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Phonological sketch of Mushuau Innu (Davis Inlet Naskapi)

by

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Abstract

The thesis, using data collected by José Mailhot in 1971, sketches the distribution of phones and their assignment to phonemes in the phonology of Mushuau Innu (Davis Inlet Naskapi), an Algonquian language spoken in north-eastern Labrador, which belongs to the Cree-Montagnais-Naskapi (CMN) language complex. Mushuau Innu phonology is described in linear and non-linear terms: processes are described in Sound Pattern of English-style phonology; feature-geometry and syllable structure are then used to elucidate these processes further. Metrical theory is used to describe stress assignment. The Obligatory Contour Principle is invoked to explain epenthesis. Sonority Sequencing is used to determine the status (segmental versus cluster) of complex phones. Syllable structure and underspecification are used to account for alternation between [n] and [y]; this alternation is then shown to cause optional insertion of [n] before initial /i/ (prothetic [n]). Some comparison between the phonologies of Mushuau Innu and related CMN dialects is given.

Acknowledgements

I would like to thank José Mailhot for very generously allowing me to use the data she collected in Utshimassits. I owe an enormous debt of thanks to my supervisors, Dr. Carrie Dyck and Dr. Marguerite MacKenzie, whose incredible depth of knowledge in their respective fields is matched only by their incredible patience, and much patience was required during the production of this thesis. Dr.'s Dyck and MacKenzie provided me with insightful suggestions and caveats, and helped keep me on track. The members of the Memorial University Linguistics Department have always been very helpful, particularly the administrative secretary Colleen Porter, and Dr. Vit Bubenik, Dr. Harold Paddock and Dr. Alex Steinbergs who were always generous with their time; the conversations I had with them formed the backbone of my undergraduate and graduate education. Finally I would like to thank my parents, whose support was invaluable, and my friends, particularly Frank Squires, Curtis Budden and Marlene Power.

Table of contents

Abstract i

Acknowledgements ii

Table of contents iii

List of tables vi

List of figures vii

List of maps x

List of abbreviations and symbols xi

1. **Introduction** 1
  - **1.1. Overview of thesis** 1
  - **1.2. Outline of chapters** 3
  - **1.3. Scope and objectives** 4
  - **1.4. Existing literature** 4
  - **1.5. Genetic affiliation of Mushuau Innu** 5
    - 1.5.1. Algonquian language family 5
    - 1.5.2. Cree-Montagnais-Naskapi dialect continuum 7
  - **1.6. Brief history of the Naskapi** 10
  - **1.7. Grammatical overview of Mushuau Innu** 13
    - 1.7.1. Parts of speech 13
  - **1.8. Overview of Proto-Algonquian and CMN phonology** 16
    - 1.8.1. Consonants 16
      - 1.8.1.1. Consonant clusters 17
      - 1.8.1.2. Consonant processes 18
    - 1.8.2. Vowels 20
      - 1.8.2.1. Vowel processes 21
  - **1.9. Theoretical assumptions** 22
    - 1.9.1. Feature geometry 23
    - 1.9.2. Underspecification 32
    - 1.9.3. Lexical phonology 33
    - 1.9.4. Obligatory Contour Principle 35
    - 1.9.5. Syllable theory 39
      - 1.9.5.1. Sonority sequencing 44

1.9.6. Metrical theory 46
1.9.6.1. Extrametricality 49
1.10. Significance of proposed research 50
1.11. Note on orthography 50

2. Allophones and their phonemic affiliation 53
2.1. Consonants 53
2.1.1. Oral stops 58
2.1.1.1. Labials 58
2.1.1.2. Apicals 63
2.1.1.3. Velars 69
2.1.1.4. Summary 75
2.1.2. Nasals 76
2.1.2.1. Labials 77
2.1.2.2. Apicals 79
2.1.2.3. Velars 86
2.1.3. Fricatives 87
2.1.3.1. Labials 87
2.1.3.2. Apicals 87
2.1.3.3. Velars 96
2.1.3.4. Glottals 96
2.1.4. Affricates 99
2.1.4.1. Apicals 99
2.1.5. Conclusions on consonants 111
2.1.5.1. Length 111
2.1.5.2. Voicing 111
2.1.5.3. Postaspiration 111
2.1.5.4. Preaspiration 111
2.1.5.5. Labialized consonants 112
2.1.5.6. Phonemes 113
2.2. Vowels 114
2.2.1. Front vowels 117
2.2.1.1. High 117
2.2.1.2. Mid 124
2.2.2. Central vowels 127
2.2.2.1. High 127
2.2.2.2. Mid 129
2.2.2.3. Low 132
2.2.3. Back vowels 140
2.2.3.1. High 140
2.2.3.2. Mid 145

2.2.4. Glides 147
    2.2.4.1. Labial 147
    2.2.4.2. Apical 148
    2.2.4.3. Phonemic status of glides 149
2.2.5. Conclusions on vowels 150
    2.2.5.1. Length 150
    2.2.5.2. Phonemes 152
2.3. Summary of phonetic implementation rules 157

3. Non-linear analysis 162
3.1. Syllable structure 162
3.1.1. Syllable template 162
3.1.2. Segmental status of /hC/ and /Cw/ 169
3.1.3. Syllable based processes 172
    3.1.3.1. Glide formation 172
    3.1.3.2. Diphthongization 174
    3.1.3.3. Sequences containing both /i/ and /u/........ 176
3.1.4. Syncope 180
3.1.5. Epenthesis 189
3.2. Accent 190
3.3. Alternation between [n] and [y] 203
3.3.1. Process of alternation 206
3.3.2. Underspecification of /i/ 208
3.3.3. Prothetic [n] 215
3.4. List of all feature-geometry and syllable based rules 217
3.4.1. Feature-geometry rules 218
3.4.2. Syllable based rules 219
3.5. Syllable and feature diagrams for Phonological processes 221
3.5.1. Feature-geometry rules 222
3.5.2. Syllable based rules 232

4. Conclusion 242
4.1. Areas of further research 244

Appendix 1. 245

Bibliography 247

List of tables

Table 2.1. Oral Stops 54
Table 2.2. Nasals 54
Table 2.3. Fricatives 55
Table 2.4. Affricates 55
Table 2.5. Individual segments 114
Table 2.6. Notable consonant clusters 114
Table 3.1. Features of [i], [y] and [n] 208

List of figures

Figure 1.1. Communities and their non-Aboriginal names 2
Figure 1.2. Algic language family 7
Figure 1.3. Cree-Montagnais-Naskapi 8
Figure 1.4. Nominal suffixes of Mushuau Innu 14
Figure 1.5. Consonants of PA 16
Figure 1.6. Proto-Algonquian consonant clusters and their
Cree-Montagnais-Naskapi reflexes 18
Figure 1.7. Vowels of Proto-Algonquian 20
Figure 1.8. Vowels of Cree-Montagnais-Naskapi 20
Figure 1.9. Vowel allophones of several Montagnais-Naskapi dialects 21
Figure 1.10. Feature geometry structure as a Calder mobile 23
Figure 1.11. Consonant feature tree 24
Figure 1.12. Vowel feature tree 25
Figure 1.13. Consonant with secondary articulation feature tree 26
Figure 1.14. Place node structure 27
Figure 1.15. Vocalic node structure 28
Figure 1.16. Oral cavity node structure 29
Figure 1.17. Laryngeal node structure 29
Figure 1.18. Root node structure 30
Figure 1.19. Feature geometry representation of /mʷ/ 32
Figure 1.20. Levels of rules in lexical phonology 35
Figure 1.21. Potential OCP violation created by the sequence [mp] 36
Figure 1.22. OCP violation avoided in the sequence [mp]
by feature sharing 36
Figure 1.23. Example of tier division between consonants and vowels 37
Figure 1.24. Feature sharing in the sequence /nan/ 38
Figure 1.25. Traditional view of syllable structure 40
Figure 1.26. Moraic syllable structure of /ta/ 40
Figure 1.27. Moraic syllable structure of /ta:/ 41
Figure 1.28. Moraic syllable structure of /ata/ 41
Figure 1.29. Moraic syllable structure of /dat/ 42
Figure 1.30. Moraic syllable structure of /da:t/ 42
Figure 1.31. Moraic syllable structure of /ab:a/ 43
Figure 1.32. Moraic syllable structure of /dada/ 44
Figure 1.33. Sonority index 44
Figure 2.1. The consonant allophones of Mushuau Innu
and their phonemic groupings 56
Figure 2.2. Notable clusters of Mushuau Innu 58

Figure 2.3. U.R. of the diminutive 94
Figure 2.4. Consonant phonemes 113
Figure 2.5. Vowel allophones of Mushuau Innu 115
Figure 2.6. Short vowel phonemes 115
Figure 2.7. Long vowel phonemes 115
Figure 2.8. Allophones of /i/ 116
Figure 2.9. Allophones of /i:/ 116
Figure 2.10. Allophones of /e:/ 116
Figure 2.11. Allophones of /a/ 116
Figure 2.12. Allophones of /a:/ 116
Figure 2.13. Allophones of /u/ 117
Figure 2.14. Allophones of /u:/ 117
Figure 3.1. Consonant clusters of Mushuau Innu 163
Figure 3.2. Word-final appendix 166
Figure 3.3. Syllabification without glide formation 172
Figure 3.4. Syllabification with glide formation 173
Figure 3.5. Syllabification of /a:iV/ without glide formation 173
Figure 3.6. Syllabification of /a:iV/ with glide formation 173
Figure 3.7. Syllabification of /a:iC/ with glide formation 174
Figure 3.8. Syllabification of /a:iC/ without glide formation 174
Figure 3.9. Syllabification of 'hands' without diphthongization 175
Figure 3.10. Syllabification of 'hands' with diphthongization 175
Figure 3.11. Syllabification of 'he dreams' without diphthongization 175
Figure 3.12. Syllabification of 'he dreams' with diphthongization 175
Figure 3.13. Syllabification of 'rivers' without diphthongization 176
Figure 3.14. Syllabification of 'rivers' with diphthongization 176
Figure 3.15. Syllabification of /i:u/ with glide formation 177
Figure 3.16. Syllabification of 'my suitcase' without glide formation 178
Figure 3.17. Syllabification of 'my suitcase' with glide formation 178
Figure 3.18. Syllabification of 'blanket' without glide formation 179
Figure 3.19. Syllabification of 'blanket' with glide formation 179
Figure 3.20. Representation of shared features of identical consonants 185
Figure 3.21. Syncope between homorganic consonants 186
Figure 3.22. /a/-procope 187
Figure 3.23. /i/-syncope 188
Figure 3.24. [ə]-epenthesis 190
Figure 3.25. /i/ in its three possible positions within the syllable 207
Figure 3.26. Feature diagram of underspecified /i/ 211
Figure 3.27. Feature diagram of underspecified non-alternating /n/ 212
Figure 3.28. Spread of /i/ to onset position 216
Figure 3.29. /i/-rounding 222

Figure 3.30. Fronting of /a/ 223
Figure 3.31. Prevocalic coalescence of /h/ and obstruent 224
Figure 3.32. Coalescence of /h/ and obstruent with [LABIAL] articulation 225
Figure 3.33. /m/-labialization 226
Figure 3.34. Affricate fronting 227
Figure 3.35. /ʧ/-deaffrication to [t] 228
Figure 3.36. /ʧ/-deaffrication to [s] 229
Figure 3.37. /a/-rounding 230
Figure 3.38. /a:/-rounding 231
Figure 3.39. Obstruent lengthening (gemination) 232
Figure 3.40. Syllabic [n̩] 233
Figure 3.41. Vowel lengthening process 234
Figure 3.42. Vowel shortening 235
Figure 3.43. Pre-vocalic /i:/ diphthongization 236
Figure 3.44. Word-final /i:/ diphthongization 236
Figure 3.45. Prevocalic /u:/-diphthongization 237
Figure 3.46. Glide formation 238
Figure 3.47. /i/-syncope 239
Figure 3.48. Syncope between homorganic consonants 240
Figure 3.49. /a/-procope 241
Figure 4.1. Consonant phonemes 242
Figure 4.2. Short vowel phonemes 242
Figure 4.3. Long vowel phonemes 242

List of maps

Map 1. Cree-Montagnais-Naskapi Communities 12

List of abbreviations and symbols

anim.	Animate
ant	Anterior
approx	Approximant
ATR	Advanced Tongue Root
C	Consonant
CMN	Cree-Montagnais-Naskapi
cont	continuant
COR	CORONAL
dim.	Diminutive
DORS	DORSAL
excl.	Exclusive
H	Heavy syllable
incl.	Inclusive
L	Light syllable
LAB	LABIAL
loc.	Locative
nas	Nasal
obv.	Obviative
OCP	Obligatory Contour Principle
PA	Proto-Algonquian
pl.	Plural
sg.	Singular
son	Sonorant
SPE	Sound Pattern of English
SSG	Sonority Sequencing Generalization
subj.	Subjunctive
V	Vowel
voc	Vocoid
μ	Mora
σ	Syllable
ω	Word

Chapter one: introduction

1.1. Overview of thesis

This thesis is a phonological sketch of Mushuau Innu, also known as Davis Inlet Naskapi, spoken in north-eastern Labrador by approximately 500 Innu. It is a dialect of the Cree-Montagnais-Naskapi (CMN) language complex. The data used in this analysis were collected by José Mailhot in Utshimassits (also known as Davis Inlet) in 1971 from four speakers: Mary-Ann Noa, Joe Rich, Mary-Ann Tshakapesh and Mary-Jane Mistanapeu.

José Mailhot was trained as an ethno-linguist at the Université de Montréal; she has been working with the Innu since 1963 and speaks Innu-aimun fluently. She has done extensive research on the language, culture and history of the Innu; some of this research is contained in *The people of Sheshatshiu: In the land of the Innu* (Mailhot 1997) and *North West River: Etude ethnographique* (Mailhot 1965). In 1971 José Mailhot was working with the Laboratoire de recherche amérindienne; at this time she travelled to Utshimassits and recorded the four Mushuau Innu speakers mentioned above on five inch reels, using a *Uher* recording device. These recordings are now kept in the Native Language Archive in the Department of Linguistics at Memorial University of Newfoundland. José Mailhot is currently working for the Uashau Band, doing land claims research, and is also in the process of editing a series of Innu texts.

The data consist of three five inch reels of Ms. Mailhot eliciting word lists from the four native speakers. Ms. Mailhot performed a narrow phonetic transcription of these recordings, resulting in 85 handwritten pages containing c. 1500 entries. Many words were elicited several different times during the recording, and so these c. 1500 elicitations reflect c. 1000 different words. While the recordings provided a useful resource for clarifying difficult aspects of the data, the thesis relied almost entirely on Ms. Mailhot's own handwritten phonetic transcription, which I typed into a computer data base to be sorted along various parameters as needed by the analysis.

Within the thesis, Aboriginal communities are referred to by their Aboriginal names. The following chart lists Aboriginal communities and their corresponding non-Aboriginal names (this chart only includes communities mentioned in the thesis which have, or had, commonly used non-Aboriginal names).

Community	Non-Aboriginal name
Chisasibi	Fort George
Ekuanitshu	Mingan
Kawawachikamach	Fort Chimo
Matimekush	Schefferville
Nutashkuan	Natashquan
Pakuat-shipu	St. Augustin
Pessamiu	Betsiamites
Sheshatshiu	North-West River
Uashau	Sept-Iles
Unaman-shipu	LaRomaine
Utshimassits	Davis Inlet
Waskaganish	Rupert House
Whapamagoostui	Great Whale River

Figure 1.1. Communities and their non-Aboriginal names

1.2. Outline of chapters

Chapter 1 provides an introduction to the theoretical assumptions of the thesis and an introduction to Mushuau Innu, situating the language within the dialect continuum of CMN, and within the Algonquian (and Algic) language family as a whole. A brief history of the community of Utshimassits is given as well. Chapter 1. includes a very brief synopsis of the grammar of the language and an overview of the reconstructed phonological system of Proto-Algonquian, following Bloomfield (1946), as well as the standard CMN reflexes of Proto-Algonquian phonemes. Common phonological processes encountered in dialects related to Mushuau Innu, following MacKenzie (1980) and Clarke (1982), will also be listed. This is intended to give the reader an idea of the type of sound system and phonological processes likely to be encountered in Mushuau Innu.

Chapter 2 gives an outline of the phonetic inventory of Mushuau Innu, offers an analysis of the phonemic distribution of these sounds and concludes with a list of all phonetic implementation rules discussed in the thesis.

Chapter 3 offers a non-linear analysis of several aspects of Mushuau Innu phonology: syllable structure, syncope, epenthesis, accent, prothetic [n] and alternation between [n] and [y], concluding with non-linear descriptions of all phonological processes discussed in the thesis (excepting phonetic implementation rules).

Chapter 4 is the conclusion, and includes a list of topics which surfaced in the course of analysis that require further research.

1.3. Scope and objectives

This thesis will attempt to offer a synchronic phonological analysis of a dialect that has received little attention. The data for this analysis (collected by José Mailhot) are extensive but still finite. Most of the forms elicited are morphologically simple; that is, there are few 'words' that consist of more than two or three morphemes (in a polysynthetic language, two or three morphemes is not a particularly complicated form). The priority of this analysis is to establish the synchronic phonetic and phonological inventories of the language and to provide the basic rules and constraints of the phonology.

1.4. Existing literature

To date, no phonological analysis has been devoted to Mushuau Innu, though some linguists, most notably MacKenzie (1980), have included work on Mushuau Innu as part of a larger analysis of the dialect continuum. Ford (1978 and 1982) has offered an analysis of some aspects of the phonology of Mushuau Innu. Brittain (1999) has provided information concerning the phonology of the most closely genetically related dialect, that of Western Naskapi, spoken in Kawawachikamach (Fort Chimo), northern Quebec.

Naskapi's sister dialect group, Montagnais, has been studied in greater detail. Of most relevance to Mushuau Innu today is the Montagnais dialect of Sheshatshiu (formerly known as North-West River). Sheshatshiu is the nearest Innu community to Utshimassits, and intermarriage between people of the two communities is common.

Thus, phonological processes spreading from Sheshatshiu Montagnais to Mushuau Innu would not be unexpected. Sheshatshiu Montagnais has had several studies devoted to it, most notably those of Clarke (1982), and Clarke and MacKenzie (1981).

While the Algonquian language family has been studied in great depth, unfortunately most of the literature pertaining to Algonquian is not of direct relevance to a synchronic study of Mushuau Innu phonology. However, Wolfart's (1996) sketch of Cree provides some relevant parallels, and Hewson's (1993) Proto-Algonquian dictionary is a useful reference for the historical forms of Mushuau Innu words.

1.5. Genetic affiliation of Mushuau Innu

This section is a synopsis of the genealogy of Mushuau Innu, outlining the position of the CMN dialect continuum within the Algonquian language family and the position of Mushuau Innu within the CMN dialect continuum.

1.5.1. Algonquian language family

Mushuau Innu is a member of the CMN branch of the Algonquian language family. Bloomfield (1946: 440) included CMN in a Central-Eastern division of Algonquian, along with Menomini, Fox-Sauk-Kikapoo, Shawnee and several others.

Valentine (1995: 90) states that the label 'Central' describes geographic proximity rather than genetic relationship, and argues that the correct division of Algonquian is into Eastern and non-Eastern groups. The Eastern group would include Delaware, Natick-Narragansett, Penobscot-Abnaki, Malecite-Passamaquoddy and Mi'kmaq. This group corresponds to Bloomfield's "New-England Type". The non-Eastern group would include all other Algonquian languages and would place CMN next to, among others, Cheyenne, Menomini, Blackfoot and Arapaho-Atsina.

The division of Algonquian into Eastern and non-Eastern groups is not accepted by all linguists; Pentland, for instance, argues that "the suggested subdivision is not a valid genetic grouping" (1979: 15). However, as the Eastern - non-Eastern subdivision is often used in the literature, I will include it here (whether it reflects a genetic or merely geographic relationship).

Algonquian, together with the Ritwan family[1], whose only descendants are the Wiyot and Yurok languages of California (Campbell 1997: 153), forms a larger language family, Algic. The Algic family was established by Sapir (1913), who first noticed the distant connection between the Algonquian and Ritwan families. The 'family tree' for CMN appears in figure 1.2.; following, with some modification, Valentine (1995: 89):

---

[1] Whether Wiyot and Yurok are actually more closely related to each other than either is to Algonquian, is debated (Campbell 1997: 152). While I have represented them as forming a single family, Ritwan, they may represent two separate families.

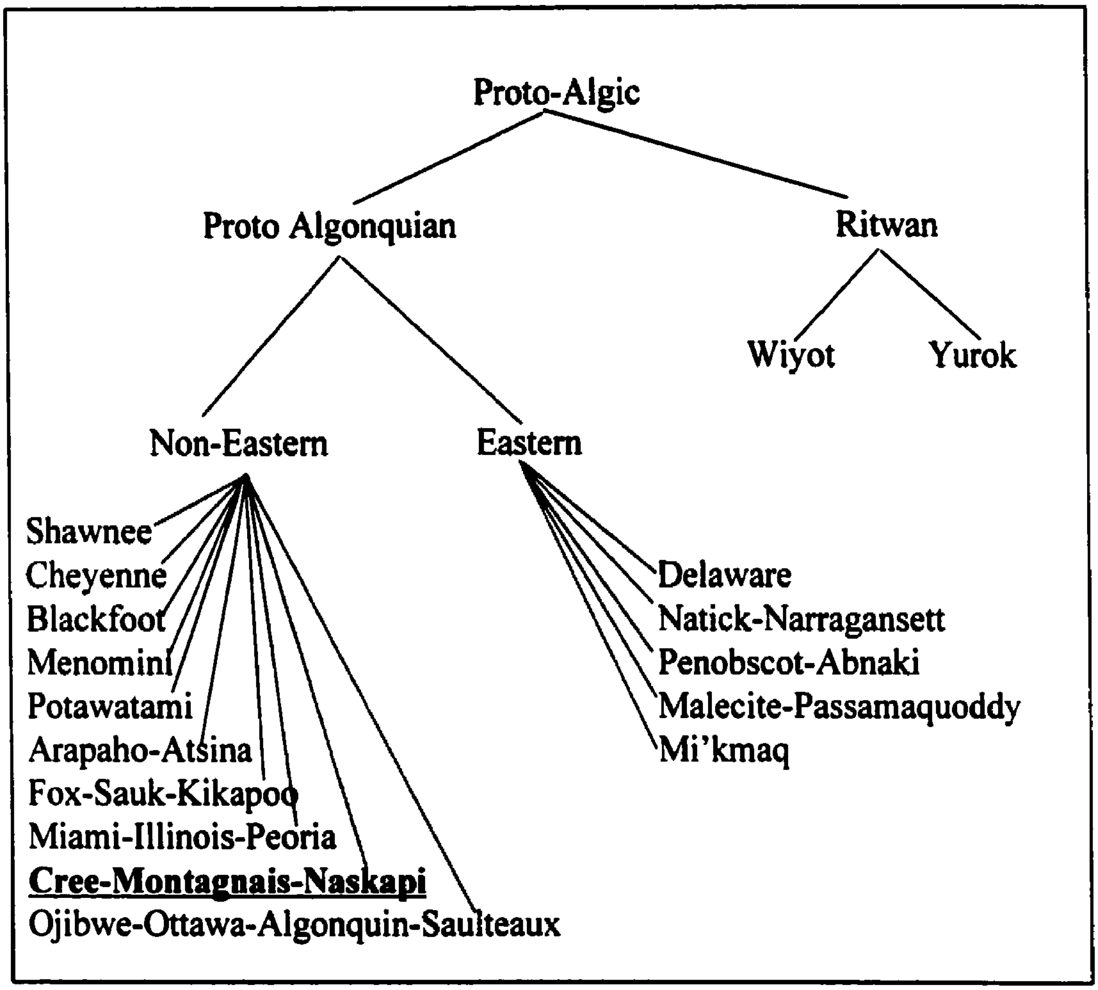


Figure 1.2. Algic language family

1.5.2. Cree-Montagnais-Naskapi dialect continuum

Within the literature, CMN is often subdivided into Cree on one hand and Montagnais-Naskapi on the other, on the basis of palatalization of Proto-Algonquian *k to [ʧ] before front vowels in the latter dialects. Cree dialects maintain [k] while all Montagnais-Naskapi dialects have [ʧ] in this environment (Clarke 1982: 1), creating a division into palatalized (Montagnais-Naskapi) and non-palatalized (Cree) dialects.

