exceptional suffixed forms

Despite the consistency of the vocalic suffixes in Tłıçq̄ Yatıl in incorporating into the stem domain syllable, there is a suffix which regularly retains its own syllable:

the diminutive suffix. This suffix is accounted for in the following section with the high ranked constraint Max-[a], introduced in chapter two. There are also situations in morphologically complex forms where more than one suffix attaches to the stem domain. This section addresses these circumstances and provides an account for them within the simplicity conspiracy hypothesis.

4.3.3.1 Diminutive suffix

The diminutive suffix in Tłjchq Yatì is exceptional among the vocalic suffixes because it retains its quality when it attaches to the root vowel. Therefore, except when it attaches to a root with a final [a] vowel, it retains its own syllable as well. It is a very productive morpheme in the language, and is used to emphasize the smallness or preciousness of something (Saxon 1995). As the forms in (25) indicate, this suffix does not incorporate into the stem syllable the way the suffixes discussed above do.

(25)

a.	di	'island'	dia	'small island'	
b.	łè	'flour, powder'	łèa	'powder'	
c.	nezi	'it is good, nice'	nezią	'it is kind of good, nice'	
d.	kò	'house'	kòą	'room, shack'	
e.	deh	'river'	dea	'creek'	(Saxon 1995)
f.	zah	'snow'	zaa	'gentle snow'	(MKR 2003)
g.	chih	'mallard'	chia	'duckling'	(DDBE 1996)

The diminutive behaves like the other suffixes in the way that the coda of a stem is lost with the addition of it, as in (25e-g), and it takes on the nasality of the stem vowel, as we see in (25c-d). But because it creates a new syllable, it violates *STRUC(σ). If all the other suffixes discussed so far are also productive, and also at one time had a specific quality, as they did at least in PNEA, why does this suffix behave differently?

The diminutive differs semantically from the other suffixes discussed so far, as well as phonologically. Unlike the nominalizer, the possessed noun suffix and the adverbial suffix, which function grammatically, the diminutive suffix has a very evident semantic content⁶¹. Speakers of Tłjchə Yatì clearly recognize its meaning and function. It is possible that both its meaning and the quality of the suffix contribute to why its quality is always retained in the output.

Following the account given in chapter two this discussion posits that the suffix is often realized as a separate syllable in the stem domain, despite the high ranking *STRUC(σ) constraint, due to its phonological input quality. In accordance with the generalizations made in section 2.2.1.1, this account assumes the vowel [a] has special status in assimilation processes, and that it is the underlying quality of the vowel that impedes its incorporation into the stem, rather than a specific constraint on morphological identity.

As discussed in further detail in chapter 2, the sonority of the segment [a] sets it apart from the other vowels. The diminutive suffix does not assimilate to the quality of the stem vowel for the same reason that [a] never assimilates in other contexts—because of its sonority it is protected through a constraint ranked even more highly than *STRUC(σ). The segment specific constraint introduced in chapter two protects the realization of the diminutive suffix. It is given again here in (26):

(26) **Max-[a]** Every low vowel in the input is present in the output.

As discussed in chapter two, the motivation behind such a constraint being so high ranked in comparison to *other* identity constraints on vowel features comes from the

⁶¹ It is thus possible that the suffix is a lexical item.

sonority hierarchy in which low vowels are the most sonorous. The constraint in (26) is relevant to both the segment [a] and the diminutive suffix [-a]. This segmental faithfulness constraint must be more highly ranked than the other specific vowel maximizing constraints in order to preserve the identity of this specific suffix in the face of *STRUC(σ) when the quality of a suffix like the nominalizer is not maintained.