The following is a chart of the major dialect divisions of CMN, including representative dialects; the details will be explained below.

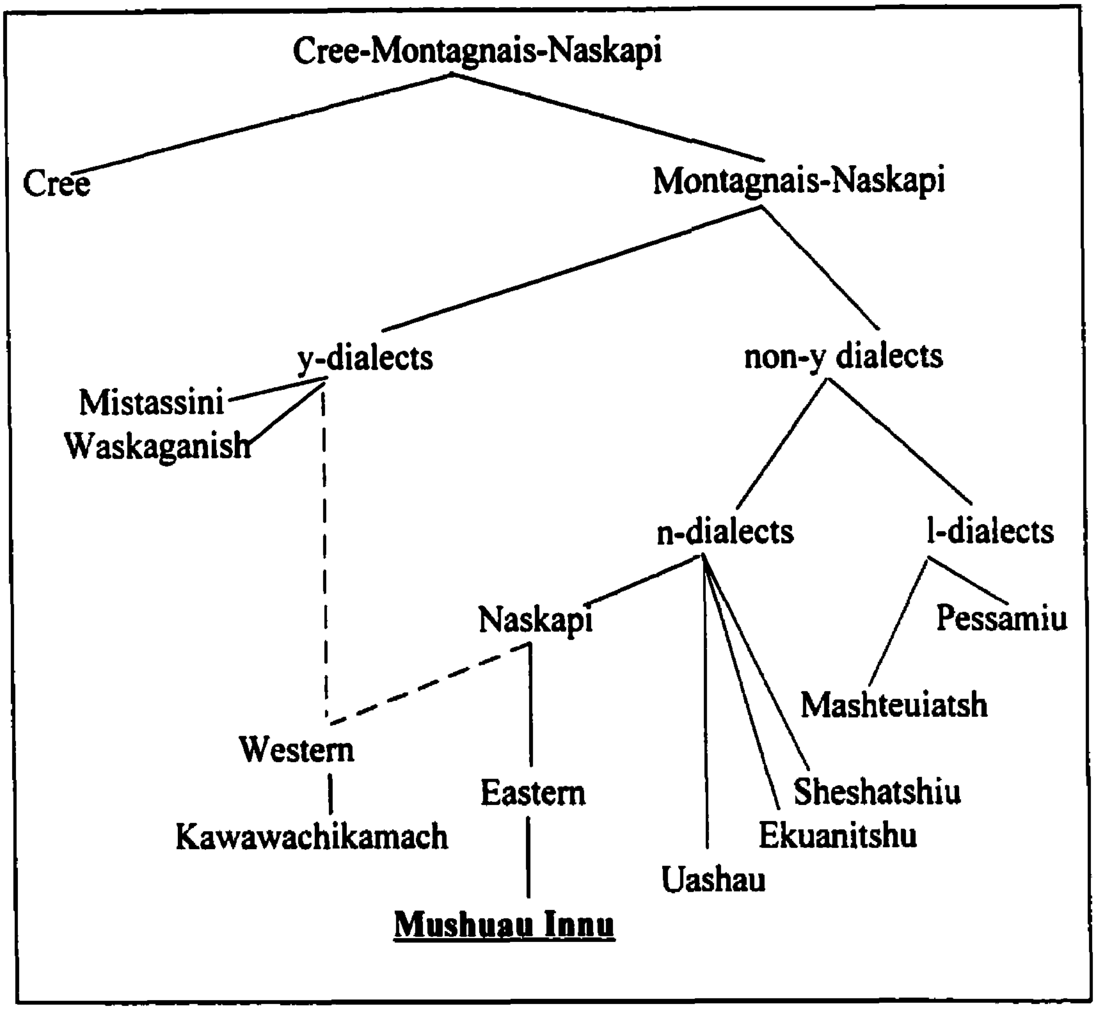


Figure 1.3. Cree-Montagnais-Naskapi

NB The broken line connecting Kawawachikamach to both *Naskapi* and *y-dialects* indicates that Kawawachikamach is probably historically most closely related to Naskapi, but because of geographical proximity to y-dialects, is taking on characteristics of y-dialects.

Within Montagnais-Naskapi, the various dialects are often divided into four groups on the basis of which reflex of PA *l they display (following Michelson's (1939) classification). One group of dialects shows [n] as its reflex of PA *l, another has [y] as its reflex, a third has [l] and a fourth has both [n] and [l]. Using this formulation, Mushuau Innu is an n-dialect[2].

MacKenzie presents a detailed comparison of CMN dialects, and finds that the major division into palatalized and non-palatalized[3] dialects is supported by evidence of isoglosses in other areas of the phonology, as well as in morphology (1980: 214). The division of the Montagnais-Naskapi dialects into subgroups based on their reflex of PA *l is only partially supported by MacKenzie's analysis. Instead of four subgroups, she finds that there are only two major subgroups: y-dialects and all others.

In the past, the Innu of Utshimassits referred to themselves as Naskapi, as do the people of Kawawachikamach. MacKenzie argues that there is evidence to support the theory that, in the past, the speakers of these two communities "formed a relatively isolated subgroup" (1980: 220). The dialect of Kawawachikamach (Western) Naskapi, while possibly genetically closer to Mushuau Innu, has been recently influenced by palatalized y-dialects, which have made Western Naskapi more similar to the northern palatalized y-dialects than to Mushuau Innu. Most notably, Kawawachikamach has [y]

---

[2] Mushuau Innu is described as an n-dialect; however, synchronically in Utshimassits, there is an unusual alternation between [n] and [y] (see section 3.3.), which does not, however, affect /n/ from PA *l.

[3] It should be noted that MacKenzie proposes a different division of CMN from the one used in this thesis: MacKenzie would consider the palatalized y-dialects to be East Cree. For the sake of clarity of exposition, I have followed the convention of labelling all palatalized dialects Montagnais-Naskapi, and all non-palatalized dialects Cree.

for PA *l; however, there is some evidence that in the past century, [n] was the usual reflex, with this [y] being a later change induced by proximity to y-dialects (MacKenzie 1980: 220). This interpretation of the Kawawachikamach dialect is speculative.

Given the genetic and social connections between Utshimassits and both Kawawachikamach and Sheshatshiu, Mushuau Innu is likely to resemble these dialects most closely. There is a dialect division within Mushuau Innu itself, though its exact nature is unclear (MacKenzie 1999: personal communication).

1.6. Brief history of the Naskapi[4]

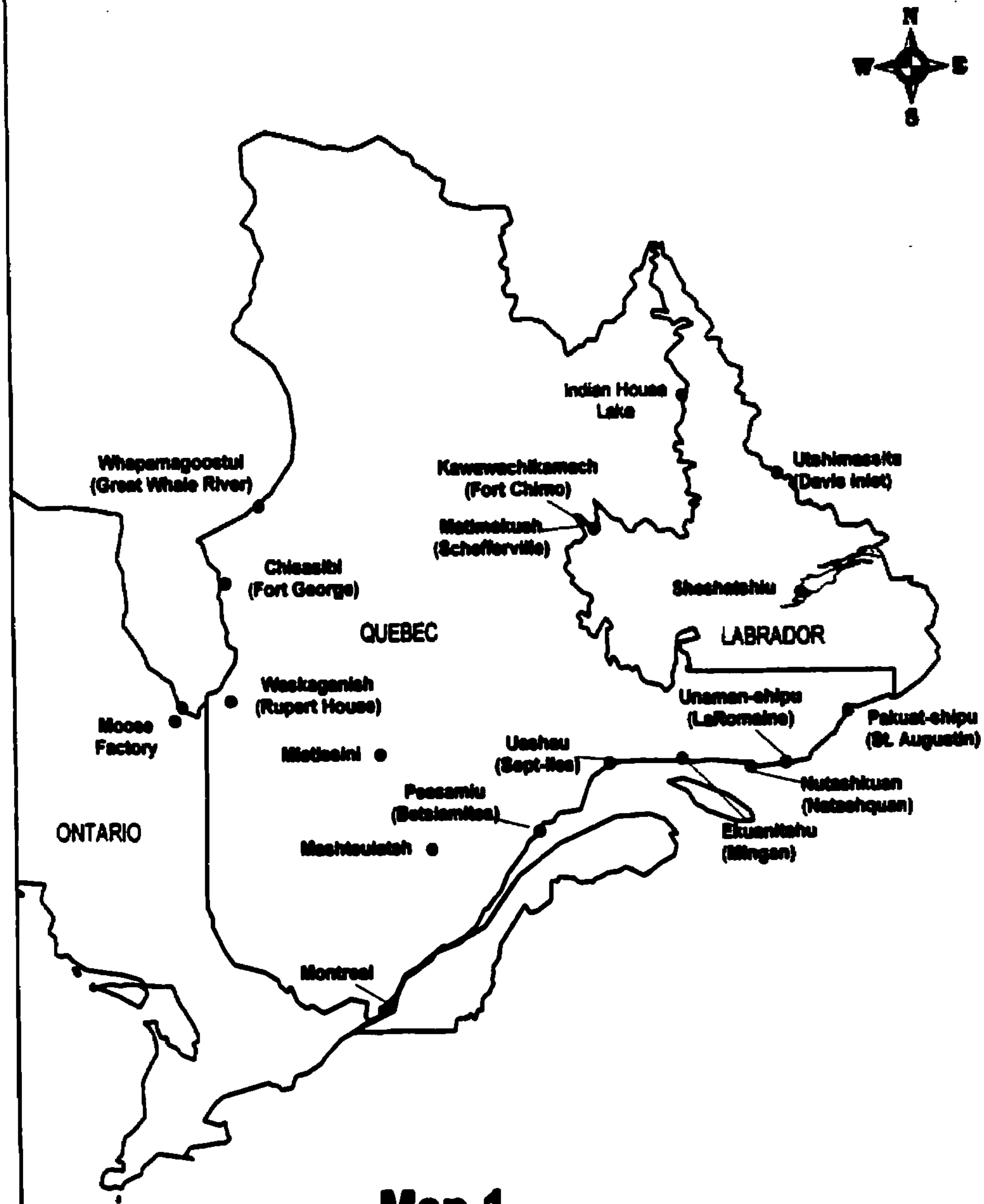
The Naskapi have been largely isolated from European influence until fairly recently. Until the twentieth century, there were two groups of Naskapi, the Mushuau and the Waskaneken, who, though separate, kept close ties and intermarried. The hunting grounds of both groups "centred around Indian House Lake on George River" (Henriksen 1973: 8), where they met every year. This only changed in 1916, when the caribou herds, which normally travelled through the area of Indian House lake, changed their migration route. This forced the Naskapi to travel to the trading posts on the coast which had been set up by the Hudson Bay Company at Fort Chimo (established in 1830) and Davis Inlet (established in 1831). It was at this point that the two groups of the Naskapi separated. The Waskaneken Innu became affiliated with Fort Chimo and the Mushuau Innu with

---

[4] Most of my information for this brief history of Utshimassits comes from Henriksen (1973; 1993).

Davis Inlet. Up until 1916 the two groups kept close ties; since 1916 the two groups have drifted apart and the Naskapi of Fort Chimo (Kawawachikamach) have developed closer ties with the East Cree, while the Mushuau Innu have formed ties with the Montagnais of Sheshatshiu (a map of the region occurs on the following page).

The isolation of the Naskapi from European influence was largely due to economic reasons. The Europeans were interested in fur trading, while the Naskapi were tied to the caribou hunt, and did not want to give it up to trap for the Europeans. Although the Hudson Bay Company tried to entice the Naskapi into becoming trappers tied to a specific trading post, the Naskapi did not relinquish the caribou hunt. This served to keep the Naskapi largely isolated from European influence until the 1960's. Since that time the Mushuau Innu have faced enormous problems and substance abuse has become widespread. The community was relocated in 1967 to an island off the coast of Labrador, and is in the process of relocating again, back to the mainland.



Map 1
Cree-Montagnais-Naskapi
Communities

1.7. Grammatical overview of Mushuau Innu

While this thesis concentrates on phonology, grammatical information is occasionally discussed and for this reason, the following sketch of Mushuau Innu grammar is included. The most common nominal inflections in Mailhot's data are those for plural, locative and diminutive. Possessive morphology is also present, though to a lesser extent. Verbal morphology is not abundant and is largely limited to the singular forms of the first and third person in the indicative independent order.

Ford (1982) wrote a short general introduction to Mushuau Innu, of which only the first installment was completed. For this reason, I will rely primarily on Bloomfield's (1946) description of the grammar of Proto-Algonquian and Clarke's (1982) description of the grammar of the Montagnais dialect of Sheshatshiu (closely related to Mushuau Innu), to provide this synopsis of Mushuau Innu grammar.

Montagnais (like Naskapi) is a polysynthetic language (Martin 1991: 2), and is verbally-oriented (Clarke 1982:18), which is reflected in the extremely rich morphology of verbs and their over-representation in the lexicon.

1.7.1. Parts of speech

There are three parts of speech: particles, nominals and verbs.

Particles generally lack inflection and correspond to English prepositions, conjunctions, adverbs and some pronouns (Clarke 1982: 19).

Nominals add suffixes for gender, number, locative, diminutive and possession (the specific forms of the morphology mentioned in this section, except where stated otherwise, are those I have observed for Mushuau Innu).

/-a/	inanimate plural
/-itʃ/	animate plural
/-ihtʃ/	locative
/-ʃʃ/	diminutive
/-im/	possessive
/-a/	obviative

Figure 1.4. Nominal suffixes of Mushuau Innu

Gender encodes a dichotomy between animate and inanimate. All animate living things receive animate gender. Some non-animate living things, such as bushes, are assigned animate gender, while others are assigned inanimate gender; the basis for this division is not always clear (MacKenzie 1982: 242). While most non-living things have inanimate gender, there are some exceptions.

Number encodes a simple dichotomy between singular and plural. Number is marked with a suffix on the noun: /-a/ for inanimate nouns and /-itʃ/ for animate nouns.

Locative is marked with the suffix /-ihtʃ/. Diminutive is marked with the suffix /-ʃʃ/

Person encodes "first, second and third, with a distinction of exclusive and inclusive first person singular" (Bloomfield 1946: 450). There is also an obviative which serves to a mark a third person which is "out of focus" in the phrase; this usually happens when focus is already on another third person in the phrase (Clarke 1982: 30). The obviative is marked with the suffix /-a/.

Possession may be marked on the possessed noun by the suffix /-im/; however, this suffix does not occur with all nouns and animate nouns are more likely to receive the suffix (Clarke 1982: 26). The number and person of the possessor are marked by prefixes and suffixes (in general, person is marked by a prefix and number by a suffix; however, the plural suffix also marks person).

Verbs are heavily inflected. Because of the quantity of verbal inflection the individual inflections will not be listed. Verbs are divided into intransitive and transitive, with intransitives further divided into those with animate actors and those with inanimate actors, while the transitives are divided into those with animate goals and those with inanimate goals. This creates four primary groups of verbs: Animate Intransitive (AI), Inanimate Intransitive (II), Animate Transitive (TA), Inanimate Transitive (TI).

Each of these four types of verb may occur in one of two orders: the independent (typically used in main clauses) and the conjunct (used primarily for subordinate clauses). In most dialects, both orders have at least two modes; however, the functions of the modes differ from dialect to dialect. Each mode can occur in either the past or the non-past tense.

The morphology indicating the person and number of the actor and goal is quite complicated, consisting of prefixes and suffixes for the independent order, but only of suffixes for the conjunct order (Bloomfield 1946: 453).

Though some word orders may be preferred, word order is relatively free. A change in word order generally does not create a change in referential meaning (Wolfart 1996: 92).

1.8. Overview of Proto-Algonquian and CMN phonology

The following is a description of the sound system of Proto-Algonquian, as well as a list of phonological processes commonly found in dialects of CMN.

1.8.1. Consonants

Bloomfield (1946) reconstructed the following consonant inventory for Proto-Algonquian:

*p		t		k	
		ʧ			
	θ	s	ʃ		h
m		n			
		l			

Figure 1.5. Consonants of PA

Voicing and length were not contrastive in these sounds.

*θ has become CMN /t/.

*l has become various apical sounds in CMN, but /n/ in Mushuau Innu.

*s and ʃ have merged as a single fricative in CMN, according to Bloomfield (1946: 443). This is not the case for Chisasibi Cree, where they are still separate phonemes (Martin 1974: 55-57). MacKenzie (1980: 72) says that *s and *ʃ are kept as separate phonemes in the central area of the CMN complex, but merge into one phoneme (either /s/ or /ʃ/) in the peripheral areas, including Labrador. Mushuau Innu has merged the two sounds, as discussed in section 2.1.3.2.

The other consonants have been largely retained in CMN. However, in Montagnais-Naskapi, PA *k has become /ʧ/ before front vowels.

1.8.1.1. Consonant clusters

Several consonant clusters of PA, have been simplified in CMN. The following list of PA clusters and their CMN reflexes is taken from Bloomfield (1946: 443-446). It should be noted that many of Bloomfield's consonant clusters involve an initial consonant which does not occur in his consonant inventory for PA. Bloomfield says that these initial consonants are "obscure elements which we render by arbitrary symbols" (Bloomfield 1946: 443).

PA	CMN	PA	CMN	PA	CMN
*mp	hp	*nt	ht	*nk	hk
hp	hp	ht	ht	hk	hk
xp	sp	ʧt	st	xk	sk
ʧp	sp	ʃt	st	θk	sk
ʃp	sp			çk	hk
				ʧk	sk
				ʃk	sk
PA	CMN	PA	CMN	PA	CMN
*nʧ	s	*nʃ	s	*nθ	ht
hʧ	s	hʃ	s	qθ	st
qʧ	s	qʃ	s	hθ	ht
PA	CMN				
*nl	hy				
hl	hy				
ql	hy				

Figure 1.6. Proto-Algonquian consonant clusters and their Cree-Montagnais-Naskapi reflexes

In general, PA consonant clusters consisting of a consonant followed by a stop have simplified to a fricative (/h/ or /s/) followed by a stop. Clusters of consonant followed by fricative have been reduced to a single fricative /s/ (except clusters where the second element was */θ/). This has created a much simpler inventory of consonant clusters for CMN than there was in PA.

1.8.1.2. Consonant processes

Bloomfield reports that PA *t varied with *ʧ before *{i, i:, y} (Bloomfield 1946: 448). [t] is rare before /i/ in Mushuau Innu, suggesting that this PA alternation has left a remnant in Mushuau Innu (see section 2.1.4.1.).

Preaspirated stops in many dialects of Montagnais-Naskapi lost their preaspiration with lengthening of the preceding vowel. In dialects where the preaspiration was not lost, the preaspirated stop can synchronically become a fricative (MacKenzie 1980: 67-68). This second situation is found in Mushuau Innu, where preaspirated stops typically have fricative allophones: [hp] ~ [ɸ] ~ [f] and [ht] ~ [θ] ~ [çt].

Intervocalic /h/ was dropped in most Montagnais-Naskapi dialects except between vowels of identical quality (MacKenzie 1980: 63). This is also the case in Mushuau Innu (see section 2.1.3.4.).

Synchronically, /ʃ/ becomes [h] before a vowel or in word-final position in many Montagnais dialects (MacKenzie 1980: 77). In Sheshatshiu, this process occurs word-initially and intervocalically (Clarke 1982: 18), while in Mushuau Innu, it occurs only intervocalically (see section 2.1.3.2.).

In some dialects, Mushuau Innu included (see section 2.1.4.1.), [ʧ] alternates with [ʦ] (MacKenzie 1980: 56).

Synchronically, in most CMN dialects, voicing in stops is determined by environment. Typically, stops are voiced intervocalically and next to a nasal, but unvoiced next to a sibilant. Mushuau Innu generally follows this trend. Sibilants in CMN are almost universally voiceless (MacKenzie 1980: 87); however, this is not the case in Mushuau Innu, where /s/ has a voiced allophone (see section 2.1.3.2.).

Word-initial and word-final nasals, when they occur in a consonant cluster caused by vowel syncope, result in the nasal becoming syllabic (MacKenzie 1980: 91). This occurs in Mushuau Innu (see section 2.1.2.2.).

1.8.2. Vowels

Bloomfield (1946) reconstructed the following system of short and long vowels for Proto-Algonquian:

*i			*i:		
e		o	e:		o:
	a			a:	

Figure 1.7. Vowels of Proto-Algonquian

The CMN reflexes for these vowels are largely the same, except for a merger of *e and *i into /i/, resulting in the following vowel system for most dialects of CMN[5]:

i			i:		
		o	e:		o:
	a			a:	

Figure 1.8. Vowels of Cree-Montagnais-Naskapi

The exact phonetic quality of these vowels varies from dialect to dialect. The following is a list of the phonetic realizations of these vowels for several Montagnais-Naskapi dialects:

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[5] There is typically only one short non-low back vowel and one long non-low back vowel in CMN. However, the exact quality of these back vowels varies widely. They are sometimes represented by the symbols <o> and <o:>, sometimes by <u> and <u:>.

Phonemes	Allophones		
	Sheshatshiu (Clarke 1982)	Western Naskapi (Brittain 1999)	Ekuanitshu (Martin et al. 1977)
/i/	[ə], [ɨ], [y]	[ɪ], [ə]	[i], [ɪ], [ɨ], [ɛ]
/a/	[ə], [ʌ]	[ʊ], [ə], [ɪ]	[a], [ə], [ʌ], [ɛ]
/u/	[ʊ], [w]	[ʊ]	[o], [ʊ]
/i:/	[i]	[i]	[i:], [i], [ɪ]
/e:/	[e]	merged with /a:/	[e], [e:], [ɛ]
/a:/	[a]	[ɔ], [o], [ɑ]	[a], [a:]
/u:/	[o], [u]	[u], [o]	[o], [o:], [ʊ], [ʊ:]

Figure 1.9. Vowel allophones of several Montagnais-Naskapi dialects

This figure shows the wide range of allophones of each vowel phoneme. It also demonstrates that centralization is common in short vowels and that short vowels frequently have overlapping allophones (in Western Naskapi /a/ only has allophones that are also allophones of other phonemes).

1.8.2.1. Vowel processes

/i/ and /u/ become glides when they are adjacent to vowels (Clarke 1982: 5). This process occurs in Mushuau Innu, as discussed in sections 2.2.4.3. and 3.1.3.

Short vowels in Montagnais-Naskapi are frequently reduced, assimilated or deleted. /i/ and /a/ are more often subject to this treatment than /u/ (MacKenzie 1980: 104). This is also seen in the Mushuau Innu data as discussed in section 3.1.4.

/iy/ and /i:y/ are not phonetically distinguishable in any dialect, including Mushuau Innu (see section 2.2.1.1.). In Sheshatshiu, /ay/ has raised to [ey] (Clarke 1982:

12). This same process has occurred in Mushuau Innu (see section 2.2.2.3.).

In Sheshatshiu Montagnais, /i/ and /a/ become rounded when followed by a sequence of labial consonant and /u/ (Clarke 1982: 11). /i/ and /a/ are subject to rounding rules in Mushuau Innu as discussed in section 2.2.1.1. and section 2.2.2.3.

Short vowels may also undergo length neutralization. In initial or final position, short vowels may be neutralized with long vowels[6] (MacKenzie 1980: 135)

Short vowels may also be neutralized, in terms of quality, between consonants. In this environment all short vowels may reduce to a single sound, often [ə] (MacKenzie 1980: 135). All short vowels (except /u/) in Mushuau Innu can neutralize to [ə], see section 2.2.5.2.

There is a metathesis process reported for some dialects, whereby a word-initial /u/ and following [m] undergo metathesis. This process can also be described as labialization followed by deletion (short initial vowels are often deleted) of the triggering environment (MacKenzie 1980: 134). This process occurs in Mushuau Innu, as discussed in section 2.1.2.1.

1.9. Theoretical assumptions

This section describes the theoretical models assumed for the thesis. These are: feature geometry, underspecification, lexical phonology, the Obligatory Contour

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[6] Martin, et al. (1977) performed an acoustic analysis of the vowels of one Montagnais dialect, Ekuanitshu, and found that length was non-contrastive in word-final position. In fact, short /i/ in this environment proved to be marginally longer than long /iː/ (1977: 128), with the original length distinction cued instead by loudness and pitch.

Principle, moraic syllable structure and grid based metrical theory. Each of these theories is discussed in turn below.

The reader is assumed to have a basic knowledge of SPE style phonology (Chomsky and Halle 1968), which is used in the thesis as a shorthand method of describing phonological processes.

1.9.1. Feature geometry

The following description of non-linear feature geometry is based on Clements (1985) and Clements and Hume (1995). Feature geometry assumes that there is a universal structure organizing all the features which make up a sound and represents a sound's internal structure "in the manner of a Calder mobile" (Clements and Hume 1995: 249):

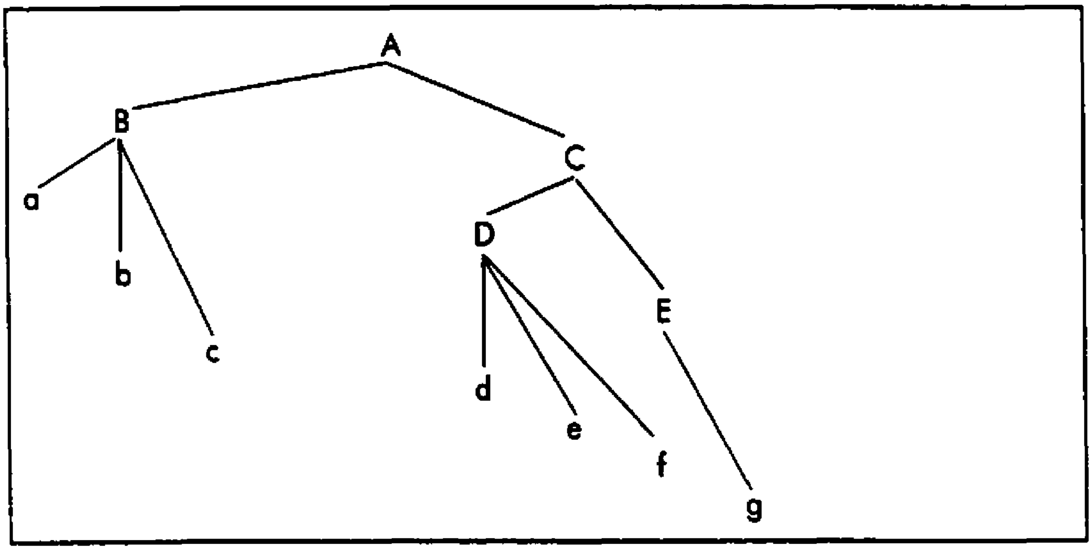

Figure 1.10. Feature geometry structure as a Calder mobile

In this model the individual features are represented by the terminal points of the structure (lower case letters), while nodes are represented by branching elements (upper case letters). All features and nodes are represented on different tiers in order to capture the fact that these features are not organized sequentially within a sound, although the sounds themselves are organized sequentially within the word. As features are not sequential, they can spread from one sound to another independently.

Clements and Hume (1995: 292) use the following structure to depict consonants (the diagrams will be discussed in detail below):

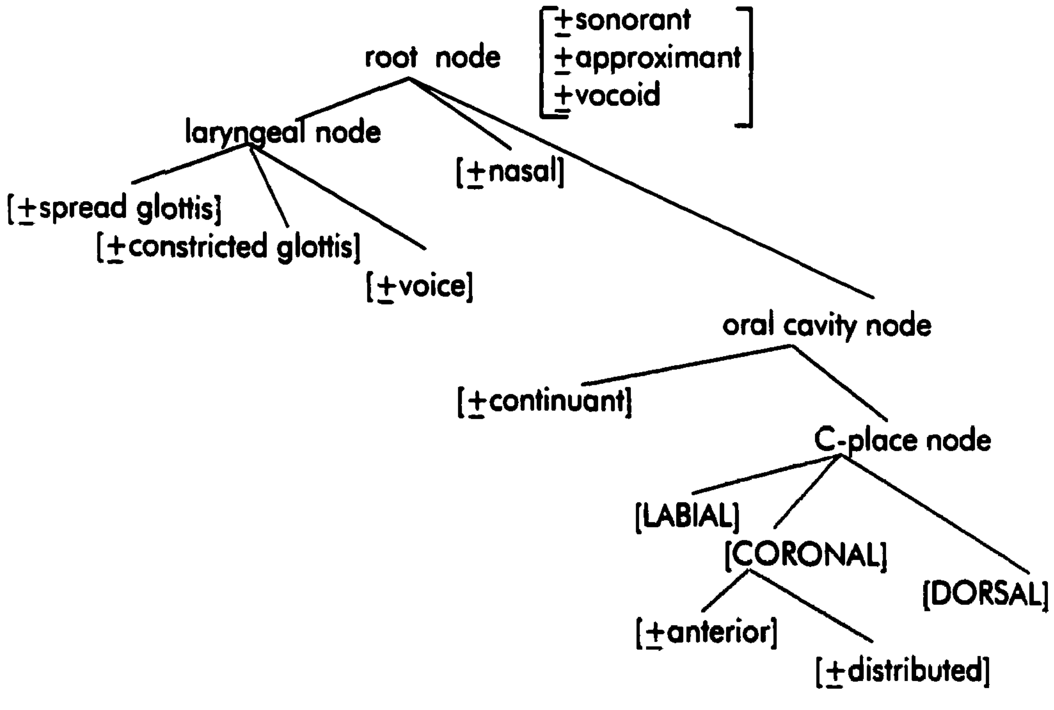

Figure 1.11. Consonant feature tree

and the following representation for vowels (Clements and Hume 1995: 292)[7]:

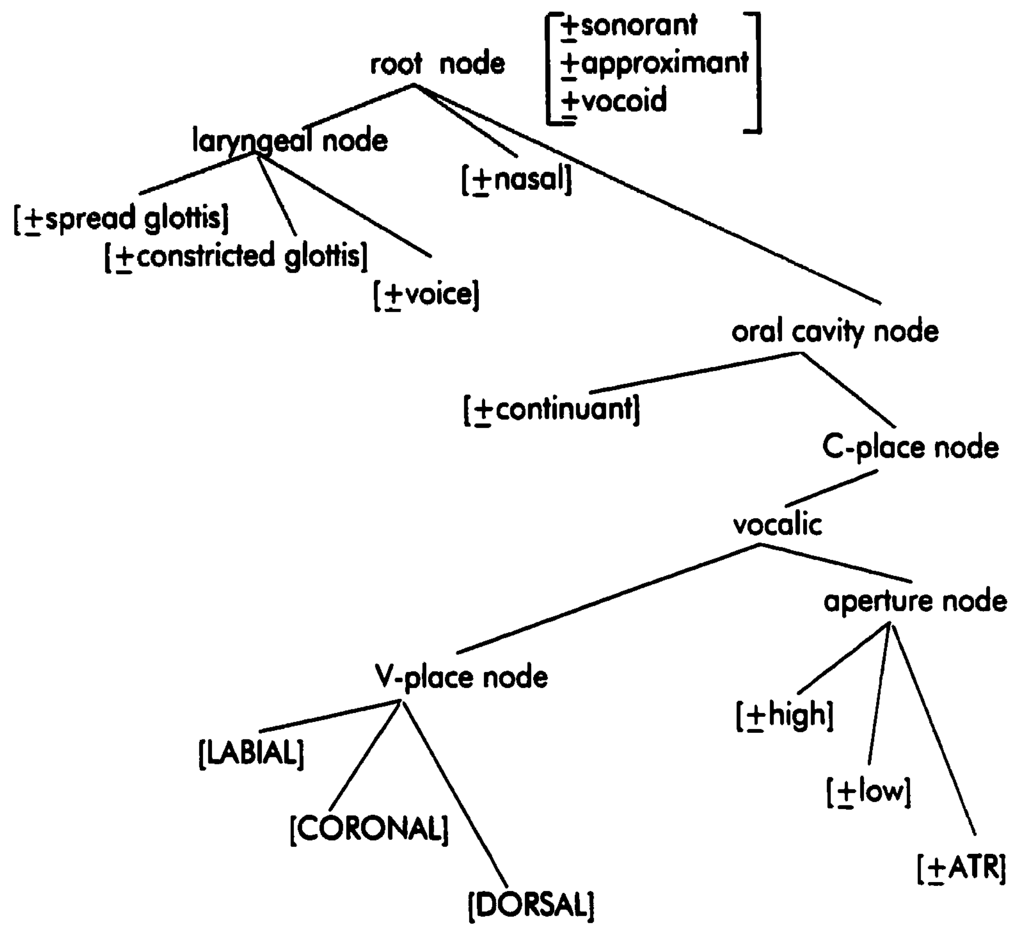

Figure 1.12. Vowel feature tree

Consonants which have a secondary articulation may be represented by means of the following diagram[8]:

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[7] I have followed Archangeli and Pulleyblank (1994:20) in using the features [±high], [±low] and [±ATR] to capture vowel height, instead of the feature [±open] proposed by Clements and Hume (1995: 283); however, I have followed Clements and Hume in having the features pertaining to vowel height depend from an aperture node.

[8] To simplify the diagram the features [±anterior] and [±distributed] are not shown in figure 1.13.

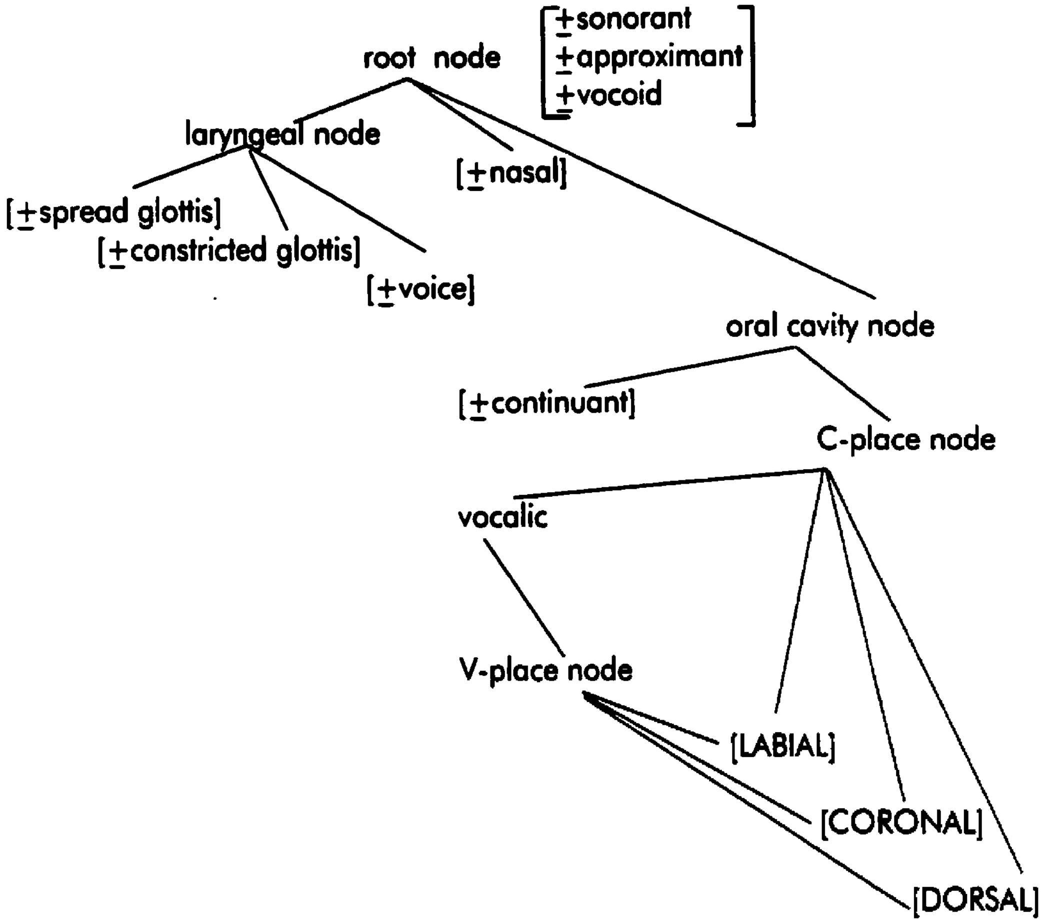

Figure 1.13. Consonant with secondary articulation feature tree

The differences between the representations of consonants and vowels, shown in the figures above, will be discussed below.

Clements and Hume group features together based on articulatory anatomy, arguing that there are several independent articulators operating within the oral tract: lips, tongue front and tongue body.

All of these oral tract articulators are represented by separate features: lip articulation by [LABIAL], tongue front articulation by [CORONAL] and tongue body articulation by [DORSAL]; these features are all grouped under the place node. These place features are either present or absent (privative), and not ± (binary) as in linear phonology[9]. This privative representation is justified because "phonological rules do not appear to operate on the negative values of these categories" (Clements and Hume 1995: 252). Thus, in feature geometry, a phonological rule may refer to the presence of one of these place features, but not to its absence.

The feature [CORONAL] has two dependents of its own: [±anterior] and [±distributed], which capture the distinctions between different coronal sounds. For example, a [+anterior], [-distributed] sound is apico-dental; and a [+anterior], [+distributed] sound is lamino-alveolar.

The place node is depicted as follows (Clements and Hume 1995: 270):

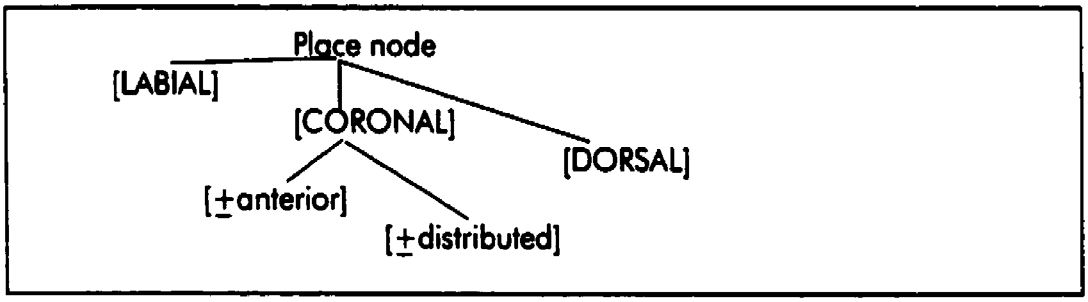

Figure 1.14. Place node structure

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[9] Privative features are written in capital letters to distinguish them from binary features.

The place node described above is more properly the C-place (consonant place) node. Vowels contain an extra node not present in consonants, the vocalic node, which depends from the consonant place node. The vocalic node has two dependents: the vocalic place node (V-place node) and the aperture node. The V-place node has the same features as the consonant place node ([LABIAL], [CORONAL] and [DORSAL]). These place features serve to indicate place of articulation and rounding for vowels.

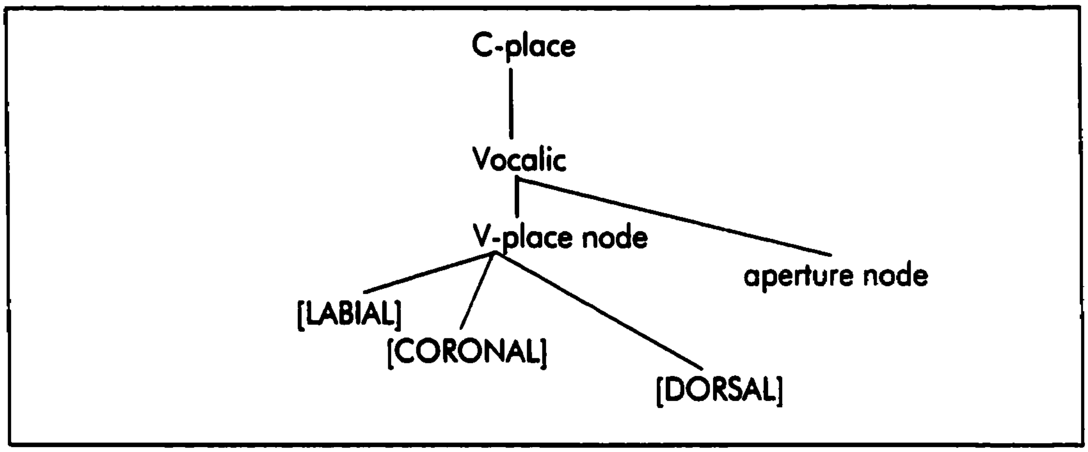

Figure 1.15. Vocalic node structure

Clements and Hume argue that the place node is a dependent of a higher node, the oral cavity node, which branches into the place node and the terminal node [±continuant].

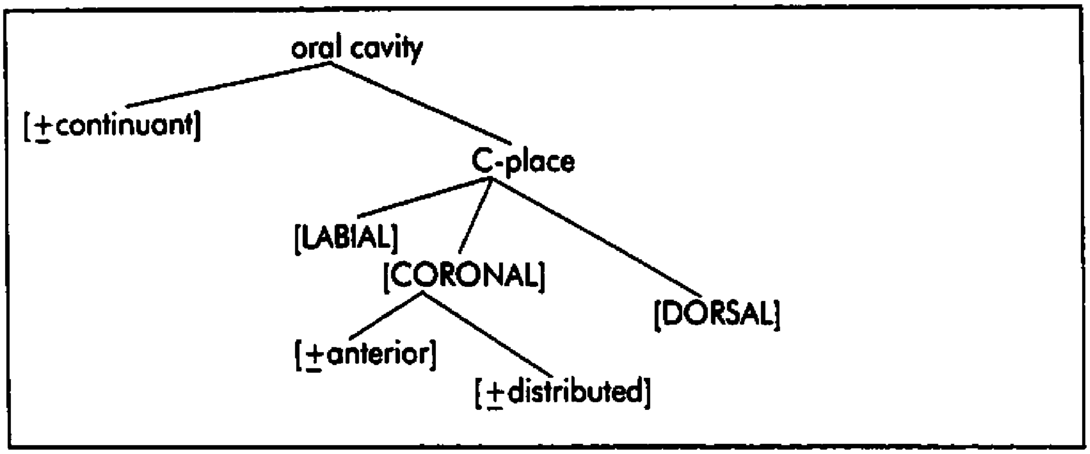

Figure 1.16. Oral cavity node structure

Others argue that the [±continuant] feature should be placed within the place node, with a [±continuant] feature depending from of each of the articulator features, making the oral cavity node superfluous (Padgett: 1995). As nothing in Mushuau Innu hinges on this assumption, I will follow Clements and Hume (1995).

Aside from the oral cavity node, with its [±continuant] and place node dependents, there are several other nodes.

Feature geometry represents laryngeal constriction with an independent node (Clements and Hume 1995: 270).

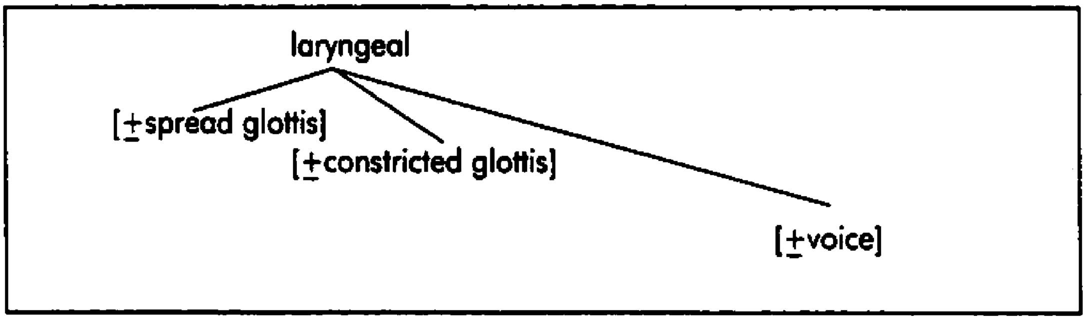

Figure 1.17. Laryngeal node structure

The dependents of the laryngeal node are: [±voice], [±spread glottis] and [±constricted glottis]. [±voice] represents the voiced - voiceless distinction, [+spread glottis] represents aspirated sounds, while [+constricted glottis] represents ejective or glottalized sounds.