But another constraint protecting the integrity of the stem vowel is also necessary to prevent the root vowel from being assimilated. In the face of two highly ranked constraints protecting [a] and avoiding syllables, the quality of a root vowel may become a target for deletion or assimilation. So to ensure the realization of the stem vowel, the assumption must be made that faithfulness constraints surrounding roots are ranked more highly than faithfulness constraints surrounding other morphemes.⁶² The ranking in (27), also discussed in chapter 2, shows how root faithfulness takes precedence over regular input-output correspondences because roots are lexical items, and therefore there is another ranked set of constraints Max-[seg]_{lex}.

$$(27) \quad \text{Max}_{\text{lex}} \gg \text{Max}$$

This proposal derives from the notion of positional faithfulness (Beckman 1998), and is supported by the forms in the language like those in (28). These forms show how assimilation can take place between the diminutive suffix [a] and another suffix vowel, but not between [a] and a root vowel. In innovative speech, if a suffix vowel like that in the suffix [-ko], precedes the diminutive suffix, the final vowel can be heard as a long vowel [a], rather than two vowels constituting two different syllables.

⁶² Recall footnote 35 which notes two exceptions where the root vowel assimilates to the suffix vowel: *sjnàà* 'I'm happy' *xqtsaa* ~ *xqtsaa* 'suddenly'.

- (28) a. [-ko] suffixed forms:
- | | | |
|---------|--|---------------------------|
| t'eeko | | 'young woman' |
| tseko | | 'young man, unborn child' |
| ts'òòko | | 'old woman' |
| eneèko | | 'old man, old person' |
| ts'èko | | 'woman' |
- b. [-ko] suffix vowel with diminutive suffix attached:
- | | | | |
|--------------|---|------------|----------------|
| conservative | | innovative | |
| tsekoa | ~ | tsekaa | 'child' |
| t'eekoa | ~ | t'eekaa | 'teenage girl' |
- c. Bound root vowels with diminutive suffix attached:
- | | |
|---------|-------------------------|
| dehtsoa | 'stream' |
| sigalia | 'sugar cube' |
| chògwia | 'light showers of rain' |
- (DDBE 1996)

Unlike the bound roots seen in (28c), the [-ko] morpheme is a suffix, but it is not a productive suffix in the language. The vowel of [-ko] would not, therefore, be subject to constraints on vowels of lexical items, while the vowels seen in hiatus in (28c) are. Because the diminutive suffix does not attach directly to the root vowel in (28b), but attaches to the suffix vowel [o] instead, regressive assimilation can take place⁶³. In the innovative forms on the right in (28b), the preceding suffix vowel is assimilated to the quality of the diminutive suffix. However, assimilation does not take place when the target is a root vowel, as the forms in (25) and (28c) show.

The tableau below in (29) shows how a constraint like Max-[seg]_{lex}, protecting the input quality of a root segment, must be ranked more highly than the ubiquitous

*STRUC(σ) in order for candidate a. to emerge with the quality of its root vowel intact.

⁶³ The negative suffix [-le] offers counter evidence to this generalization in forms like *bààlea* 'vest' which comes from *gòòmbàa-lea* [sleeves-NEG-dim], where the suffix vowel [e] does not assimilate to the diminutive suffix vowel. I have not collected data on this morpheme, but it could be argued that [-le] is a root, given the word *wile* 'there is none' (Saxon personal communications). The category and phonological behaviour of the negative suffix is outside the scope of this thesis.

(29) dia 'small island'

di- [dim-a]	Max-[a]	Max-[i] _{lex}	*STRUC(σ)
☞ a. dia			**
b. dii	*!		*
c. daa		*!	*
d. di	*!		*

Candidate a. is optimal because it doesn't fatally violate either Max-[i]_{lex}, or Max-[a]. So both the root vowel and the diminutive suffix vowel retain their quality in the output.

The rankings in the tableau above can be compared to those in the tableau below in (30) which demonstrates the input-output correspondence of the innovative form for *t'eekaa* 'teenage girl'. In this case, the faithfulness constraint protecting a non-root segment, like the vowel of the suffix [-ko], is not ranked more highly than the constraint against syllable structure.

(30) t'eekaa 'teenage girl'

t'ee - ko -[dim-a]	Max-[a]	*STRUC(σ)	Max-[o]
☞ a. t'eekaa		**	*
b. t'eekoa		***!	
c. t'eekoo	*!	**	

These two forms offer evidence that the general ranking schema seen in (27) is necessary Tɰichɔ Yatiì, and therefore two general correspondence constraints like Max-[seg] and Max-[seg]_{lex} are important in maintaining a distinction of positional faithfulness. The ranking of *STRUC(σ) above the general Max-[seg] constraints, seen in the tableau evaluating the innovative form *t'eekaa*, is in keeping with the constraint rankings determining the innovative forms examined in chapter 2.