The oral cavity and laryngeal nodes depend from a root node, which serves to define the sound as a single unit, and contains the major class features of the sound: [±sonorant], [±approximant] and [±vocoid][10]. Nasality, [±nasal], is represented as a dependent of the root node by Clements and Hume.

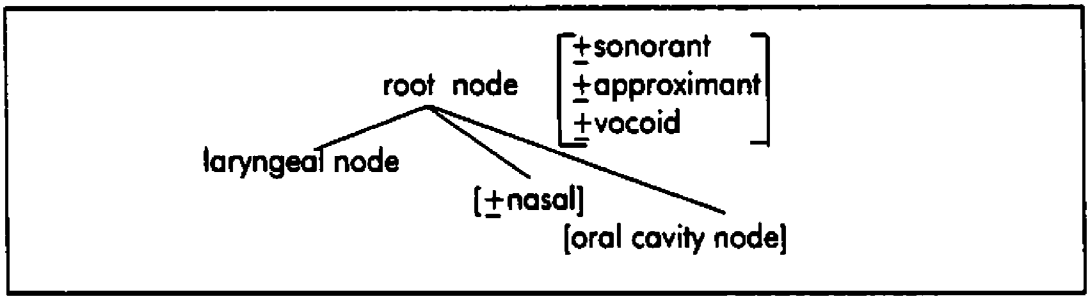

Figure 1.18. Root node structure

Root node features express sonority: segments with greater sonority have more '+' values in the root node. A segment which is [+sonorant], [+approximant] and

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[10] Unlike other features, which are terminal points on the feature tree, these features have dependents. The reason for this convention is that these are not autosegmental features (Padgett 1995: 4). This means that these features do not spread to neighbouring segments: there are no phonological processes that involve one segment taking on the [±sonorant], [±approximant] or [±vocoid] specification of a neighbouring segment. This restriction is captured in feature geometry by placing these features within the root node, so that spreading and delinking of these features cannot happen independently of a change of the entire sound.

[+vocoid] (a vowel) is the most sonorous, while a segment that is [-sonorant], [approximant] and [-vocoid] (an obstruent) is the least sonorous.

Aside from the place features shared with consonants, vowels require a further node, as height differences cannot be represented by means of these place features. Vowel height or aperture is characterized by the features [±high], [±low] and [±ATR]. [ATR] stands for Advanced Tongue Root and refers to the position of the base of the tongue. [ATR] is used to capture the distinction between tense and lax vowels, with tense vowels having a more advanced tongue root than lax vowels; so, [e] (a tense vowel) is [+ATR] while [ɛ] (a lax vowel) is [-ATR].

The model of feature geometry described above represents segments with secondary articulations as having both consonant and vocalic place node specifications. Mushuau Innu has several segments which may be analyzed as having secondary articulations. For example, the segment /m^{w}/ is represented as having the C-place feature [LABIAL], as well as the V-place feature [LABIAL]. This means that the single place specification [LABIAL] is attached to both the V-place node and directly to the C-place node (there is only one place specification, which is doubly attached). Secondary articulations are represented by means of the structure shown in figure 1.13. The representation of /m^{w}/ would be as follows:

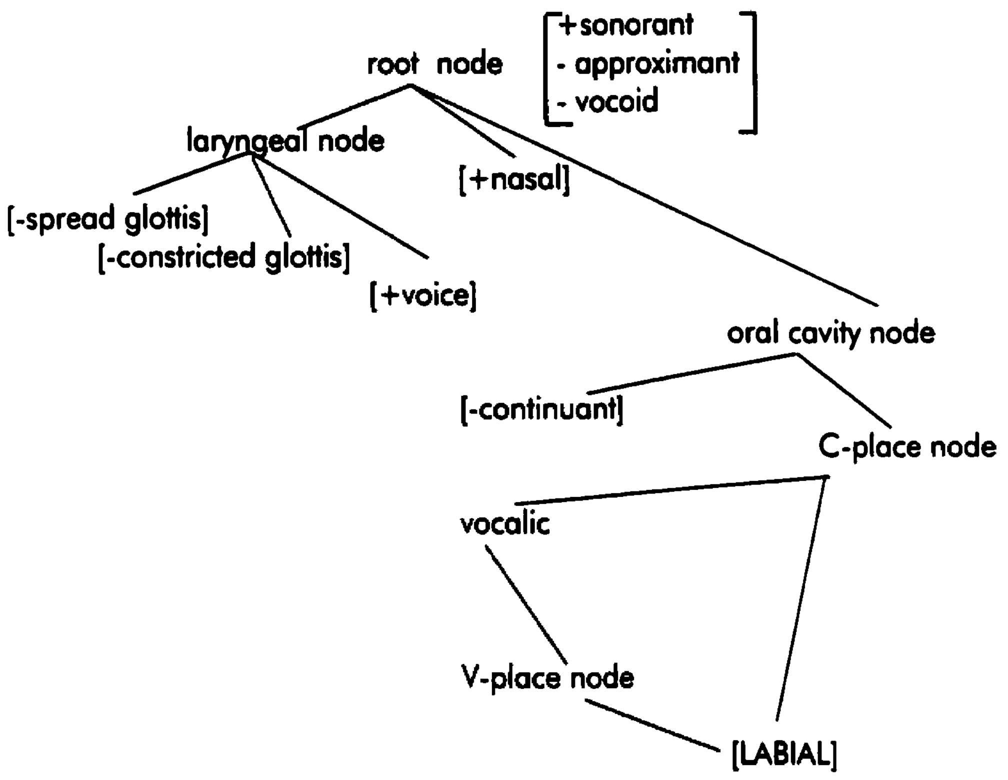

Figure 1.19. Feature geometry representation of /m^w/

Phonological processes are described in feature geometry in terms of spreading, delinking and coalescence. Spreading describes an assimilation process, by which a feature of one sound spreads to another, while delinking is the process by which segments, or particular features within a segment, are deleted. Delinking also describes neutralization processes. Coalescence refers to a process by which two sounds merge their specifications to form a third sound which has aspects of both of the sounds that underwent the coalescence.

1.9.2. Underspecification

This thesis assumes underspecification of features, following Archangeli (1988), among others. Underspecification assumes that redundant features are not present in the underlying representation, but are filled in by later redundancy rules or default rules. Many of these rules are universal while others are language specific[11].

1.9.3. Lexical phonology

This thesis assumes a lexical phonology framework (cf. Mohanan (1986) and Kiparsky (1985)). Lexical phonology assumes that there are two types of phonological rules: lexical and postlexical. Lexical rules are those which apply during morphological affixation. They are characterized as being "structure preserving"; that is they do not introduce sounds which are not present in the underlying inventory of the language. Lexical rules can also have exceptions; for example, certain words can be arbitrarily specified as not undergoing a particular lexical rule. Finally, lexical rules can be sensitive to morphological information.

Postlexical rules, which apply after all morphology and lexical phonology has taken place, are characterized as non-structure-preserving and exceptionless[12]. Any rule

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[11] The privative nature of the place features, described above, is not considered to be an example of underspecification. Underspecification assumes that a default positive or negative value is assigned for any redundant feature during the derivation. A segment, if missing a privative feature, is not assigned a redundant negative value in the course of the derivation. For example the labial consonant /p/ is never assigned the negative value [-coronal].

[12] Saying that postlexical rules are exceptionless means that postlexical rules do not have lexical exceptions; that is, no lexical item can be specified as consistently failing to undergo a postlexical rule. However, postlexical rules can be optional. This means that

which introduces sounds which are not in the underlying inventory of the language (such as the post-vocalic velarization of /l/ to [ɫ] in English) is postlexical and should apply everywhere its environment is met. Postlexical rules are not sensitive to morphological information.

This thesis also assumes a model in which the phonetic implementation level follows the postlexical level. This is the level of the phonology that translates the features that result from phonological rules and representations into the articulatory gestures of the vocal apparatus (and so is responsible for the phonetic output of the sound system);

> "the phonological surface representation which ultimately results from the phonological grammar consists of some configuration of phonological features and structures [...] the translation of this discrete representation into quantitative physiological activity [...] is taken care of by rules of phonetic implementation" (Gussenhoven and Jacobs 1998: 129).

Rules of phonetic implementation can account for why different languages articulate the 'same' sound in slightly different ways. Phonetic implementation rules are often not phonologically motivated (though they may be).

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the same item may undergo a postlexical rule in one elicitation, but fail to undergo the rule in another (a lexical exception would not have this variability; an item which is lexically specified as failing to undergo a rule will always fail to undergo that rule).

This thesis assumes the dichotomy of lexical versus post-lexical rules, as well as the distinction between these rules and phonetic implementation rules.

The different levels in which these three types of rules, outlined above, apply can be shown schematically as follows, following, with some modification, Gussenhoven and Jacobs (1998: 128):

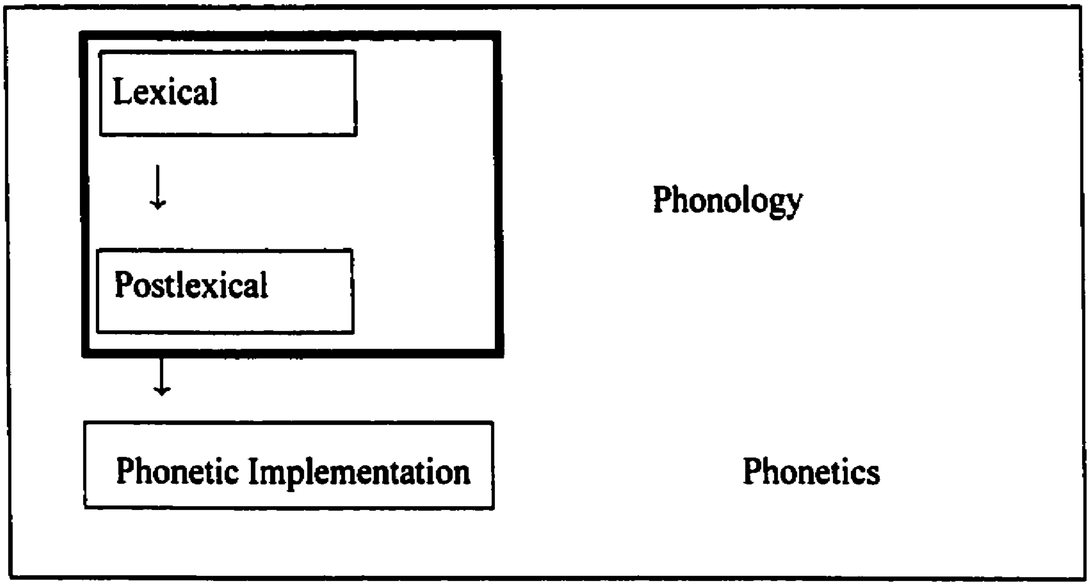

Figure 1.20. Levels of rules in lexical phonology

1.9.4. Obligatory Contour Principle

This thesis assumes the Obligatory Contour Principle (OCP), which states that "at the melodic level, adjacent identical elements are prohibited" (McCarthy 1986: 208). The scope of this principle has been debated: McCarthy (1986) argues that the OCP is inviolable while Optimality Theory counts the OCP as a violable constraint (Russell 1997: 122).

The implication of a prohibition on identical adjacent elements is that any tautomorphemic sequence of phones which have any of the same features is ruled out. For example, the OCP rules out any sequence of labial consonants (such as [mp]), as this would create adjacent [LABIAL] specifications. Such a sequence is shown in the figure below.

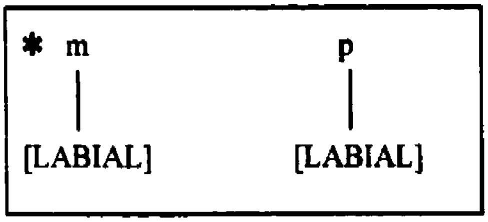

Figure 1.21. Potential OCP violation created by the sequence [mp]

Of course many languages (such as English) allow sequences of [mp] and this apparent violation of the OCP is avoided by assuming that when a language does permit tautomorphemic adjacent phones to have identical features (as when English permits the sequence [mp]), only one feature is actually present, and that feature is shared by the two phones, as shown in the figure below:

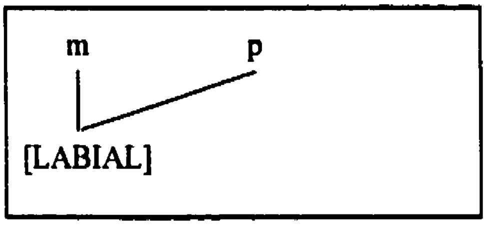

Figure 1.22. OCP violation avoided in the sequence [mp] by feature sharing

The sharing of features between phones allows identical elements to be adjacent without violating the OCP. This sharing of features may also occur between phones that are not adjacent (at least on the phonetic level). For example, in many Semitic languages vowels and consonants are considered to be underlyingly on different tiers. This means that in a sequence of /CVC/ the two consonants are adjacent on one tier while the vowel is on another tier. An example of this tier division is represented in the figure below:

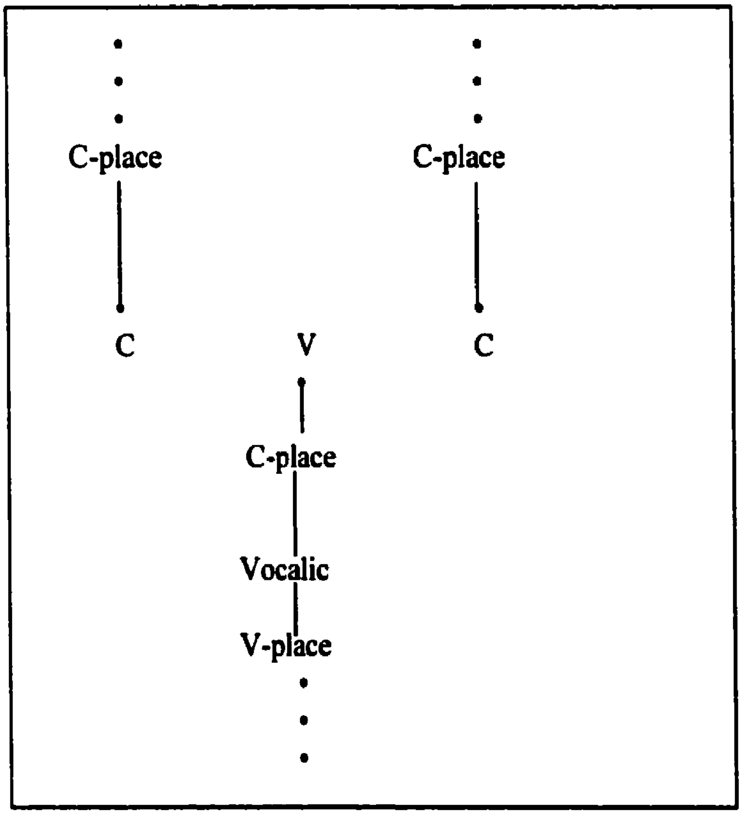

Figure 1.23. Example of tier division between consonants and vowels

In such languages, identical consonants separated by a vowel must share a single feature specification in order not to violate the OCP (a sequence of identical vowels separated by a consonant would have to fulfil the same requirement). For example, the sequence /nan/ in such languages would be represented as in the figure below:

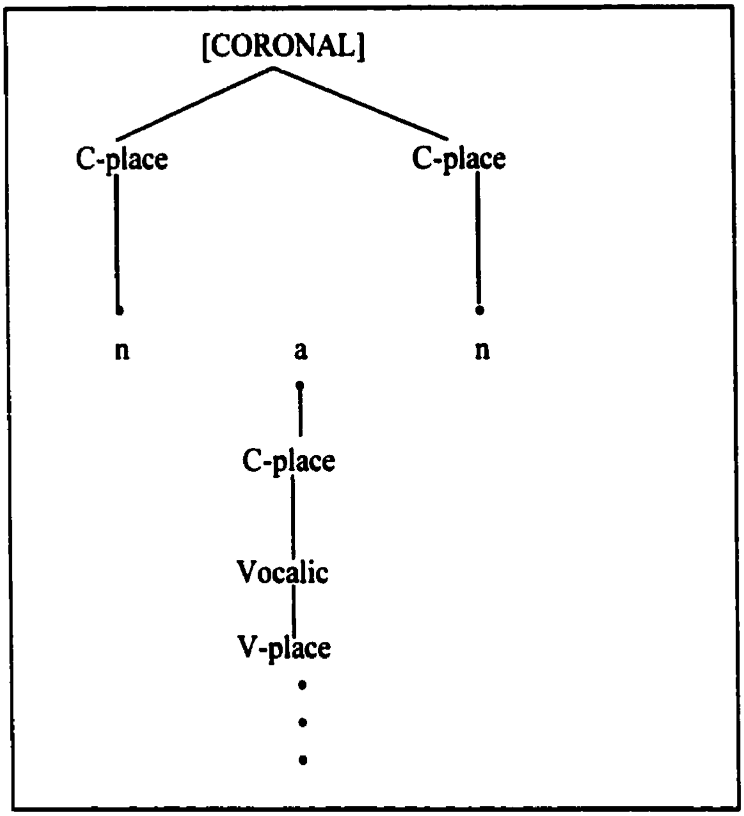

Figure 1.24. Feature sharing in the sequence /nan/

The OCP plays a role in syncope, as syncope cannot occur between identical tautomorphemic consonants in languages where vowels and consonants are on the same tier: "syncope of a vowel between identical consonants would produce a configuration that violates the OCP and is therefore blocked" (McCarthy 1986: 221). as the deletion of the vowel would create a sequence of identical consonants, which is prohibited by the OCP. Languages which separate vowels and consonants onto different tiers (as shown in figure 1.23.) can have syncope between tautomorphemic identical consonants: since the consonants share a single feature specification, no OCP violation is created by removing the vowel between them.

As Mushuau Innu allows tautomorphemic sequences of identical consonants (see sections 2.1.2.2. and 2.1.3.2), vowels and consonants must be separated onto different tiers. This indicates that syncope between tautomorphemic identical consonants is not prohibited by the OCP in Mushuau Innu.

This sharing of feature specifications between identical phones does not occur between phones separated by a word boundary in Mushuau Innu. For example, a word ending with /t/ does not share its feature specification with the initial /t/ of a following word. This constitutes a potential OCP violation in Mushuau Innu. Mushuau Innu avoids this OCP violation through epenthesis as discussed in section 3.1.5.

1.9.5. Syllable theory

The traditional view of the syllable (Kenstowicz 1994: 252) is that of a structure consisting of a nucleus (typically a vowel), which may be preceded by an onset (typically one or more consonants) and followed by a coda (typically one or more consonants). The coda and nucleus together make up the rhyme. The structure of the syllable in this analysis is shown in the figure below (the symbol σ is used to indicate 'syllable'):

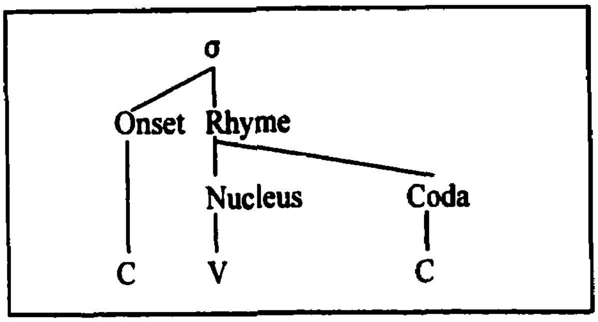

Figure 1.25. Traditional view of syllable structure

For ease of exposition, reference is made to the categories: onset, nucleus and coda; however, this thesis follows Broselow's (1995) and Kenstowicz' (1994) description of moraic syllable structure. In this theory, the categories nucleus and rhyme are replaced by timing units called moras (μ). Short vowels are assigned one mora, long vowels two moras. Onsets are universally non-moraic, while coda consonants are assigned moras in some situations but not in others. The moraic structure of the example syllables /ta/ and /ta:/ are provided in the figures below:

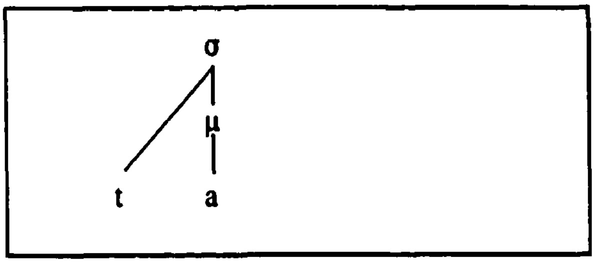

Figure 1.26. Moraic syllable structure of /ta/

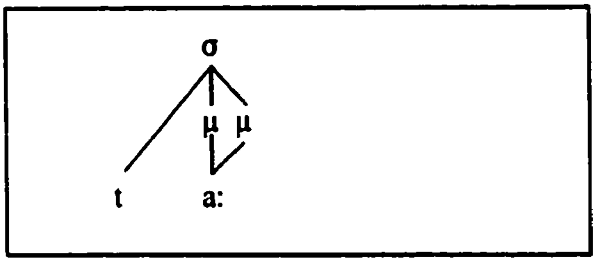

Figure 1.27. Moraic syllable structure of /ta:/

Onsets are universally preferable to codas, so a single consonant between two vowels will always syllabify as the onset of the second vowel rather than the coda of the first. An example of this syllabification is shown for the sequence /ata/ in the figure below.

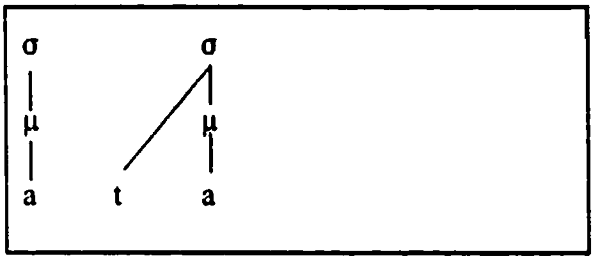

Figure 1.28. Moraic syllable structure of /ata/

The assignment of moras to coda consonants is called *weight-by-position* (Broselow 1995: 190). According to weight-by-position all syllables have either one or two moras. If a vowel has one mora (and so is a short vowel), then, if the syllable has a coda, the first coda consonant is assigned the remaining mora. If the vowel has two moras (and so is long) then there are no moras left and any coda consonant is non-moraic. These two possibilities for coda consonants (moraic and non-moraic) are shown for the example syllables /dat/ and /da:t/ in the figures below:

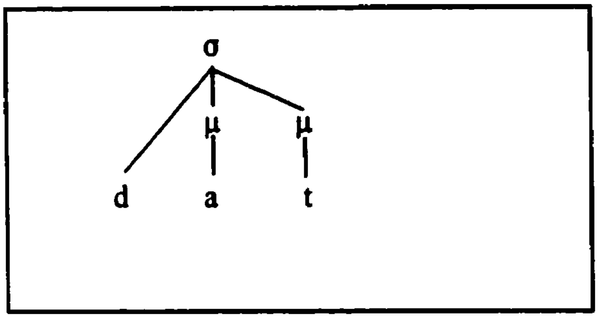

Figure 1.29. Moraic syllable structure of /dat/

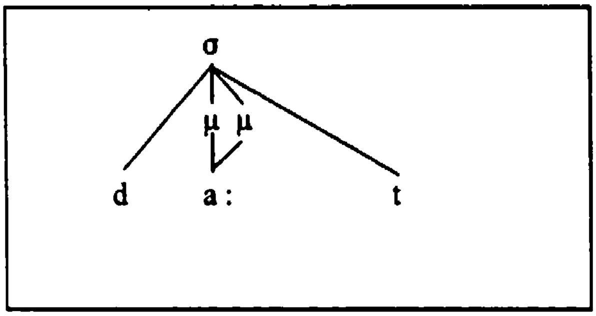

Figure 1.30. Moraic syllable structure of /da:t/

Syllables that contain two moras are heavy, while those containing only one mora are light. It is often argued that all languages have weight-by-position (Broselow 1995: 201), and so all languages have heavy and light syllables; however, the division of syllables into heavy and light does not necessarily reflect the patterning of syllables with respect to stress: "a language may restrict the set of possible stress-bearing (and/or tone bearing) segments to those above a particular sonority threshold" (Broselow 1995: 201). So, while all syllables that have codas are heavy, the accentual system of a given language may not recognize certain codas as causing a syllable to be heavy[13].

Geminates are represented in moraic theory as being single consonants which are doubly linked: the consonant is linked to a mora of one syllable (forming as the coda of that syllable) as well as being linked to the following syllable as the onset of that syllable. This structure is shown for the example sequence /abːa/ in the figure below:

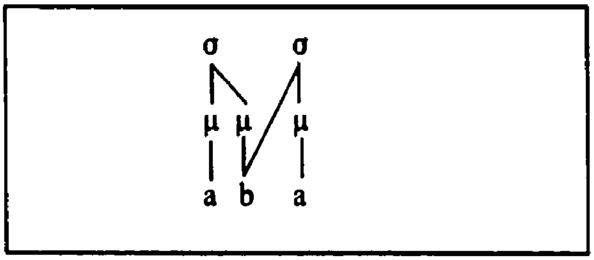

Figure 1.31. Moraic syllable structure of /abːa/

This representation of geminates requires that geminates not occur after long vowels, as syllables cannot contain three moras. Similarly, geminates cannot occur word-finally, as there is no following syllable for which the consonant can act as an onset. Mushuau Innu fits this generalization, as geminates are disallowed after long consonants and word-finally[14].

---

[13] As nothing in the phonology of Mushuau Innu hinges on the assumption, I have followed Broselow (1995) in assuming that all languages (and therefore Mushuau Innu) have weight-by-position, though weight-by-position is largely ignored in the accentual system of Mushuau Innu (see section 3.2.).

[14] Although geminates are disallowed after long vowels and word-finally, clusters are not prohibited in these positions. In some instances, Mushuau Innu allows a cluster of identical phones in these positions (these identical phones would share a single feature specification in order not to violate the OCP discussed in section 1.9.4.). Such a cluster is phonetically indistinguishable from a geminate.

All the syllables in a word are linked together at the word level (indicated by the symbol ω). The representation for the example word /dada/ would be as shown in the figure below[15]:

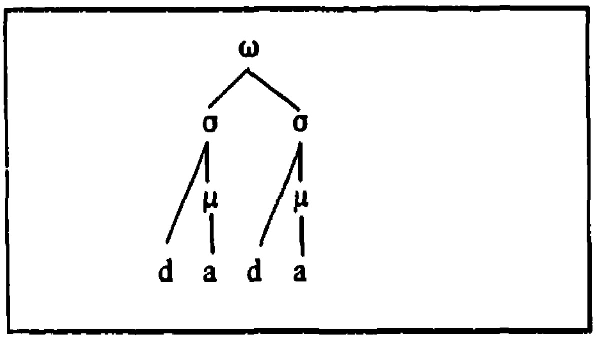

Figure 1.32. Moraic syllable structure of /dada/

1.9.5.1. Sonority sequencing

This thesis assumes the Sonority Sequencing Generalization (SSG) as described by Selkirk (1984). Sonority sequencing is based on a ranking of all segments on a sonority index. This index is reproduced below from Selkirk (1984: 112); the higher the number associated with a segment, the greater its sonority.

Sonority ranking:	10	9	8	7	6	5	4	3	2	1	.5
Segment:	a	e,o	i,u	r	l	m,n	s	v,z,ð	f,θ	b,d,g	p,t,k

Figure 1.33. Sonority index

---

[15] Syllables are also grouped into a constituent below the word level called the *foot*. The foot is described in section 1.9.6. below.

As seen in this index, [a] is the most sonorous segment, while voiceless stops are the least. Selkirk offers the following generalization on how this sonority ranking affects syllable structure:

> "In any syllable, there is a segment constituting a sonority peak that is preceded and/or followed by a sequence of segments with progressively decreasing sonority values" (Selkirk 1984: 116).

This generalization requires that each segment in an onset must be more sonorous (have a higher ranking on the sonority index) than the preceding segment (from left to right). Similarly each segment in a coda must be less sonorous (have a lower ranking on the sonority index) than the preceding segment (from left to right). The degree of sonority rise between segments in an onset, or sonority fall between segments in a coda, varies from language to language[16].

Many languages allow a greater number of consonants to occupy onset and coda positions at the edges of words than are permitted in medial onsets and codas. Such consonants are licenced through an *appendix*. An appendix may attach to either end of a word (some languages may allow a word-final appendix, others may allow a word-initial appendix) and acts as a place holder for an 'extra' consonant. In Mushuau Innu, an

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[16] There are instances in which sonority sequencing is violated; for example, the coda in the English word *backs* [bæks] has a rise in sonority ([s] is more sonorous than [k]). There are methods of dealing with such violations, but as Mushuau Innu does not violate sonority sequencing, these methods are not dealt with in the thesis.

appendix allows word-final codas to contain an extra consonant, which is otherwise disallowed.

1.9.6. Metrical theory

This thesis assumes the metrical theory advanced by Hayes (1994), Kenstowicz (1994) and Kager (1995). Within this framework the syllable is the stress-bearing unit[17]. Syllables are parsed into higher constituents called feet, consisting of one stressed (or strong) syllable and one unstressed (or weak) syllable. There are two types of feet: trochees and iambs. A trochee consists of the sequence: stressed - unstressed; an iamb consists of the sequence: unstressed - stressed.

Hayes depicts metrical structure by means of a bracketed grid. On the first level of the grid, each syllable of a word is marked with an 'X'. For example, the English word *Mississippi* would have the following structure (Hayes 1994: 38):

1 X X X X Accentable syllables
Mississippi

These syllables (each marked with an 'X') are then parsed into feet. This is done by pairing syllables together. The direction in which syllables are paired (referred to as the *direction of parsing*) is language specific. Parsing yields the following structure for *Mississippi*:

---

[17] The terms 'stress' and 'accent' are used interchangeably in this thesis.

```
2    (X   X) (X   X)    Accentable syllables, feet
     Mississippi
```

The syllable in the strong position in each foot is then assigned an 'X' on the next level of the metrical grid. So, if the language has trochaic feet (like English), then the first syllable in each foot is assigned an 'X' on the next level of the grid. If the language has iambic feet, then the second syllable of each foot is assigned an 'X' on the next level of the grid. As English has trochaic feet, the grid structure of *Mississippi* would be as follows:

```
3     X        X        Feet heads
     (X   X) (X   X)    Accentable syllables, feet
     Mississippi
```

The 'X' marking the stressed member of each foot is the head of that foot. All of these heads are grouped together to form the word level of the metrical grid.

```
4    (X        X)       Feet heads
     (X   X) (X   X)    Accentable syllables, feet
     Mississippi
```

To determine the position of the most prominent syllable in the word, an 'X' is placed on the next level of the metrical grid over the rightmost or leftmost head in the word, the choice of rightmost or leftmost head being language specific. As English assigns word stress to the right edge, the metrical structure of *Mississippi* is as follows:

5	X	Word accent
	(X X)	Feet heads
	(X X) (X X)	Accentable syllables, feet
	Mississippi	

Some languages do not allow light syllables (L) to occupy the strong position in a foot. Similarly, languages do not allow heavy syllables (H) to occupy the weak position in a foot (light and heavy syllables are defined in section 1.9.5.). Such sensitivity to weight distinctions is referred to as *quantity sensitivity.*

In a quantity sensitive language, light and heavy syllables that cannot be parsed into trochaic feet (H L) or iambic feet (L H) are dealt with in different ways. In many languages a sequence of two light syllables which cannot be parsed with heavy syllables into typical feet can together form a single foot (with the form (L L)). Similarly, a sequence of heavy syllables that cannot be parsed with light syllables to form typical feet can each be considered an independent foot (each with the form (H)). This allows for three types of trochaic syllables[18]: (H L), (L L) and (H); and three types of iambic syllables: (L H), (L L) and (H).

When a single light syllable cannot be parsed with any other syllable to create any of the above types of feet, many languages (including Mushuau Innu) simply do not parse

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[18] Hayes (1994) proposes a modification to this theory, distinguishing only two types of trochees. As Mushuau Innu is an iambic language, this modification will not be discussed.

the stray light syllable, and so the metrical grid is 'blind' to it.

1.9.6.1. Extrametricality

In some languages, certain elements, typically syllables, may be invisible to parsing (and so are not parsed into feet). This is referred to as *extrametricality*. Any extrametrical constituent must be at an edge of its domain, typically the right edge. For example, the parsing of the sequence H L H L L into trochaic feet would be as follows in a language with final syllable extrametricality:

6 (*   *)   Feet heads
(* *)(* *)   Accentable syllables, feet
H L H L <L>[19]

Extrametricality cannot apply if it would render an entire domain extrametrical; if, for example, a language has extrametrical word-final syllables, monosyllabic words could not show extrametricality as that would render the entire word extrametrical.

The theory outlined above allows the predictable stress of any language to be expressed through a small set of parameters. These parameters are: the type of foot (trochaic or iambic), the direction of parsing (right-to-left or left-to-right) and whether or not the language is quantity sensitive. The elements (if any) which can be extrametrical must also be specified.

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[19] Extrametricality is indicated by enclosing the extrametrical element in angle brackets.

1.10. Significance of proposed research

To date, the phonology of Mushuau Innu has not been systematically described. This thesis will fill a gap in the information available on Montagnais-Naskapi, assisting systematic comparison between dialects.

Mushuau Innu has an extremely small population of native speakers who are being influenced by the dominant language, English (MacKenzie 1980: 231). This influence may cause Mushuau Innu to change over time. This thesis will describe the phonology of the language as it was in 1971, allowing any innovations that have occurred since then to be recognized and taken into account in any historical comparison

1.11. Note on orthography

Although there is a proposed standard orthography for Innu-aimun, complete consensus has not yet been reached. The orthography used in this thesis follows the standard for Innu-aimun which is accepted by speakers in Quebec. The orthographic representations used in this thesis were provided by Marguerite MacKenzie. As this orthography is a cross-dialectal compromise, there are many disagreements between it and the phonetic notation of Mushuau Innu. For example, a phonetic [n] will often be transcribed as <i>, due to an alternation between [n] and [y] (discussed in section 3.2.). Other times, because of morphological differences between Mushuau Innu and other dialects, the orthography will indicate a completely different morpheme from the one transcribed in the phonetic notation. Length marks on vowels have been included in the orthography within the thesis, but are absent in the proposed standard. The symbol <ǹ> represents an /n/ which is derived from PA *l. The word-final phoneme /ʧ/ is represented by the orthographic cluster <t(sh)>; the rounded brackets around <sh> indicate that in related dialects the fricative component is absent and the sound surfaces as [t]. Similarly, rounded brackets around <h> in the orthography indicate that this segment, while present in Mushuau Innu, is absent in many Montagnais dialects.

The orthography often reflects historical forms or forms found in related dialects, and for this reason should not be taken as indicative of the underlying representation of Mushuau Innu words.

I have used the International Phonetic Alphabet (IPA) to transcribe the phones of Mushuau Innu, with the exception of the palatal glide, transcribed as [j] in IPA, which I have transcribed as [y]. Within the thesis, for ease of exposition, the glides [w] and [y] are occasionally included within slant brackets (indicating phonemic status) even though these glides are allophones of the vowels /u/ and /i/ respectively (as discussed in section 2.2.4.3.).

Numbered examples of Mushuau Innu words consist of three parts: the first part is the Mushuau Innu word, in the phonetic notation provided by José Mailhot, the second part is the English gloss and the third part is the orthographic representation. The phonetic form of Mushuau Innu words is generally given without square brackets. In numbered examples phonetic form is given in plain font, but within the body of the text italics are used. Orthographic representations are given without angle brackets in numbered examples, but with angle brackets within the body of the text. Occasionally a period < . > is used to mark syllable boundaries within examples.

Chapter two: allophones and their phonemic affiliation

This chapter will discuss the distribution of phones in the Mailhot data and their phonemic affiliation, as well as the rules to derive the various allophones.

The description below consists of observations on a finite set of data. Some of these observations are not phonologically significant, but are due to quirks in the data; for example, the fact that [pw] occurs predominantly before [a:] (as discussed in section 2.1.1.1.) is simply a coincidence due to the relatively small number of items in the data containing [pw]. Such observations are marked with an asterisk and are included in the thesis in order to be faithful to the data.

Lists of examples are presented throughout the thesis. In cases where the list exemplifies environments in which a phone occurs, each entry in the list is an independent example; however, in cases where the list of examples is illustrating an alternation between different phones, the first entry in the list is to be compared with the second, the third entry with the fourth, etc... (if two entries are different elicitations of the same morpheme, they will be listed on the same line, separated by a slash).

2.1. Consonants

This section describes the various consonant allophones of Mushuau Innu and assigns them to phonemes. The following chart shows the consonant phones of Mushuau Innu; segments and clusters are grouped together because several clusters are phonetically realized as single segments (such as /hk/, which has [x] as its primary allophone, see section 2.1.1.3.); in addition, several segments which are written with two graphemes are in fact single segments (such as /kw/, see section 2.1.5.5.).

Consonantal phones:

p	t	k
pp	tt	kk
b	d	g
pw	tw	kw
bw	-	gw
hp	ht	-
-	-	hkw
p^h	t^h	k^h

Table 2.1. Oral Stops

m	n	ŋ
mm	nn	-
mw	nw	-
-	nnw	-
-	n̩	-
-	hn	-

Table 2.2. Nasals

f/ɸ	s, θ	ʃ, ç	x	h
-	ss	ʃʃ	-	-
-	z[20]	ʒ	-	-

Table 2.3. Fricatives

ʦ	ʧ
-	ʧʧ
-	ʤ
-	tʤ

Table 2.4. Affricates

Figure 2.1. below shows the phonemic grouping of allophones of single segments (sounds that are underlying clusters are dealt with in figure 2.2.).

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[20] There is only one instance of [z]. For various reasons it appears to be an error and will not be discussed further.

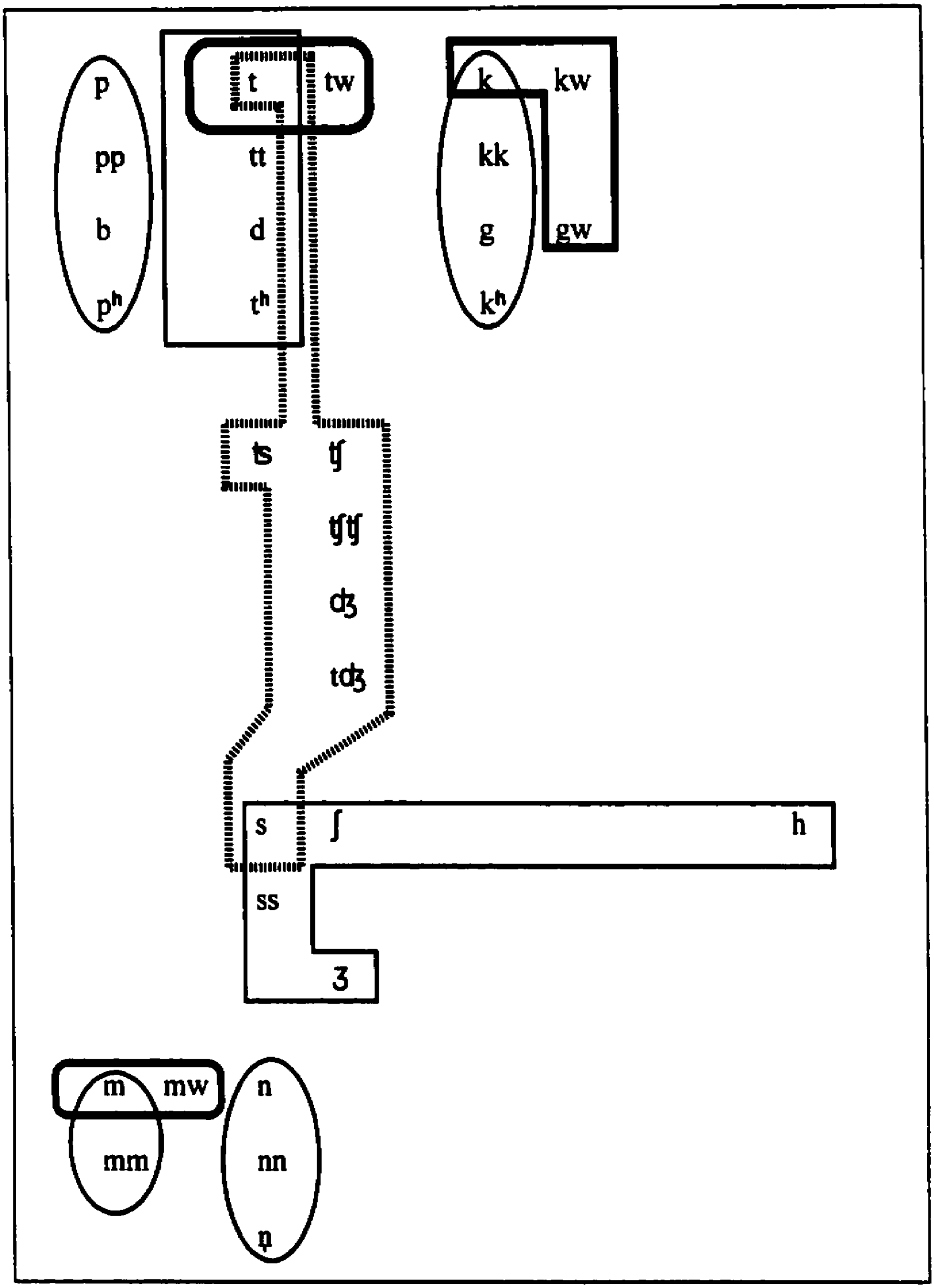

Figure 2.1. The consonant allophones of Mushuau Innu and their phonemic groupings

The allophones of each consonantal phoneme are enclosed by a different line in Figure 2.1. This demonstrates, for example, that the phoneme /k/ has allophones [k], [kk], [g] and [kʰ], while the phoneme /kw/ has allophones [k], [kw] and [gw].

Figure 2.2. shows the realization of those consonant clusters of Mushuau Innu whose status as clusters is discussed within the thesis[21]. The segments [p], [t] and [k] are shown in the figure because they are potential realizations of the clusters /hp/, /ht/ and /hk/. The group of allophones which includes [x] and [k] realizes the cluster /hk/, and the group of allophones which includes [xw] and [kw] is the cluster /hkw/.

---

[21] The status of /nn/ as a cluster is discussed in section 2.1.2.2., the cluster status of /ss/ is discussed in section 2.1.3.2., and the cluster status of preaspirates is discussed in sections 2.1.5.4. and 3.1.2.

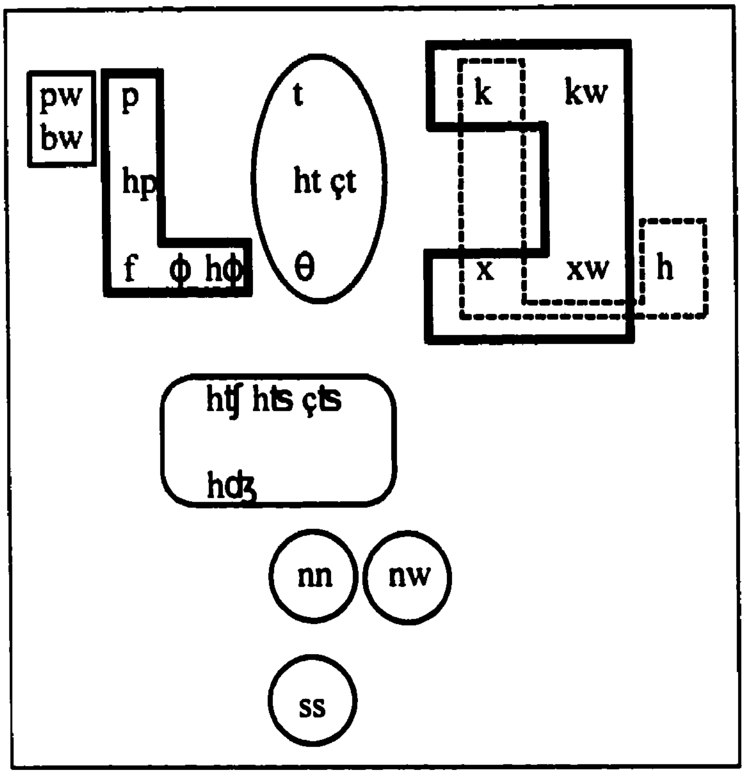

Figure 2.2. Notable clusters of Mushuau Innu

The evidence for the analysis represented in figures 2.1. and 2.2. is given in sections 2.1.1. to 2.1.5.6. below.

2.1.1. Oral Stops

2.1.1.1. Labials

[p] occurs word-initially, word-finally and intervocalically, as well as after [s] and [ʃ].

7	pi:gʊttew	'ashes'	pî(h)kuteu
8	ʃi:ʃip	'bird (duck)'	shîshîp

9	wi:nnəp̱ɔw	'it is black'	uînipâu
10	wa:paw	'it is white'	uâpâu
11	usp̱iʃkʊnwawa	'their backs'	ushpishkunuâua
12	ʧiʃp̱əkɔw	'it is thick'	tshishpakâu

*[22][p] rarely occurs before [i:]; when it does, it is usually in word-initial position or following a long vowel.

13	p̱i:ʒʊm	'(see)[23] the sun'	pîshimᵘ
14	p̱i:wʊn	'it is snowing'	pîuan
15	mi:ʧu'wa:p̱i:hʦ	'house (loc.)'	mîtshuâ(h)pî(h)t(sh)

[pʰ] only occurs in one lexical item, where it alternates with unaspirated [p]. This indicates that (post)aspiration is non-phonemic and that [pʰ] is an allophone of /p/.