The other phenomenon that should be discussed in this section on the diminutive

suffix is the disappearance of the /h/ coda in the root. Parallel to the other suffixes, and as shown in (25e-g), the /h/ coda is not realized when the diminutive suffix is added, despite the fact that a syllable is being created, and despite the fact that the /h/ is a root segment. In order to account for these forms I return to the distribution of the segment [h] in the language. As discussed in chapter 1 and previously in this chapter, the phonological segment /h/ does not occur as an onset of a root or disjunct prefix in the language (Ackroyd 1982, 17)⁶⁴. I therefore propose a context specific markedness constraint surrounding the realization of /h/ as an onset in a lexical item.

(31) ***/h/Onset_{lex}** /h/ onsets are not licit in lexical items

The tableau in (32), with the output *dea* ‘creek’, demonstrates that this newly introduced constraint interacts with the previously established constraints to select the correct output form of the diminutized stem domain.

(32)

deh- [dim-a]	Max-[a]	*/h/Onset _{lex}	Max-[e] _{lex}	*STRUC(σ)
☞ a. dea				**
b. dee	*!			*
c. daa			*!	*
d. de	*!			*
e. deha		*!		**

The tableau in (32) does not establish a crucial ranking between the constraint against [h] onsets, Max-[a] and Max-[e]_{lex} or between */h/Onset_{lex} and *STRUC(σ), because the two markedness constraints do not conflict. It does, however reinforce the rankings previously established in the tableaux (29) and (30) that both Max-[a] and Max-

⁶⁴ I note here again that the large number of [h] entries in the dictionary do not come from /h/-initial disjunct or root morphemes. If the orthography represents a disjunct prefix with an [h] it likely comes from the velar fricative /x/ or the velar plosive /k/ phonologically.

[e]_{lex} outrank *STRUC(σ). Candidates b. and d. in (32) both violate the undominated Max-[a], and candidate c. fatally violates Max-[e]_{lex}. The crucial candidate in this tableau is that in e., and it is eliminated because it violated */h/Onset_{lex}. The violation of */h/Onset_{lex} breaks the tie between candidates a. and e., which both violate *STRUC(σ) the same number of times, and so candidate a. *dea* is optimal because it retains both root and suffix vowel qualities and is realized without an /h/ onset.

To test the account developed so far in this chapter the rankings of these constraints must be applied to the other suffixes as well. It is necessary to check that a form with the nominalizing suffix attached will support the rankings of the correspondence constraints in relation to *STRUC(σ). The constraints seen so far in this chapter are ranked below in (33).

(33) Specific constraint rankings:

Contiguity >> * $[\mu\mu]_{\sigma}$
 RM >> *STRUC(σ) >> * $[\mu\mu]_{\sigma}$
 *STRUC(σ) >> Max-[seg]
 *STRUC(σ) >> Max-Tone >> * $[V_{T1}V_{T2}]_{\sigma}$
 * $[V_{N1}V_{N2}]_{\sigma}$ >> * $[V_{T1}V_{T2}]_{\sigma}$
 Max-[a] >> *STRUC(σ) >> Max-[o]
 Max-[i]_{lex} >> *STRUC(σ)
 Max-[e]_{lex} >> *STRUC(σ)
 */h/onset_{lex} >> *STRUC(σ)

Given the constraint rankings in (33) (and ignoring for the moment the other highly ranked constraints Max-[a], Contiguity, RM, and */h/onset_{lex}, none of which is ranked in respect to the segment specific constraints on lexical items), a general schema of constraints established in this chapter emerges, relevant to the tableau in (35):

(34) Max-[seg]_{lex} >> STRUC(σ) >> Max-[seg]

The tableau in (35), indicates that this ranking can indeed account for other suffixed forms too, like *tèt'è tekq̄* 'cake', which has the nominalizing suffix attached. It demonstrates that the identity constraints do not affect the realization of the suffixed forms, but the constraint on identity of the root vowel is necessary for ensuring the retention of the root vowel quality over that of the suffix vowel.