16	ʌ'ku:hp̱ʰ	'coat'	akû(h)p
17	utʌku:p̱ihʦ	'on his coat'	utakû(h)pî(h)t(sh)

---

[22] An asterisk is used throughout the thesis to mark observations which are not phonologically relevant, but are included to remain faithful to the data.

[23] Within glosses, material contained within brackets is either grammatical information, such as locative, exclusive, inclusive, plural, etc. or, it completes the gloss of the phrase from which the particular item cited was taken.

This gives us the following rule:

18 /p/ → [p] ~ [pʰ]

[pp] occurs intervocalically *usually after (sometimes before) a centralized vowel ([ʌ], [ə], [ɨ])[24].

19	nə'ppa:ya:ye	'if I sleep'	nipâiâne[25]
20	appɨʃah	'ropes'	apisha
21	nəppo	'he dies'	nipu

[p] and [pp] alternate, suggesting they are allophones of the same phoneme.

22	pʌga:'ʃɨmu	'he swims'	pakâshimu
23	ʧəppə'ka:ʃɨmʊn	'you (sg.) swim'	tshipakâshimun

[pp] never occurs *after a front vowel[26], after a long vowel, word-initially or

---

[24] [ɨ], [ʌ] and [ə] are centralized vowels. The analysis of these centralized vowels is discussed in sections 2.2.2.1. and 2.2.2.2.

[25] This last n in this item corresponds to [y] in the phonetic notation. This is due to an alternation between [n] and [y] which is discussed in chapter 3. This mismatch between phonetic and orthographic representation is seen throughout the thesis.

[26] As discussed in section 2.2.5.2. the restriction on long consonants occurring before front vowels is not a true constraint, but a coincidence created by the distribution of vowel allophones. For this reason I have not listed it among the tendencies.

word-finally, so I have proposed the following tendencies.

24 *[V:pp] *[#pp] *[pp#]

As discussed in section 2.1.5.1. below, consonant length is not phonemic but is the result of an optional consonant lengthening process which does not occur in the environments listed in 24. [pp] is an allophone of /p/ optionally occurring intervocalically after short vowels. This allows the formulation of the following rule:

25 /p/ → [p] ~ [pp] / V _ V (:)

[b] occurs intervocalically, *predominantly after [a:].

26	a:hʤa:bi:n	'bow'	â(h)tshâpî
27	wa:ˈbuyan	'blanket'	uâpuiân
28	wa:p/be:ˈkanʤew	'she washes'	uâpekâ(h)itsheu

As seen in the second example above, [p] and [b] alternate freely in this position, suggesting they are allophones. This gives us the following optional rule:

29 /p/ → [p] ~ [b] / V _ V

The patterning of [p], [p^h], [pp] and [b] indicates that these are all allophones of the phoneme /p/. This conclusion is consistent with evidence from related dialects where neither voicing nor length is phonemic for stops (Wolfart 1996: 430).

*[pw] occurs almost exclusively before [a(:)], usually in intervocalic position.

30	tehtʌpwa:gʌn	‘chair’	tetapuâkan
31	uʃpwa:'gɛy	‘pipe’	ushpuâkan

[bw] always occurs intervocalically. This suggests that [bw] is simply the voiced counterpart of [pw].

32	uska:bwuyan	‘new blanket’	ushkâpuiân
33	ubwiwɨyʃəp	‘feather’	upîuîship

[hp] always occurs after a long vowel[27]. Preaspirated consonants in some dialects of Montagnais-Naskapi cause lengthening of a preceding vowel (MacKenzie 1980: 67). This lengthening can be followed by loss of the aspiration, leaving a long vowel followed by a plain consonant. In Mushuau Innu, [hp] alternates with [p], [ɸ], [hɸ] and [f]. This demonstrates that [p], [ɸ], [hɸ] and [f] are allophones of [hp], occurring in free variation.

34	ʌku:hpʌ /ʌku:hɸʌ /ʌ'ku:fa	‘coats’	akû(h)pa
35	'stuku:ɸ	‘(take off) your coat’	tshitakû(h)p
36	utʌku:pihʦ	‘on his coat’	utakû(h)pî(h)t(sh)

---

[27] There is only one lexical item in the data with [hp], which was elicited eight separate times.

This gives us the following optional rules:

37 /hp/ → [hp] ~ [p] ~ [f] ~ [ɸ] ~ [hɸ]

38 /VhC/ → [V:hC][28]

In conclusion: the phoneme /p/ has allophones [p] and [pʰ] occurring in free variation in all positions, the allophone [pp] occurring in free variation with all other allophones of /p/ in intervocalic position (when the preceding vowel is short) and the allophone [b] occurring in free variation with all other allophones of /p/ in intervocalic position.

The cluster /hp/ has allophones [hp], [p], [ɸ], [hɸ] and [f] occurring in free variation (the status of /hp/ as a cluster is discussed in section 2.1.5.4.)

The cluster /pw/ has allophones [pw] and [bw] occurring in free variation (the status of /pw/ as a cluster is discussed in section 2.1.5.5.).

2.1.1.2. Apicals

[t] occurs word-initially, word-finally, intervocalically, before and after [n̩] as well as after [s]:

39 ṯa:gəmew 'he stabs (with a knife)' tâ(h)kameu

---

[28] It is not clear with the evidence at hand whether this vowel lengthening is synchronic or diachronic.

40	t̠aska:ham	‘he splits (wood)’	tâshkâ(h)am[29]
41	kaʧi:nat̠	‘it is sharp’	kâtshînât(sh)
42	pətte:t̠asʦ	‘five’	patetâ(h)t(sh)
43	no:t̠n̩	‘wind’	nûtin
44	n̩'t̠ɛskwɛm	‘my wife’	nitishkuem
45	wi:nast̠əgey	‘caribou stomach’	uînâshtakai

[t] rarely occurs *word-finally, word-initially before [i] or *[ə], intervocalically before [i], *or in the coda of a syllable after [i:]. The rarity of [t] before [i] in these environments may be the historical remnant of a Proto-Algonquian process whereby *t alternated with *ʧ before *i(:) (see section 1.8.1.2.), this possibility is briefly discussed in section 2.1.4.1.[30]

[tʰ] occurs rarely and is in free variation with [t], indicating that [tʰ] is an allophone of /t/.

---

[29] In related dialects this form is spelled <tâshkaim^{u}> indicating a sound change that has not occurred in Mushuau Innu.

[30] This interpretation is only mentioned as a possibility, and evidence for it is scant; for this reason, and because the thesis is intended to be a synchronic analysis, this interpretation will not be pursued within the thesis.

46	a:t̲ʰum / a:t̲ʊmə[31]	‘dog’	atim^{u}

[tt] occurs intervocalically, commonly after a centralized vowel ([ə], [ʌ], [ɨ]), with the following vowel typically being short as well. *When the following vowel is long, it is either [i:] or [e:] *(there is one instance of [ʊ:] after [tt]).

47	kwʊt̲t̲ək	‘other’	kutak
48	məʃət̲t̲ah	‘feet’	mishita
49	mi:pɨt̲t̲ah	‘teeth’	mîpita
50	mət̲t̲i:ʤi	‘hand’	mitî(h)tshî
51	ʧe:ʧukut̲t̲e:ʃo	‘bufflehead (duck)’	tshetshikuteshu

[tt] never occurs after a long vowel, word-initially or word-finally (the same observations noted for [pp]), so:

52 *[V:tt] *[#tt] *[tt#]

[t] and [tt] alternate quite often, demonstrating that, as with /p/, length is not phonemic in /t/.

53	məʃət̲	‘foot’	mishit
54	məʃət̲t̲ah	‘feet’	mishita

---

[31] This [ə] is epenthetic. The epenthesis rule is discussed in section 3.1.5.

55 a̲t̲t̲ʊm / a:t̲ʊmə[32] 'dog' atim^{u}

As with /p/, /t/ lengthens intervocalically (providing the first vowel is short):

56 /t/ → [t] ~ [tt] / V _ V (:)

[d] occurs very rarely in the data.

57 mend̲uʃ 'insect' manitush

58 mɨsko:d(ə̲)n 'it freezes' mishkûtin

As [d] occurs in a voicing environment (between sonorants), I assume that [d] is an allophone of /t/ (as [b] is of /p/).

59 /t/ → [d] / [+son] _ [+son]

The rarity of /t/-voicing in Mushuau Innu is in contrast with related dialects, such as Sheshatshiu Montagnais, where /t/ is routinely voiced intervocalically (Clarke 1982: 7).

The above observations indicate that there is a phoneme /t/ with allophones: [t], [t^{h}], [tt] and [d].

---

[32] This [ə] is epenthetic. The epenthesis rule is discussed in section 3.1.5.

[tw] occurs intervocalically and word-finally.

60	nɨs**tʷ**	'three'	nishtᵘ
61	pe:**tw**ew	'he hears (thunder)'	pe(h)tueu
62	na:**tw**aya:ʃo	'the lake (is near)'	nâtuâiâshu

[tw], when it occurs word-finally, alternates with [t] (there is only one item in the data with word-final [tw]). This suggests that [t] and [tw] are allophones of the phoneme /tʷ/:

63	nɨs**tʷ** / nɨs**t**	'three'	nishtᵘ

[ht] almost always occurs after a long vowel (usually word-finally). This suggests that vowels tend to lengthen before [ht] (as occurs before [hp] see section 2.1.1.1.). Aspiration may then delete leaving the long vowel followed by [t] (as in example 66).

64	a:**ht**sukʷ	'seal'	â(h)tshikᵘ
65	ˈpmu:**ht**ew	'he walks'	pimû(h)teu
66	mi**ht**	'firewood'	mî(h)t
67	mi:**ht**a / mi:**t**ah	'firewood (pl.)'	mî(h)ta

While [ht] tends not to occur intervocalically, [θ] always occurs intervocalically.

This suggests that intervocalic [ht] is often realized as [θ][33].

68	ma:ʃiga:θʊwʊʦ	'they fight'	mâshi(h)ikâtuat(sh)
69	pɨ:θəgəmiʦ	'in a room'	pî(h)takamî(h)t(sh)
70	uti:θəmən	'shoulder'	utî(h)timin
71	ina:θuk$^{\omega}$	'spruce'	innâtik^{u}

This gives us the following optional rule[34]:

72 /ht/ → [ht] ~ [t] ~ [θ] / V _ V

[ç] occurs once, alternating with [h] before [ʦ]. This suggests that [ç] is an allophone of the preaspiration (/h/) before [ʦ].

73	ta:hu:hʦ / ta:hu:çʦ	'on top'	tâ(h)kû(h)t(sh)

---

[33] This occurs in the data most commonly when the following vowel is [ə]

[34]

[θ] typically occurs after a long vowel, demonstrating the vowel lengthening (synchronic or diachronic) that occurs before preaspirated consonants. However, there are two instances of [θ] occurring after a short vowel.

1	magʊpəθʊm	'he ties'	mâkupitam^{u}
2	ta:pəθo	'evenly'	tâpitu

The orthography (as well as the lack of vowel lengthening) suggests that these instances of [θ] are not realizations of /ht/, but rather of /t/. This suggests that /t/ may exceptionally be realized as [θ], perhaps as the result of 'excessive' postaspiration (aspirated [t^h] is in free variation with [t] as discussed above). As these are the only instances, this exceptional realization of /t/ will not be discussed further.

In conclusion: the phoneme /t/ has allophones [t] and [tʰ] occurring in free variation in all positions, the allophone [tt] occurring in free variation with [tʰ], [t] and [d] in intervocalic position (where the preceding vowel is short) and the allophone [d] occurring in free variation with all other allophones of /t/ in intersonorant position (though [d] is a rare allophone of /t/).

The cluster /ht/ has allophones [ht] and [t] occurring in free variation word-finally and the allophone [θ] occurring in free variation with all other allophones of /ht/ intervocalically (the status of /ht/ as a cluster is discussed in section 2.1.5.4.)

The phoneme /tw/ has allophones [tw] and [t] occurring in free variation word-finally (the status of /tw/ as a phoneme is discussed in section 2.1.5.5.).

2.1.1.3. Velars

[k] occurs word-initially, word-finally and intervocalically, as well as after [s] and [ʃ]:

74	ka:ʃi:ˈnʊm	‘she wipes’	kâshînam^{u}
75	kwʊttək	‘other’	kutak
76	nəˈka:wn	‘my mother’	nikâuî
77	a:niʃkʊta:bew	‘he makes a knot’	ânishkutâpeu
78	nta:skehen	‘I split wood’	nitâshkâ(h)en[35]

---

[35] In related dialects this form is spelled <nitâshkein> due to a phonological process that does not occur in Mushuau Innu.

[k] does not occur before [i(:)], while [ʧ] frequently does. This suggests a synchronic or diachronic change of /k/ to [ʧ] before [i(:)]. As discussed in section 1.5.2. above, PA *k became /ʧ/ in this environment, in Montagnais-Naskapi:

79 PA*k > CMN ʧ / _ i(:)

While this historical change accounts for the synchronic absence of [k] in this environment, the question remains as to whether or not this rule is still operative in Mushuau Innu. This can be answered by looking at an exception to this rule. There is one lexical item that maintains [k] before /i/: *kiye* 'and' <kie>. The fact that this form does not undergo the palatalization rule indicates that palatalization is no longer operative in Mushuau Innu[36].

[kʰ] only occurs in one lexical item. As postaspiration does not appear to be phonemic with /t/ or /p/, I will assume that this is also the case with /k/ and that [kʰ] is a non-phonemic variant of /k/.

80 nɨʃkʰ 'goose' nishk

---

[36] If this conjunction is an inherited form it would be expected to have undergone any historical rule of palatalization. Michelson (1939: 79), notes that /ki-/, meaning 'and', occurs throughout Montagnais-Naskapi, and explains that this one exception to the palatalization rule is not an exception. The [i] in this form is not the original vowel, as can be seen from the Cree form, <kaye:> 'and'. The original vowel must have raised to [i] at some point in the shared history of Montagnais-Naskapi.

[kk] is rare, and *always occurs between rounded vowels:

81	ukkweyo	‘his neck’	ukueiau
82	nʊkkʊmʊ	‘he sings’	nikamu
83	pʊkkʊnne:həm	‘he digs (hole in the ground)’	pakune(h)am[37]

Following the pattern of consonant lengthening observed for /p/ and /t/, we have the following rule:

84 /k/ → [kk] / V _ V(:)

As with [pp] and [tt], [kk] never occurs after a long vowel, word-initially or word-finally, so:

85 *[V:kk] *[#kk] *[kk#]

[g] occurs intervocalically, *predominantly after [a:].

86	ʃiwi:ta:gən	‘salt’	shîuî(h)tâkan
87	uku:ta:gən	‘throat’	ukû(h)tâkan
88	pa:gum	‘he vomits’	pâkumu
89	ma:g/kʊˈmew	‘he bites (apple)’	mâkumeu

---

[37] The standard orthography for this example would be <pakuneim^{u}>. The reason for the discrepancy is that the standard orthography reflects a phonological process which occurs in other dialects but which is not operative in Mushuau Innu.

As seen example 89, [k] and [g] are in free variation intervocalically. This indicates that, as with /p/ and /t/, voicing is non-phonemic in velar oral stops.

This gives us the following rule:

90 /k/ → [g] / V _ V

The above observations suggest there is a phoneme /k/, with allophones [k], [kʰ], [kk], [g].

[kw] occurs word-initially, word-finally, intervocalically, as well as after [s] and [ʃ]. *[kw] never occurs before or after [ə], [ʌ], [ɨ].

91	kwʊttək	'other'	kutak
92	mɨstuk$^{\omega}$	'stick of wood'	mishtik^{u}
93	məssi:ʒʊkwa	'eyes'	missîshikua
94	iskwewʊʦ	'women'	ishkueuat(sh)
95	pi:ʃkwewʊn	'one hair (person)'	pîshkueun

[kw] alternates freely with [k] in word-final position.

96	peyuk$^{\omega}$ / peyuk	'one'	peik^{u}
97	mɨstuk$^{\omega}$/ mistuk	'stick of wood'	mishtik^{u}

[gw] occurs intervocalically (though not before or after [ə], [ʌ] or [ɨ]). Since [g] is an intervocalic allophone of /k/, it is reasonable to assume that [gw] is an intervocalic allophone of [kw].

98	uttəʧʧina:'begwa	'guts'	utâtshishîâpekua

[hk] does not occur in the data; however, [x] occurs frequently, always after a long vowel. Assuming a pattern congruity with /hp/ and /ht/, [x] realizes the cluster /hk/; furthermore, /hk/ can also surface as [k]. This is inferred from alternations between [x] and [k].

99	uʧekəta:x/kʊt	'stars'	utshekatâ(h)kuat(sh)
100	atti:xustukwan	'caribou head'	atî(h)kushtikuân
101	atti:kus'kəna	'caribou bones'	atî(h)kushkana

That [x] always occurs after a long vowel is further evidence that preaspirated consonants tend to cause preceding vowels to lengthen.

[x] and [h] alternate intervocalically.

102	ta:ha:w / ta:xawa	'it is cold'	tâ(h)kâu

As [x] is always an allophone of /hk/, it follows that [h] is also an allophone of /hk/ in this example.

[xw] alternates with [hw] intervocalically.

103	ɛ'mi:h̲wa:y / ɛ'mi:x̲wa:y	'spoon'	emî(h)kuân
104	pa:'x̲weʃɨkɛy / pa:'h̲weʃɨkɛy	'bread'	pâ(h)kueshikan

This suggests that: [x] is an allophone of /hk/ in all environments, [h] and [k] are intervocalic allophones of /hk/, and [xw] and [hw] are intervocalic allophones of /hkw/. This gives us the following rules:

105 /hk/[38] → [k] ~ [x] ~ [h] / V _ V

106 /hkw/ → [xw] ~ [hw] / V _ V

107 /hkw/ → [xw]

There is only one instance of [hkw] in the data; this instance of [hkw] is in fact an allophone of /skw/ (as discussed in section 2.1.3.2. below).

In conclusion: the phoneme /k/ has allophones [k] and [kʰ] occurring in free variation in all positions, the allophone [kk] occurring in free variation with all other allophones of /k/ in intervocalic position (where the preceding vowel is short) and the allophone [g] occurring in free variation with all other allophones of /k/ in intervocalic position.

---

[38] There are no word-final instances of /hk/ in the data.

The cluster /hk/ has allophones [x], [h] and [k] occurring in free variation intervocalically (the status of /hk/ as a cluster is discussed in sections 2.1.5.4. and 3.1.2.)

The phoneme /kw/ has allophones [kw] and [k] occurring in free variation word-finally and the allophone [gw] occurring in free variation with [kw] intervocalically (the status of /kw/ as a phoneme is discussed in sections 2.1.5.5. and 3.1.2.).

The cluster /hkw/ has allophones [xw] and [hw] occurring in free variation intervocalically (the cluster status of preaspirates and the segmental status of /kw/ are discussed in sections 2.1.5.4. and 3.1.2.).

2.1.1.4. Summary

Length, voicing and post-aspiration are non-phonemic and variable in the oral stop series. Consonants tend to lengthen intervocalically after centralized vowels; however, oral stops tend not to lengthen in certain environments[39]:

108 *V:C: *#C: *C:#

Voicing of stops tends to occur intervocalically.

The following is a list of optional rules pertaining to oral stops:

109 $$\underset{[-son]}{C} \rightarrow C: \; / \; V \;\_\; V(:)$$

---

[39] There is one other tendency to note about long consonants: long consonants never occur after front vowels in the data. As discussed in section 2.2.5.2. this is not a constraint on long consonants, but simply a coincidence created by the distribution of vowel allophones

110 $C \rightarrow [+voice] \ / \ [+son] \ \_ \ [+son]$[40]

111 $\underset{[-son]}{hC} \rightarrow \underset{[+cont]}{C} \sim C \ / \ V(:) \ \_ \ V(:)$

112 /VhC/ → [V:hC][41]

113 $\underset{[-son]}{C} \rightarrow \underset{[-son]}{C^{h}}$

The change of /hp/ to [ɸ], [hɸ] or [f], and the change of /hkw/ to [xw], though similar to the fricativization rule above, must be accounted for by a different rule. This is required because /hkw/ and /hp/ can become fricatives word-finally, where other sequences of /hC/ do not fricativize.

114 /hp/ → [hp] ~ [p] ~ [f] ~ [ɸ] ~ [hɸ]

115 /hkw/ → [xw]

2.1.2. Nasals

In this section I will argue for the existence of three nasal phonemes in Mushuau Innu: /m/, /n/ and /m^{w}/[42] and one nasal cluster: /nn/.

---

[40] Not all stops show this general environment for voicing in the data; for example, /p/ only voices intervocalically in the data. However, based on evidence from related dialects, I assume that all stops in Mushuau Innu have the same environment for voicing (intersonorant), but have varying susceptibility to voicing: /k/ undergoes voicing more commonly than /p/, which in turn is more commonly voiced than /t/.

[41] Though this rule pertains to vowels it is included here because it was uncovered during the description of preaspirates. The data do not allow a determination on whether this rule is synchronic or diachronic.

[42] The argument for the phonemic status of /m^{w}/ is in sections 2.1.5.5. and 3.1.2.

2.1.2.1. Labials

[m] occurs word-initially, word-finally and intervocalically, as well as after [p].

116	**m**ənno:tn̥	'there is no wind'	ama ǹûtin
117	**m**ənnʊ:n	'right hand'	umiǹûn
118	'ʧɨnɨpi:**m**	'your water'	tshinipîm
119	uʃa**m**	'much'	ushâm
120	u:tə'ʧye**m**ɛʃ	'fish guts'	utatshishîmesh
121	wa:p**m**ɨn	'apple'	uâpimin

The occurrence of [m] after [p] may often be the result of syncope. MacKenzie (1980: 125) states that vowel syncope is common in CMN between homorganic consonants. Furthermore, the occurrence of syncope in this environment is demonstrated by the fact that the sequence [pm] often alternates with [pəm].

122	wa:**pm**ɨn	'apple'	uâpimin
123	wa:**pəm**əna	'(he bites an) apple'	uâpimina
124	mənnə**pm**ənwe:na:n	'we (excl.) do not cook'	ama nipiminuenân
125	**pəm**ənnə'wew	'she cooks'	piminueu

This alternation shows that certain vowels can be deleted between homorganic [m] and [p]. The nature of Mushuau Innu syncope is discussed in section 3.1.4.

[mm] occurs intervocalically (there are only four instances), *typically after a centralized vowel; [mm] follows the constraints on long consonant distribution mentioned in section 2.1.1.4.

126	ʧɨ**mm**ʊnno	'it rains'	tshimuan
127	k$^{\omega}$ʊskʊ**mm**o	'it is straight'	kuishkumu
128	mətʤə**m'm**ənna:n	'we (incl) do not drink'	ama tshiminnân
129	ʌ**m'm**ɨʃk$^{\omega}$	'beaver'	amishk^{u}

This shows that [mm] is an allophone of [m], and gives us the following rule:

130 /m/ → [m] ~ [mm] / V _ V (:)

[mw] occurs word-initially, word-finally and intervocalically.