(35) *tèt'è tekq̄* 'cake'

<i>tèt'è tekq̄</i> - [nom-i]	RM	Max-[o] _{lex}	*STRUC(σ)	Max- [o]	Max- [i]
☞ a. <i>tèt'è tekq̄</i>			****		*
b. <i>tèt'è tekq̄i</i>			*****!		
c. <i>tèt'è tekji</i>		*!	****	*	*
e. <i>tèt'è tekq̄i</i>			*****!		
f. <i>tèt'è tekq̄</i>	*!		****		*

Candidates b. and e. fatally violate *STRUC(σ) by retaining the segmental quality of the input form of the nominal prefix. Candidate c. fatally violates the constraint protecting the quality of the root vowel, and candidate f. is eliminated because the suffix is not realized at all, so it violates RM. The optimal candidate retains the stem vowel and the mora of the suffix vowel, and therefore does not fatally violate *STRUC(σ).

Thus by distinguishing the ranking of correspondence constraints governing root vowels vs. vowels, and by establishing that not only the previously established Max-[a] constraint is ranked more highly than the *STRUC(σ) constraint, but so are constraints protecting root vowels, the behaviour of the diminutive suffix can be explained. Two phonological constants recorded in this thesis, then, are the preference for smaller and fewer structures in the language, and the drive to protect the sonority of the vowel [a].

number of moras allowed in a row in the language, formalized in the constraint introduced in section 3.2 of the previous chapter:

(37) * $\mu\mu\mu$ Three or more TBU's cannot occur in an uninterrupted sequence

This prosodic markedness constraint not only restricts super-heavy syllables, but it also has a further restrictive quality whereby it does not allow three moraic segments to exist in a string without a consonant, whether or not they belong to the same syllable.

As the tableau in (38) indicates, the forms given in (36) can be accounted for within the analysis presented so far in this thesis. The constraints already established in this chapter and previous chapters are sufficient in determining the correct output candidate. Again, in order for the quality of the stem vowel and the diminutive suffix to be protected, *STRUC(σ) is ranked below the sonority and root faithfulness constraints.

(38) *sekek*w'òà 'my little toes'

<i>sekek</i> w'ò [poss - μ]- [dim-a]	Max-[a]	Max-[o] _{lex}	* $\mu\mu\mu$	*STRUC(σ)
☞ a. <i>sekek</i> w'òà				*****
b. <i>sekek</i> w'òòà			*!	*****
c. <i>sekek</i> w'òàà			*!	*****
d. <i>sekek</i> w'òò	*!			***
e. <i>sekek</i> w'àà		*!		***

Candidates d. and e. are not optimal because they violate Max-[a] and Max-[o]_{lex}, respectively. Even though the stem domain of *sekek*w'òà has two syllables, candidate a. is optimal because an exponent of each suffix is realized and the stem vowel quality is also retained, but * $\mu\mu\mu$ is not violated. The tableau in (38) indicates that although *STRUC(σ) and * $\mu\mu\mu$ do not conflict, * $\mu\mu\mu$ must be ranked more highly in order to eliminate candidates b. and c.. The rest of the constraint rankings remain consistent with

the rankings established so far in this chapter, and in this thesis in general.