131	**mw**i:k$^{\omega}$	'blood'	umî(h)k^{u}
132	ni:**m**$^{\omega}$	'he dances'	nîmu
133	ʊ**mw**assɨna	'his shoes'	umassina

Some instances of [mw] are the result of a labialization process: MacKenzie (1980: 134) reports a labialization process for several Montagnais dialects. An initial /u/ causes a following /m/ to become [mw], the /u/ then deletes. This process is at work in Mushuau Innu as well; however, the triggering environment (initial /u/) does not necessarily delete in Mushuau Innu as it does in Montagnais dialects:

134 massina 'shoes' massina

135 ʊmwassɨna[43] 'his shoes' umassina

Not all instances of initial /u/ followed by /m/ undergo labialization, so this is an optional rule:

136 /m/ → [m] ~ [mw] / # /u/ _ V(:)

This labialization[44] process is the source of some instances of [mw]; however, labialization does not account for all instances. [mw] is also an independent phoneme as discussed in section 2.1.5.5.

2.1.2.2. Apicals

[n] occurs word-initially, word-finally and intervocalically. *[n] can also occur before or after [w]. There is also one instance of [n] occurring before [d].

---

[43] As discussed in section 2.2.5.2. [ʊ] is an allophone of /u/.

[44] It is possible that this labialization occurs whenever an initial /u/ is followed by any labial consonant: [ubwi̱wɨyʃəp] 'feather' upîuîship. The orthography of this item suggests that the initial sequence is /upi:/ and that the [w] seen in the transcription is the result of labialization. This is supported by evidence from Western Naskapi. Western Naskapi has the item *upiiwiiy* 'feather' (MacKenzie and Jancewicz 1994: 175), suggesting that, at least historically, the Mushuau Innu word for 'feather' had initial /upi:/. If Mushuau Innu still has this sequence underlyingly, then the labialization process seen above does not just occur on /m/ after initial /u/, but can occur on any labial consonant after initial /u/.

137	no'ʃa:no	‘he sucks (mother’s breast)’	nushânu
138	na:pew	‘man’	nâpeu
139	ntɔ:wiyʊn	‘I hunt’	natû(h)un[45]
140	ʊtɛʃiniga:ʃʊn	‘his name’	utishinî(h)kâshun
141	u:ʃɨnum	‘he laughs’	ushinam^{u}
142	u:skunwawa	‘their livers’	ushkunuâua
143	usikɔwnɨssɨʃ	‘red breasted’	ushikuaunissish
144	menduʃ	‘insect’	manitush

[nn] occurs intervocalically or after a vowel and before [w]. *The preceding vowel is usually a centralized vowel ([ɨ], [ə], [ʌ]).

145	pa:ʤibɨnno	‘it swells’	pâtshipanu
146	ni:ʃʊttəkənna	‘there are two (canoes)’	nîshutakana
147	we:pənnʊm	‘he throws (a stone)’	uepinam^{u}
148	uskənnwawa	‘their bones’	ushkunuâua

[nn] alternates with [n] suggesting they are allophones of the same phoneme.

149	ʊ:p'mɛ:ʃəno	‘he lies on the side’	û(h)pimeshinu

---

[45] The orthography reflects the Pessamiu Montagnais pronunciation; other Montagnais dialects have *natâu* for this word. The Mushuau Innu pronunciation is similar to the Moose Swampy Cree form *natowiho* (Ellis 1995: 498).

150	upme:ʃənne:	‘if you lie on the side’	û(h)pimeshine
151	ntɛ'ninana	‘our (excl.) tongues’	niteǹnînâna
152	məttɛnni	‘tongue’	miteǹnî

While [nn] is an allophone of the phoneme /n/, [nn] also realizes the cluster /nn/. There are two reasons for assuming this analysis . Firstly, there are many items such as ['innʊ] ‘person’ <iǹnu>, which are elicited many different times in the Mailhot data, and always surface with [nn]. If these [nn] were the result of a variable lengthening rule they should alternate with short [n]. Secondly, unlike other long consonants, some long [nn] surface after long vowels.

153	nəppa:nne:	‘you sleep (subj.)	nipâine
154	wi:nnəpɔw	‘it is black’	uîǹipâu
155	wi(:)n'na:g$^{\omega}$ʊn	‘it is dirty’	uînnâkuan

I assume that non-alternating [nn] are not the result of a consonant lengthening process, but are rather a sequence of identical sounds; they are thus not subject to the constraints on the consonant lengthening process[46].

---

[46] [nn] which never alternates with [n] may be analysed as either a long consonant or a sequence of two /n/. As there is no evidence for underlyingly long stops, it would complicate the phonology to hypothesize an independent long stop phoneme. Assuming that non-alternating [nn] are in fact sequences of two /n/ explains the distribution without introducing an otherwise unmotivated length distinction for consonants.

This sequence of identical sounds does not violate the Obligatory Contour Principle, because, as discussed in section 1.9.4., Mushuau Innu allows neighbouring identical phones to share a single feature specification.

While certain [nn] are a sequence of identical sounds, many [nn] are the result of the following rule:

156 /n/ → [n] ~ [nn] / V _ V (:)

[nw] typically occurs intervocalically and never word-finally.

157	ʧi:**nw**aw	'you (pl.)'	tshîǹuâu
158	wi:**nw**aw	'they'	uîǹuâu
159	u:sku**nw**awa	'their livers'	ushkunuâua
160	ustukwa:**nw**awa	'their heads'	ushtikuânuâua

[nw] is usually heteromorphemic. Most cases of [nw] are in words with a plural meaning, and appear to be the result of the addition of a [waw] <uâu> or [wawa] <uâua> plural suffix.

All word-initial [nw] are the result of syncope, which occurs when the first person prefix /ni-/ is added to a stem that has an initial [w] (see section 3.1.4.)

161	nwa:pma:wʦ	‘I see them’	[47]nuâpamâuat(sh)
162	nwa:p'mɔ:wʃʊn	‘I see myself’	nuâpamâshun

[nnw] occurs in environments where /n/ would tend to lengthen (after short vowels) and as with [nw], [nnw] is typically heteromorphemic:

163	uskənnwawa	‘their bones’	ushkanuâua

As [nw] and [nnw] are typically the result of suffixation, they are best analyzed as a sequence of /n/ and [w].

Syllabic [n̩] occurs word-initially before /t/, /n/, [ʧ] or [ʤ] (coronal non-continuants).

164	n̩ta:gəmaw	‘I stab (with a knife)’	nitâ(h)kamâu
165	n̩ta:skehen	‘I split wood’	nitâshkâ(h)en[48]
166	n̩tʌ'kuʃin	‘I come (early)’	nitakushin
167	n̩'na:pɛm	‘my husband’	ninâpem

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[47] The first person prefix in these forms is spelled <n-> without the following /i/ being indicated. This spelling convention does not reflect the underlying form, as the first person prefix is /ni-/, as shown in section 3.1.4.

[48] In related dialects this form is spelled <nitâshkein> indicating a sound change that has not occurred in Mushuau Innu.

168	n̩ʧʊkʊʦ	'(two) otters'	nitshikuat(sh)
169	n̩ʤita:p'mɨttona:y	'we (excl.) see each other'	nitshîtâpamitunân

[n̩] is the result of syncope between a word-initial /n/ and a coronal non-continuant. This process is seen in related dialects; MacKenzie (1980: 91) reports that clusters of nasal and homorganic stop created by syncope often result in the nasal becoming syllabic[49].

Vowel syncope between homorganic consonants does occur in Mushuau Innu, as discussed in section 3.1.4. That [n̩] is the result of such syncope can be observed in the patterning of the first person prefix /ni-/. When this prefix is added to a stem beginning in a continuant or a non-coronal consonant, it surfaces with a vowel:

170	mʌssɨn	'shoe'	massin
171	nə'mɛssɨn	'my shoe'	nimassin
172	niʃi:mi:kɔwn	'my third cousin (younger)	nishîmikâun
173	nɨʃka:t	'my leg'	nishkât
174	nɨstɛ:ʃ	'my older brother'	nishtesh
175	nɨstɛ:ʃi:kɔwn	'my third cousin (older male)	nishteshikâun
176	nə'ka:wn	'my mother'	nikâuî
177	nəʃi:m	'my younger sibling'	nishîm

---

[49] There is no evidence in the data for syllabic /m/ in the data.

As shown in examples 171 to 177, addition of the prefix /ni-/ to stems with continuants or non-coronals results in the allophones [ni-], [nɨ-] and [nɘ-]. In contrast, when the prefix /ni-/ is added to a stem beginning in any coronal non-continuant, the vowel deletes, and the /n/ becomes syllabic, as seen in the following examples:

178	n̩to:ʒɨm	'my son-in-law'	nitûshim
179	n̩tu:t	'my boat'	nitût
180	n̩ta:hʤa:bi:n	'my bow'	nitâ(h)tshâpî
181	n̩ti:h'ʤi:n	'my hand'	nitî(h)tshî
182	n̩to:ta	'listen'	natû(h)ta

Thus, [n̩] alternates with [ni], [nɨ] and [nɘ] indicating that [n̩] results from syncope.

I assume that all instances of [n̩] are derived like the [n̩] of the first person prefix; that is, they result from vowel syncope between a word-initial /n/ and a coronal non-continuant. Nasal syllabification is best described as two rules: vowel syncope, which is described in section 3.1.4. and then syllabification itself which can be described with the following rule:

183 /n/ → [n̩] / # _ C
[COR]
[-cont]

[hn] only occurs in one lexical item in the data. I assume that [hn] is a consonant cluster, as are other preaspirated consonants (see sections 2.1.5.4. and 3.1.2.).

184 wa:hnɔw 'it is far' uâ(h)ǹau

2.1.2.3. Velars

[ŋ] only occurs in one item in the data, before [g], where assimilation of /n/ to [ŋ] may be expected.

185 wɔŋgən 'backbone' uâukan

However, in related dialects there is no nasal consonant in this item cf. Perhaps labiovelar [w] may be realized as velar [ŋ] before a velar consonant[50]. In that case, the sequence [wɔŋg] should be analyzed as /uauk/, as indicated by the orthography (see section 2.2.4.3. for the relationship between /u/ and [w]; and section 2.2.2.3. for the relationship between /a/ and [ɔ]). As this is the only instance of [ŋ] it is impossible to determine the precise environment for the nasalization of [w], furthermore, it is not conclusive that this one instance of [ŋ] is in fact a realization of [w] (as the evidence is restricted to evidence from related dialects); however, I tentatively propose the following rule:

186 /u/[51] → [ŋ] / a _ k

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[50] Alternatively, this [ŋ] may simply be vowel nasalization, heard as a velar nasal consonant.

[51] [w] is an allophone of /u/ as discussed in section 2.2.4.3.

2.1.3. Fricatives

2.1.3.1.

Labial fricatives - [f] and [ɸ], are allophones of /hp/, see section 2.1.1.1.

2.1.3.2. Apicals

[θ] is an allophone of [ht]. [ç] is an allophone of the [h] component of [ht], see section 2.1.1.2.

There is one short coronal fricative phoneme: /s/, which has allophones: [s], [ʃ], [ʒ], [h] and [ss]. There is also a long coronal fricative morpheme: /ʃʃ/, which has allophones [ʃʃ], [ʃ], [ss], [s]. This long coronal fricative is the diminutive morpheme which has an exceptional underlying form. In addition there is a cluster /ss/ which always surfaces as [ss] and so is phonetically identical with the long allophone of /s/. The basis for these conclusions follows.

[s] occurs before /p/, /t/, /k/, /kw/ and /n/. [s] occasionally appears intervocalically or word-finally.

187	nɛs̠pa:ʤiyʊ:n	'left hand'	nashpâtshiûn
188	mis̠tuk$^{\omega}$	'tree'	mishtik^{u}
189	atti:kus̠ˈkəna	'caribou bones'	atî(h)kushkana
190	pəs̠k$^{\omega}$ʊtnɔw	'the mountain (is far)'	pishkutinâu
191	us̠ni:ʧo	'a young Indian'	ussinîtshishu

192	nihwas̱otas̱	'seven'	nîshuâshutâ(h)t(sh)

When [s] occurs before /k/ or /kw/ it often alternates with [ʃ], suggesting [s] and [ʃ] are allophones of the same phoneme.

193	nɨs̱kʰ / nɨʃkʰ	'goose'	nishk
194	məna:ʃkwɔw	'forest'	minâshkuâu
195	məna:s̱kwa:ʃo	'a small forest'	minâshkuâshu
196	uʃkɔw	'it is new'	ushkâu
197	us̱ka:bwuyan	'a new blanket'	ushkâpuiân
198	uʃkas'sina	'a new shoe'	ushkassina

[ʃ] occurs word-initially, word-finally, and intervocalically.

199	ʃi:ʃip	'bird (duck)'	shîshîp
200	u:tə'ʧyemɛʃ	'fish guts'	utatshishîmesh
201	awe:hiʃ	'animal'	aueshîsh
202	aʃinin	'stone'	ashinî
203	məʃət	'foot'	mishit

[ʃ] occurs before /p/ and /k/ (but not /t/). Where [ʃ] occurs before /k/ it often alternates with [s] as seen above [52].

204	ʧiʃpəkɔw	'its is thick'	tshishpakâu
205	tanteyʃpɨʃ	'where'	tânite ishipish
206	uʃka:t	'his leg'	ushkât
207	uspiʃkʊnwawa	'their backs'	ushpishkunuâua

The apical fricatives [s] and [ʃ] are in near complementary distribution: [ʃ] occurs intervocalically, word-initially and word-finally; [s] occurs before /t/ (rarely intervocalically or word-finally); both [s] and [ʃ] occur before /p/ and /k/. This near complementary distribution of [s] and [ʃ] (and their alternation) suggests that they are allophones of the same phoneme. The only environments in which both frequently occur are before /p/ and /k/, and in these environments, perhaps [s] and [ʃ] are in free variation.

In some dialects of CMN, /s/ and /ʃ/ are distinct phonemes. For example in Sheshatshiu Montagnais, the diminutive is marked by /ss/, while the pejorative is marked by /ʃ/ (MacKenzie 1999: personal communication). Additionally, in Chisasibi Cree, /s/ and /ʃ/ are separate phonemes; however, at the phonetic level, they are often indistinguishable: "Cette variation dans le volume de la cavité buccale d'avant porte à

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[52] There are no instances in the data of [s] and [ʃ] alternating before [p]. This is probably due to the fact that there are few items in the data with the sequence [sp] or [ʃp] and those items that do show one of these clusters are rarely elicited more than once.

confondre phonétiquement [š] et [s]" (Martin 1974: 57).

In contrast, the complementary distribution in Mailhot's data provides strong evidence that [s] and [ʃ] are allophones of the same phoneme in Mushuau Innu. This phoneme will be designated /s/. /s/ surfaces as [s] before /t/; as [s] or [ʃ] before /p/ and /k/; and as [ʃ] initially, finally or intervocalically.

This gives us the following set of rules:

208 $$/s/ \quad \rightarrow \quad \text{[ʃ]} \quad \% \quad \left\{\begin{array}{lll} \# & \_ & V(:) \\ V(:) & \_ & V(:) \end{array}\right\}$$

209 $$/s/ \quad \rightarrow \quad [s] \sim \text{[ʃ]} \; / \quad \_ \quad \left\{\begin{array}{l} k \\ p \end{array}\right\}$$

[ʃ] alternates with [h] intervocalically, particularly after a long vowel.

210	pənne:hiʃ / pənne:ʃiʃ	'bird'	pineshîsh
211	awe:hi:hɨt / awe:ʃi:ʃɨt	'animals'	aueshîshat(sh)
212	u'ta:kuʃ/hiʦ	'(he died) yesterday'	utâkushît(sh)
213	nəmɛ:həʦ / nəmɛ:ʃəʦ	'fish (plural)'	nameshat(sh)

This patterning suggests that [ʃ] and [h] are in free variation intervocalically. As [ʃ] is an allophone of /s/ (see section 2.1.3.2. above), [h] must be as well. /s/ can also be realized as [h] before /kw/.

214	kaʧinnwa:s/hkwa:k	'a long (stick)'	kâtshinuâshkuâ(h)k

This example could be interpreted as either underlying /h/ alternating with [s] or an underlying /s/ alternating with [h]. The Pessamiu dialect of Montagnais has the form <tshinuashkuan> 'something (wood) is long' (Drapeau 1991: 711). Western Naskapi has the form <chinwaaskun> 'it (stick-like) is long, tall' (MacKenzie and Jancewicz 1994: 303). As two dialects related to Mushuau Innu show [s]/[ʃ] before /k/, I assume that the Mushuau Innu form is an underlying /skw/, which is alternating with [hkw]. This alternation of [s] and [h] before [k^{w}] (after a long vowel), as well as the intervocalic alternation of [ʃ] and [h] gives us the following rules:

215 /s/ → [ʃ] ~ [h] / V: _ V (:)

216 /s/ → [h] ~ [s] / V: _ kw

[ʒ] occurs between sonorants (usually intervocalically). This suggests that, in keeping with the lack of phonemic voicing elsewhere, [ʒ] is simply the voiced allophone of [ʃ] and therefore another allophone of /s/.

217	ʧiʒikɔw	'it is daytime'	tshîshikâu
218	aʤi:ta:ʒo	'he counts'	atshî(h)tâshu
219	məssi:ʒuk^{w}	'eye'	missîshik^{u}
220	ma:miʃagənʒyʊ	'it (anim.) is spotted'	mâmishâkanishîu

The allophonic relationship between [ʒ] and [ʃ] is supported by alternations:

221	nək/ga:ʃ/ʒine:'nan	'we (excl.) wipe'	nikâshinenân

The occurrence of anterior [ʒ] between sonorants, suggests that the /s/ not only surfaces with an anterior articulation intervocalically, but between sonorants in general. This gives us the following rule:

222 /s/ → [ʃ] ~ [ʒ] / [+son] _ [+son]

In summary, /s/ has allophones [s], [ʃ], [h], and [ʒ].

/s/ also has the long allophone [ss]. This allophonic relationship between /s/ and [ss] is seen in the following alternation where [ʃ] (the intersonorant allophone of /s/) and [ss] (the long allophone of /s/) alternate.

223	məʃwe(y)	'all'	mishue
224	məssuwe	'all (the children)'	mishue

So, as with other consonants, /s/ can lengthen intervocalically:

225 /s/ → [ss] / V _ V(:)

This rule indicates that when /s/ is long, the [+anterior] allophone surfaces[53].

While [ss] is the long allophone of /s/, [ss] is also, in some items, the realization of the cluster /ss/. This difference between [ss] the long allophone of /s/ and [ss] the

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[53] There are a very small number of items in the data that show [ʃʃ] as the long intervocalic allophone of /s/. This is very rare and typically the [ʃʃ] in these cases alternates with [ss]. As this long [-anterior] allophone of /s/ is very rare, I will assume it is exceptional.

cluster is the same distinction drawn between /n/ and /nn/ in section 2.1.2.2. above. Many instances of [nn] are in fact not long consonants, but sequences of two /n/. Similarly, [ss] is sometimes not the long allophone of /s/, but instead a cluster. This cluster status is demonstrated by the consistent occurrence of [ss] in the same item in divergent elicitations. For example, the word for 'shoe', *mʌssɨn* <massin>, is recorded in a wide array of forms, in different sections of the Mailhot data set. The form always surfaces as [ss] and never as [ʃ] (the intersonorant allophone of /s/). If [ss] were always an allophone of /s/ in free variation with [ʃ], the [ss] in *mʌssɨn* <massin> 'shoe' should surface occasionally as [ʃ], but this never happens. This can be accounted for by considering non-alternating [ss] a sequence of two /s/, just as non-alternating [nn] is described as a sequence of two /n/.

This sequence of identical sounds does not violate the Obligatory Contour Principle, because, as discussed in section 1.9.4., Mushuau Innu allows neighbouring identical phones to share a single feature specification.

A remaining problem is that of long [ʃʃ], which marks the diminutive.

226	ʊta:ba:'nɨʃʃʌ̊	'cars (dim.)'	utâpânisha
227	ka:gwʊʃʃ	'porcupine (dim.)'	kâkush
228	attixuʃʃ	'caribou (dim.)'	atî(h)kush
229	pʊta:ʃʃ	'bottle (dim.)'	pûtâsh
230	ʌttumuʃʃ	'dog (dim.)'	atimuss

The diminutive marker ([ʃʃ]) does not conform to the usual constraints on long consonants as it can occur word-finally and it can occur after a long vowel. To solve this problem, I hypothesize that the diminutive has an exceptional underlying representation: it is both underlyingly long and underlyingly [-anterior]. The length of the morpheme can be accounted for by assuming that the diminutive is underlyingly a sequence of two identical consonants. The morpheme would have the lexical specification [-anterior]. This gives us the following representation for the diminutive morpheme /ʃʃ/ [54]:

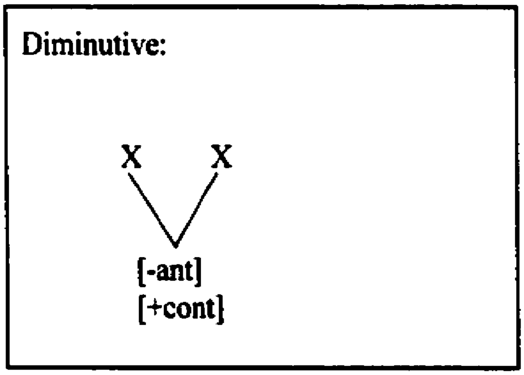

Figure 2.3. U.R. of the diminutive

As with /nn/ and /ss/, /ʃʃ/ does not violate the Obligatory Contour Principle, because, as discussed in section 1.9.4., Mushuau Innu allows neighbouring identical phones to share a single feature specification.

The diminutive morpheme, /ʃʃ/, sometimes surfaces as [ʃ], [s] and [ss], suggesting

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[54] In figure 2.3., the 'X' stands for the skeletal tier units. The internal structure of the feature tree is not shown.

that these are all possible phonetic realizations of the diminutive suffix[55] (all of the examples below contain the diminutive morpheme).

231	ʌ'wa:ʃʃʌʦ / wa:s̠s̠ɨʦ	'children'	auâssat(sh)
232	na:pɛʃʃʌʦ	'boys'	nâpeshat(sh)
233	na:'pɛʃ / na:pɛs̠	'boy'	nâpesh

The sequence /ʃʃ/, which marks the diminutive, rarely surfaces as [s] or [ʃ]; when one of these short allophones of /ʃʃ/ does surface, it is always word-final:

234 /ʃʃ/ → [ʃʃ] ~ [ss] ~ [ʃ] ~ [s] / _ #

/ʃʃ/ rarely surfaces as [ss]; when it does surface as [ss] there appears to be no environmental conditioning for its surfacing as such.