4.4 Summary of chapter four

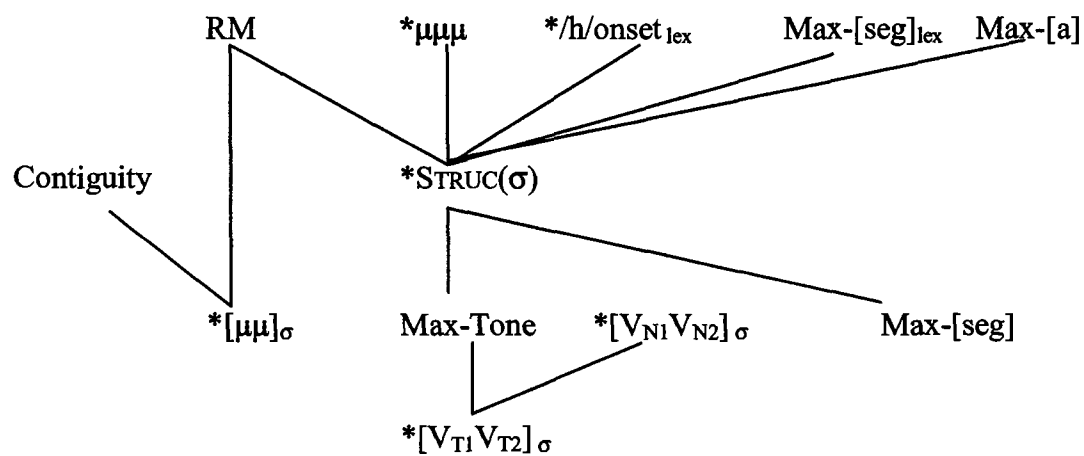
This chapter has offered a further piece of evidence for my claim that there is a conspiracy in the language which results in the realization or maintenance of fewer or simpler structures. The data presented in this chapter, as in the last two, shows a tendency to avoid the realization of separate syllables through the creation of long vowels. The reduction of root syllables, the reduction of the vocalic suffixes, and the maintenance of the mono-syllabic stem domain shape (except when the diminutive is added), are consistent with the rest of the thesis in that they can all be linked to the processes of structure reduction and more specifically to the same high ranking constraint against syllable structure.

The evolution of the the stem domain to an optimally mono-syllabic shape, and the maintenance of that shape even with morphological additions to the stem domain strongly support my hypothesis. The behaviour of the diminutive suffix does not, at first glance, support my hypothesis. Because this suffix does not incorporate into the stem domain syllable like the other suffixes, and regularly maintains its own syllable, the analysis which accounts for the rest of the data must be augmented with constraints higher ranked than *STRUC(σ) such as Max-[a], Max-[seg]_{lex}, and * $\mu\mu\mu$. The status of [a] in the language is consistent with the behaviour of the diminutive suffix and allows for a consistent account as well, as far as both the ranking of constraints is concerned and the constraints themselves. The account developed in this chapter follows from the previous chapters and succeeds in offering an explanation for both the diminutive suffix and the

morphologically complex forms discussed in the last section. According to this analysis the structure constraints do drive the conspiracy, but a constraint protecting [a] is simply ranked more highly.

A summary of the constraint rankings established in this chapter is given on the following page in (39) where a lattice is drawn for a visual representation of how the constraints are all ranked in relation to one another.

(39) Chapter 4 summary lattice



Conclusion

Using evidence from the simplification of stems and syllables, the incorporation of suffixes into stems, the disappearance of onsets in the conjunct domain, and hiatus resolution, this thesis argues for the high ranking of a family of constraints militating against marked prosodic structures in Tɬɨchɔ Yatii. This set of constraints manifests itself in the language as a simplicity conspiracy which attempts to eliminate complexity in syllable structure and phonological domains such as the stem domain, the conjunct domain and the syllable itself.

The other element of the hypothesis presented here is that these constraints have been climbing the ranks of the constraint hierarchy over the years. Like all languages to some extent in certain circumstances, Tɬɨchɔ Yatii is undergoing phonological changes to less marked structures, but specifically, the changes examined in this thesis can all be associated with the prosodic structure of a syllable. The shape of the Tɬɨchɔ Yatii syllable has over the years been simplified from that of its mother language, and the stem domain of the language has moved steadily towards a mono-syllabic target shape. The more innovative forms in the language are the ones where long vowels resulting from fewer syllables being pronounced. This movement over time indicates how the constraints against structure, especially against the structure of a syllable, are becoming more and more influential on output forms. This also assumes that due to the constraint *STRUC(σ), two CV syllables are more marked in the language than one CVV syllable.

The reduction and maintenance of syllables in Tɬɨchɔ Yatii is the most obvious evidence of the initial hypothesis presented here. The fact that it is the segmental

qualities of the syllables which seem to be the marked aspects, and not the moraic weight of the syllable, suggests the preservation of moraic structure is more important than the maintenance of the syllable structure in the phonology of the language. In order to realize unmarked structure intervocalic prefix onsets and vowel qualities are not retained under the high ranked *STRUC(σ). The moraic structure of the morphemes in question is retained.

Thus this work also provides evidence that there is a careful restriction on the realization of moras in this language. Moras are retained in all possible situations, as long as there are never more than two adjacent to one another. Thus when a syllable is lost, as in the historically disyllabic verb roots, a long vowel is retained in the preceding syllable, the same way a vocalic suffix creates a long vowel in a stem domain even after the suffix has lost its featural value. The tendency to reduce the prosodic structure of a syllable is not one which extends to the prosodic structure of a mora. Moraic structure is therefore largely maintained in the face of the *STRUC constraints.

What the data given and discussed in chapters 2- 4 has also done is evoke the observation that the phonological units of the stem domain and conjunct prefix domain correspond loosely to specific prosodic shapes, such as one syllable, or two moras, etc. This correlation is evidence that these two domains are indeed motivated by the proposed “simplicity conspiracy” against prosodic complexity. Further study of the phonological restrictions that take place in the conjunct domain is needed in order to provide more evidence for this claim.

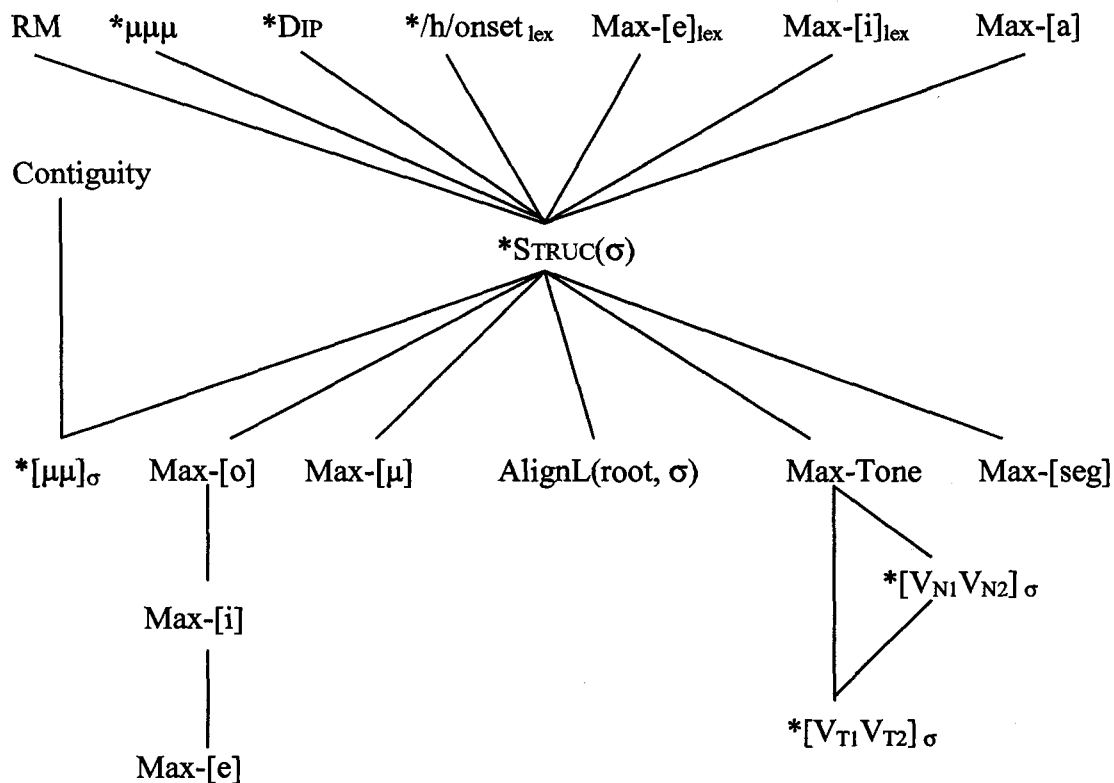
The theoretical contribution this thesis attempts to make is one of support for Beckman’s theory of Positional Faithfulness, outlined briefly in chapter one. The

positions where contrast is lost in Tɬɨchɔ Yatì syllables, and where syllables themselves are lost in words, is in keeping with what are considered areas of non-prominence in PF. As chapter 3 discusses, conjunct prefix onsets are retained in Tɬɨchɔ Yatì in word-initial position, which is in accordance with a position of prominence within that theory. The retention of root-initial syllables which maintain full contrast in their vowels and onsets is further support found in this thesis. Even in the roots which reduce to one syllable, discussed in Chapter 4, it is the second syllable of the root which is no longer realized. The other morphological category where syllables are reducing in number is that of affixes, particularly functional morphemes.

The only phenomenon that may not have been predicted through this theory is that of [a] maximization. This account has not gone so far as to determine whether the morphological position that [a] holds is relevant to whether or not it is retained. To the extent determined by the examination of data for this thesis, the quality of the vowel /a/ is consistently retained in the output. The phonological behaviour of this segment therefore seems to transcend the morphological category of the morphemes it exists in. I therefore make the theoretical claim outside of PF theory that the vowel /a/ is consistently retained in Tɬɨchɔ Yatì due to its sonority.

A lattice of conservative speech or of a grammar representing an earlier time in the language would see alignment constraints and faithfulness constraints surrounding vowels ranked above *STRUC(σ). The final constraint ranking given below, however, shows the innovative ranking of *STRUC(σ) and Max-[a] in relation to all the other constraints utilized in this thesis. The lattice illustrates how in innovative speech *STRUC(σ) is outranked by faithfulness constraints surrounding lexical vowels, but not

context free faithfulness constraints or alignment constraints. In either case, the constraint $*\text{STRUC}(\sigma)$ remains ranked below $\text{Max-}[a]$.



The pivotal $*\text{STRUC}(\sigma)$ together with these other constraints, which are all highly ranking in the phonological grammar of Tɬɨchɔ Yatìì, formulate a cohesive account of the phenomena discussed in this thesis.

The issue of faithfulness surrounding sonority as well as positions of morphological and phonological prominence brings to light an area that needs more careful examination-- that of the lexical vs. functional division in the language, introduced in other Athapaskan languages by Rice (2000) and Alderete (2002). Such an examination would shed light on whether my account of the vowel [a] is valid by examining whether another analysis of the diminutive suffix, as well as various other

morphemes in Tłı̄ch̄o Yatì, should be based on a morphological hierarchy rather than on phonological properties. The other area that begs further analysis and study is the domain of nasal spread. A phonetic analysis of properties of syllables, and whether or not nasality spreads within a syllable, would provide new insight into the data presented in this thesis.

From a phonological perspective I conclude that the data presented in this thesis offers adequate evidence for a conspiracy linking all these phenomena together with the common domain of a syllable, and the common target of simple structure.

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Appendix

Crucial constraint rankings

Contiguity >> $*[\mu\mu]_{\sigma}$
 $*\mu\mu\mu$ >> Max- μ
 $*DIP$ >> $*STRUC(\sigma)$
 RM >> $*STRUC(\sigma)$
 $*STRUC(\sigma)$ >> Max- μ
 $*STRUC(\sigma)$ >> Max-[seg]
 $*STRUC(\sigma)$ >> Max-[o]
 $*STRUC(\sigma)$ >> AlignL(root, σ)

Max-[o] >> Max-[i]
 Max-[i] >> Max-[e]
 Max-[a] >> Max-[o]
 $*STRUC(\sigma)$ >> $*[\mu\mu]_{\sigma}$
 $*STRUC(\sigma)$ >> Max-Tone
 $*STRUC(\sigma)$ >> $*[V_{T1}V_{T2}]_{\sigma}$
 Max-Tone >> $*[V_{T1}V_{T2}]_{\sigma}$
 $*[V_{N1}V_{N2}]_{\sigma}$ >> $*[V_{T1}V_{T2}]_{\sigma}$
 Max-[a] >> $*STRUC(\sigma)$
 $*/h/onset_{lex}$ >> $*STRUC(\sigma)$
 $*\mu\mu\mu$ >> $*STRUC(\sigma)$
 Max-[i]_{lex} >> $*STRUC(\sigma)$
 Max-[e]_{lex} >> $*STRUC(\sigma)$