235 /ʃʃ/ → [ʃʃ] ~ [ss]

In summary there is one apical fricative: /s/, as well as the cluster /ss/. The diminutive morpheme is marked by a cluster of two [-anterior] apical fricatives: /ʃʃ/

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[55] Though [ss] and [s] are possible realizations of the diminutive morpheme, the diminutive cannot be considered to be marked by an /-s/ which has undergone lengthening, or a cluster of two /s/, as there is no environmental difference to account for the fact that the diminutive typically surfaces as [-anterior] ([ʃʃ]) while lengthened /s/ and the cluster /ss/ consistently surface as [+anterior] ([ss]).

/s/ has allophones: [s], [ss], [ʃ], [ʒ] and [h], described by the following rules.

236 /s/ → [ss] / V _ V (:)

237 /s/ → [ʃ] ~ [ʒ] / [+son] _ [+son]

238 /s/ → [ʃ] ~ [h] / V: _ V (:)

239 /s/ → [h] ~ [s] / V: _ kw

240 /s/ → [ʃ] % $\left\{\begin{array}{lll} \# & \_ & V\,(:) \\ V\,(:) & \_ & V\,(:) \end{array}\right\}$

The sequence /ʃʃ/ (which marks the diminutive) can surface as [ʃʃ], [ʃ], [ss] and [s]. The following rules describe the distribution of the realizations of this sequence:

241 /ʃʃ/ → [ʃʃ] ~ [ss] ~ [ʃ] ~ [s] / _ #

242 /ʃʃ/ → [ʃʃ] ~ [ss]

2.1.3.3. Velars

[x] is the most common realization of the cluster /hk/; see section 2.1.1.3.

2.1.3.4. Glottals

[h] occurs intervocalically, after a vowel and before a consonant, and word-finally, but never word-initially.

243	pənne:hiʃ	‘bird’	pineshîsh
244	awe:hi:hɨt	‘animals’	aueshîshat(sh)

245	kəssihwehwan	‘bark of tree’	kassî(h)kue(h)kuân
246	miht	‘drywood’	mî(h)t
247	ʌku:hpʰ	‘coat’	akû(h)p
248	kaʧinnwa:s/hkwa:k	‘it is a long (stick)’	kâtshinuâshkuâ(h)k
249	nti:hʤi:hʦ	‘my hand’	nitî(h)tshî
250	mi:pɨttah	‘teeth’	mîpita
251	appɨʃah	‘ropes’	apisha

MacKenzie (1980: 65) states that in those dialects of Montagnais-Naskapi which preserve intervocalic /h/, this intervocalic /h/ can only occur between vowels of the same quality. [h] does occur between vowels of the same quality in Mushuau Innu.

252	nta:skehen	‘I split’	nitâshkâ(h)en[56]

However, [h] also occurs between vowels of differing quality in Mushuau Innu.

253	pənne:hiʃ	‘bird’	pineshîsh
254	kami'huʃit	‘red (apple)’	kâmî(h)kushit

In many of the cases where [h] occurs between vowels of differing quality, [h]

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[56] In related dialects this form is spelled <nitâshkein> indicating a sound change that has not occurred in Mushuau Innu.

alternates with [ʃ] or [x]. This suggests that in many cases of intervocalic [h], the underlying form is not /h/. As discussed in section 2.1.1.3. [h] is an allophone of /hk/. So, in some cases intervocalic [h] is underlyingly /hk/. In other cases, intervocalic [h] is an allophone of /s/, as discussed in section 2.1.3.2.

Word-final instances of [h] appear to be non-phonemic and optional. Word-final [h] occurs predominantly after the inanimate plural marker [a]. The realization of this plural suffix varies freely between [a] and [ah]:

255	aʃininu**a**	'stones'	ashinîa
256	ni:ʃənaʃə'niy**a**	'two stones'	nîshina ashinîa
257	massin**a** / məssɨn**ah**	'shoes'	massina
258	iskʊttew**ah**	'fires'	ishkuteua
259	u:t**ah**	'canoes'	ûta
260	məʃətt**ah**	'feet'	mishita
261	appɨʃ**ah**	'ropes'	apisha

In the Plains Cree of central Alberta, word boundaries are often marked by a gradual devoicing of a final vowel, "These voiceless glides are not only nondistinctive but also completely optional"(Wolfart 1996: 431). This description is consistent with the Mushuau Innu data as described above.

This gives us the following optional rule:

262 Ø → h / V _ #

Based on the patterns for [h] described above, it appears that Mushuau Innu is in line with neighbouring dialects in having a phonemic /h/ only between vowels of identical quality. The other instances of [h] all appear to be allophones of other phonemes (such as /s/), or non-phonemic word-final insertions.

2.1.4. Affricates

2.1.4.1. Apicals

[ʦ] occurs predominantly word-finally, never word-initially and occurs occasionally, though rarely, word medially.

263	aʃotaʦ	'six'	âshutâ(h)t(sh)
264	na:pewʊʦ	'men'	nâpeuat(sh)
265	ni:ʦ	'at home'	nît(sh)
266	pəttе:tasʦ	'five'	patetâ(h)t(sh)
267	nti:hʤi:hʦ	'my hand'	nitî(h)tshî
268	atsɨnnepukʷ	'snake'	atshinepikᵘ
269	ʧawastsistew	'the ashes are hot'	thishâutshiteu
270	pastsye:wew	'it is thin'	pashtsheueu

Word-final [ʧ] only occurs once in the data, and here it alternates with [ʦ],

271	ʌ'wa:ʃʃʌʧ / ʌ'wa:ʃʃʌʦ	'boys'	auâssat(sh)

This complementary distribution, along with the alternation observed above, indicates that [ʦ] is a word-final allophone of /ʧ/. I have taken /ʧ/ as the underlying form because it occurs in a wider range of environments, as seen below.

[ʦ] occasionally alternates with [t]. This is seen in the animate plural marker, which usually surfaces as [ɨʦ].

272	wa:ssɨʦ	'children'	auâssat(sh)
273	kəskʊ'wʊnɨʦ	'clouds'	kashkûnat(sh)
274	mi:g$^{\omega}$ʊnnɨt	'bird wings'	mîkunat(sh)
275	pənne:ʃi:ʃɨt	'birds'	pineshîshat(sh)
276	awe:hi:hɨt	'animals'	aueshîshat(sh)

As [ʦ] is always an allophone of /ʧ/, this alternation between [t] and [ʦ] shows that [t] is also an allophone of /ʧ/ in word-final position.

This gives us the following optional rule.

277 /ʧ/ → [ʦ] ~ [t] / _ #

Word medial [ʦ] is not common; there are only six instances in the data.

278	witsistu:n	'nest'	utshishtun
279	atsɨnnepuk$^{\omega}$	'snake'	atshinepik^{u}
280	ʧawastsistew	'the ashes are hot'	tshishâutshiteu
281	pastsye:wew	'it is thin'	pashtsheueu

282	ni:ts'nana	'our home'	nîtshinâna
283	a:htsuk$^{\omega}$	'seal'	â(h)tshik^{u}

As an allophonic relationship has already been established between [ʦ] and [ʧ], I assume that these instances of [ʦ] are also allophones of /ʧ/. This is supported by the fact that the Sheshatshiu Montagnais form for 'seal' is <aatshikw> (MacKenzie 1992: 1) and the form for 'snake' is <atshinepikw> (MacKenzie 1992: 4). Both of these Sheshatshiu Montagnais forms show <tsh> where Mushuau Innu shows [ʦ]: Mushuau Innu *a:htsuk$^{\omega}$* 'seal', and *atsɨnnepuk$^{\omega}$* 'snake'.

Examples 278 to 282 suggest that there is free variation between [ʧ] and [ʦ] when the phoneme occurs after a vowel and before a coronal sonorant (this assumes that [ɨ] is underlyingly /i/, which is argued in section 2.2.2.1.).

284 /ʧ/ → [ʧ] ~ [ʦ] / V _ [+son] [+cor][57]

[hʦ] occurs exclusively in word-final position. The preceding vowel is usually long.

285	ʌka:mi:hʦ	'across'	akâmî(h)tsh

---

[57] Example 283 shows [u] following [ʦ], rather than a coronal vowel; however, as indicated in the orthography and discussed in section 2.2.1.1., this [u] is underlyingly the coronal vowel /i/, which has undergone rounding under the influence of the following labialized consonant.

286	ntu:ti:**hʦ**	‘in my boat’	nitûtî(h)tsh
287	ʌku:pi:**hʦ**	‘coat (loc.)’	akû(h)pî(h)tsh
288	ta:hu:**hʦ**	‘on top’	tâ(h)kû(h)t(sh)

Just as [ʦ] is the word-final allophone of /ʧ/, so is [hʦ] the word-final allophone of the cluster /hʧ/. As already observed for preaspirated stops (which are clusters as discussed in sections 2.1.5.4. and 3.1.2.), [hʦ] causes the preceding vowel to lengthen.

[ʧ] occurs word-initially and word medially, but never (with one exception; see example 271) word-finally.

289	ʧi:ʒʊk$^{\omega}$	‘sky, day’	tshîshik^{u}
290	ʧinnwa:sk$^{\omega}$ʊn	‘it is long’	tshinuâshkuan
291	ʧwa:pe'ka:yʤena:n	‘we (inclusive) wash’	tshuâpekâ(h)itshenân
292	uʧekəta:k$^{\omega}$	‘star’	utshekatâ(h)k^{u}
293	pəʧiʃkənɔw	‘blue’	pitshishkanâu

As seen in rule 277 above, /ʧ/ usually becomes [ʦ] word-finally.

[ʧ] is particularly common word-initially before [i(:)], while [t] never occurs in this environment, suggesting palatalization of /t/ into [ʧ] in this environment.

As mentioned in section 1.8.1.2. above, PA *t alternated with *ʧ before *i(:). The above distribution of /t/ and /ʧ/ in Mushuau Innu may be an historical remnant of this PA alternation[58], though evidence for this is scant and will not be further discussed as this thesis is a synchronic analysis.

/ʧ/ can also be realized as [s]: Clarke (1982: 18) reports that many Montagnais dialects replace word-initial /ʧt/ (usually resulting from vowel deletion in underlying /ʧit/) with the cluster [st]. This process occurs in Mushuau Innu, where the addition of the second person prefix /ʧi-/ to a stem with an initial /t/, results in the cluster [st] (examples of this process are given shortly).

The prefix /ʧi-/ marks second person on verbs in the animate intransitive, and on nouns in the possessive. For both verbs and nouns, this prefix is seen in the singular and plural (of the second person) and the first person plural inclusive ('you and me'). This prefix is seen in the following examples:

294	ʧinnəpanna:w	'you (pl.) sleep'	tshinipânâu
295	ʧine:'nenaw	'you (pl.) breathe'	tshiǹe(h)ǹenâu
296	ʧistukwa:nwawa	'your heads'	tshishtikuânuâua
297	ʧispɨʃkun	'your backbone'	tshishpishkun

---

[58] If the rarity of Mushuau Innu word-intial /t/ before /i(:)/ is the result of the PA alternation mentioned in section 1.8.1.2., the following rule probably applied at some point in the history of Mushuau Innu:

/t/ > [ʧ] / # _ i(:)

298	ʧ̠i̠massɨnno	'our (incl.) shoe'	tshimassinu

As seen in the following examples, sometimes the vowel of this prefix may centralize or even delete.

299	'ʧɨ̠nɨpi:m	'(drink) your water'	tshinipîm
300	ʧə̠kʊs'tayuʦ	'we (incl.) fear'	tshikushtenân
301	ʧwa:pe'ka:yʤena:n	'we (incl.) wash'	tshuâpekâ(h)itshenân

As shown in the following examples, when this prefix occurs before a stem initial /t/, syncope occurs, followed by deaffrication of the /ʧ/ to [s]. Examples 302 and 303 contain the second person prefix and show both syncope and deaffrication; compare these with examples 304 and 305 which do not contain the second person prefix and show the stem initial /t/[59].

302	s̠tʊn'nuah	'our (incl.) mouths'	tshitûna
303	s̠tɛ'ninowa	'our (incl.) tongues'	tshiteǹnînua

Compare with:

304	t̠ʊnuwawa	'their mouths'	utûnuâua
305	nt̠ɛ'ninana	'our (excl.) tongue'	niteǹnînâna

---

[59] Example 305 displays a prefix before the stem-intial /t/.

This process is best described as two rules: syncope of the vowel /i/ between homorganic consonants, and the subsequent deaffrication of /ʧ/. The vowel syncope rule is discussed in section 3.1.4. The deaffrication rule can be described as follows[60]:

306 /ʧ/ → [s] / # _ t

[ʧʧ][61] always occurs intervocalically; *almost exclusively after [ə], and *usually before [i(:)].

---

[60] There is one item in the data which suggests that this deaffrication occurs in other environments; *(s)sɛhi:tʊm* 'he knows (facts)' <tshissenî(h)tamᵘ>

This is the only case of word-initial [ss] in the data. The orthography suggests that there is an underlying initial sequence /ʧiss.../. If this is the case, perhaps the [ss] surfaces word-initially (long consonants do not usually surface word-initially) because it is the result of vowel deletion and deaffrication of /ʧ/ to [ss].

If this is the case, then deaffrication is not morphologically conditioned (as the form here does not contain the second person prefix), but should affect any word-initial sequence of /ʧit/.

There is one example which would argue against this suggestion: *ʧɨtew* '(the stove) is warm'<tshishiteu>. Again, the orthography may present an answer to this exception. The orthography indicates an underlying sequence /ʧisit.../ while the phonetic form is [ʧɨtt...]. Perhaps there has been syncope of the first vowel, creating the word-initial cluster /ʧs/, which surfaces as [ʧ] (not undergoing the change to [st] because the [st]-rule requires the form /ʧit/ or /ʧiss/; the form here is /ʧis/). This means that underlyingly there is no sequence /ʧit/ and so the rule changing /ʧit/ to [st] cannot apply.

This interpretation assumes the analysis of [ss] and [ʃ] of section 2.1.3.2., which argues that [ʃ] is underlyingly /s/, while [ss] (in this case) is underlyingly /ss/.

[61] I have assumed that the long affricate [ʧʧ] may be variously heard as [tʧ] or [ʧʃ], and so I have collapsed all instances of [ʧʧ], [tʧ] and [ʧʃ] in Mailhot's data into the analysis of [ʧʧ]. I have transcribed this phonetically long affricate by doubling the symbol for the short affricate. This is done in order to remain consistent with the notation for other long consonants. However, this notation does **not** imply that the affricate is doubly released. Rather, the articulation of this long affricate is variously that of an affricate with a long stop articulation: [tʧ]; or a long fricative articulation: [ʧʃ].

307	u:tətʧi	‘guts’	utâtshishî
308	mətʧiskəʧʧi	‘asshole’	mitshishkashî
309	utəʧʧiya:pewk$^{\omega}$	‘large intestine’	utatshishiâpek^{u}

[ʧʧ] patterns like the optionally geminated consonants described in section 2.1.1.4., with three exceptions. Two of these exceptions have long [ʧ] following [i:].

310	usni:tʧiʃkwew	‘a young Indian (girl)’	ussinîtshishkueu
311	mi:ʧʃo	‘he eats’	mîtshishu

The first form is clearly related to the item *usni:ʧo* ‘a young Indian’, which does not show a long [ʧ], suggesting that the [tʧ] in this example may simply be exceptional. The second example appears to be the result of syncope. This second form originally contained the sequence [...ʧiʃ..] as indicated by the orthography. It appears that the short /i/ has been deleted between homorganic [ʧ] and [ʃ] resulting in a long [ʧʃ] (syncope is discussed in section 3.1.4.).

Syncope is clearly the cause of [ʧʧ] in the following example:

312	ʧʧi:m	‘your sister’	tshishîm

The second person prefix has the form /ʧi-/ as discussed above. When this /ʧi-/ is added to a stem with an initial [ʃ], vowel syncope occurs, leaving the consonant cluster [ʧʃ], which has been transcribed here as a long /ʧ/, or [ʧʧ]. That the stem of the word for 'sister' has an initial [ʃ] can be seen in the following examples:

313	ʊʃi:ma	'his sister'	ushîma
314	nɛʃɨ:m	'my sister'	nishîm

The pattern for [ʧʧ] described above suggests that, as with most consonants, /ʧ/ optionally lengthens intervocalically (where the first vowel is short):

315 /ʧ/ → [ʧ] ~ [ʧʧ][62] / V _ V (:)

Finally, those cases where [ʧʧ] occurs in positions where lengthening cannot take place are caused by syncope and so are not counterexamples to rule 315.

[tʤ] occurs four times in the data.

316	mətʤəm'mənna:n	'we (incl) do not drink'	ama tshiminnân
317	mətʤəpɛ'twa:yuʦ	'we (incl) do not hear (the thunder)'	ama tshipe(h)tuânânat(sh)
318	mətʤəpe'tɛn/yɔw	'you do not hear (the train)'	ama tshipe(h)tenu
319	wʊtʤe:bəttʊm	'he pulls'	utshipitam^{u}

---

[62] I have transcribed this phonetically long affricate by doubling the symbol for the short affricate: [ʧʧ]. This is done in order to remain consistent with the notation for other long consonants. However, this notation does **not** imply that the affricate is doubly released. Rather, the articulation of this long affricate is variously that of an affricate with a long stop articulation: [tʧ]; or a long fricative articulation: [ʧʃ].

I have interpreted these forms as long, partially voiced /ʧ/. Geminate consonants typically span syllable boundaries; in the examples above, the voicing of long /ʧ/ occurs in the onset of the second syllable, leaving the coda of the first syllable voiceless. This creates the phonetic cluster [t.ʤ] with [t] as the coda of the first syllable and [ʤ] as the onset of the second.

The creation of the cluster [tʤ] can perhaps best viewed as a two-stage process: intervocalic affricate lengthening (which in this case occurs across a word boundary), followed by the partial voicing of this long affricate. The affricate lengthening rule is described above, and the partial voicing rule can be described as follows:

320 [ʧʧ] → [ʧʧ] ~ [tʤ] / V _ V (:)[63]

[ʤ] occurs intervocalically, as well as after /n/ or /y/ and before a vowel.

321	aʤi:ta:ʒo	'he counts'	atshî(h)tâshu
322	mətti:ʤi	'hand'	mitî(h)tshî
323	a:bəʤi'ta:wn	'clothes'	âpatshî(h)tâun
324	ʧwa:pe'ka:yʤena:n	'we (incl.) wash'	tshuâpekâ(h)itshenân

---

[63] This rule would appear to be problematic, as geminates are generally considered indivisible (as they only have one set of features linked to two units on the skeletal tier). However, English allows a single segment to be divided with respect to voicing: word-final /z/ is usually considered partially devoiced; so, in English, word-final /z/ is voiced for its first half and unvoiced for its second half. I propose a similar process in Mushuau Innu, by which the long affricate (generally pronounced as [tʧ]) is partially voiced intervocalically, surfacing as [tʤ].

325 awɛnʤɛn 'who are they?' auenitshenat(sh)

/ʧ/ patterns like other obstruents, having voiced and voiceless allophones; [ʤ] is the voiced allophone of /ʧ/[64].

326 /ʧ/ → [ʧ] ~ [ʤ] / [+son] _ [+son]

There are several instances of intervocalic [hʤ] and no instances of [hʧ]. This suggests that the cluster[65] /hʧ/ surfaces as [hʤ] intervocalically[66], and that /hʧ/ surfaces

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[64] MacKenzie (1980: 87) reports that "at the phonetic level, voicing can distinguish certain pairs of words after the rule of short vowel syncope has operated. At Rupert House [mi:ʤu:] mi:ʧiw 'he eats it' is found beside [mi:ʧu:] mi:tʃuw mi:ʧiʃuw 'he eats'" (I have changed the notation of MacKenzie's examples to keep the it consistent with that of the thesis). However, this surface level voicing distinction is not operative in Mushuau Innu.

1	'mi:ʧuʦ	'they eat (early)'	mîtshishuat(sh)
2	'mi:ʤo	'he eats (early)'	mîtshishu
3	mi:ʧʃo	'he eats'	mîtshishu

As seen in these examples, the forms 'he eats' and 'they eat' differ in voicing even though they are both the intransitive forms of the verb (the intransitive is the form that typically undergoes syncope). The intransitive form of this verb does undergo syncope in Mushuau Innu, as demonstrated by the intransitive form 'he eats', which has [...ʧʃ...] after a long vowel, indicating syncope has occurred. The voicing distinction MacKenzie refers to would cause all of the above forms to surface as voiceless; as this is not the case, it can be inferred that this voicing distinction does not occur in Mushuau Innu.

[65] The status of /hʧ/ as a cluster is discussed in sections 2.1.5.4. and 3.1.2.

[66] Voicing of /ʧ/ in the cluster /hʧ/ is unusual, as all other obstruents remain voiceless when they occur after [h]. However, as /h/ can be considered a sonorant, perhaps voicing of /ʧ/

as [hʦ] word-finally (as all word-final /ʧ/ become [ʦ], see discussion above). *a:htsuk*$^{\omega}$ 'seal' <â(h)tshik$^{\ddot{u}}$> is an intervocalic /hʧ/ which surfaces as [hʦ] instead of [hʤ]. This can be accounted for by assuming that [hʤ] and [hʦ] are in free variation intervocalically.

327 /hʧ/ → [hʤ] ~ [hʦ] / V (:) _ V (:)

In conclusion: the phoneme /ʧ/ has allophones [ʧ], [ʦ], [ʤ] and [ʧʧ]. The allophones [ʧ], [ʤ] and [ʧʧ] occur in free variation intervocalically, when the preceding vowel is short (occasionally [ʦ] occurs in free variation with these allophones in intervocalic position). The allophone [ʦ] occurs in word-final position ([ʧ] occasionally occurs in word-final position as well), as well as after a vowel and before a coronal sonorant.

The cluster /hʧ/ has allophones [hʤ] and [hʦ] occurring in free variation intervocalically. In word-final position /hʧ/ always surfaces as [hʦ] (the status of /hʧ/ as a cluster is discussed in sections 2.1.5.4. and 3.1.2.).

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after /h/ (and before a vowel) can be considered intersonorant voicing, though it should be emphasized that other obstruents, which have intersonorant voicing, do not voice after /h/.

2.1.5. Conclusions on consonants

2.1.5.1. Length

Length is non-phonemic in consonants; it is the result of an optional lengthening rule. This allophonic lengthening of consonants occurs intervocalically after short vowels. /n/ and /s/ also have phonetically long counterparts, which are best analysed as a sequence of identical sounds rather than true geminates. The diminutive morpheme has an exceptional underlying representation (/ʃʃ/) and usually surfaces as the long consonant [ʃʃ] in all environments.

2.1.5.2. Voicing

Voicing is non-phonemic in consonants. Voicing of obstruents typically occurs between sonorants. Some obstruents (such as /k/, which is regularly voiced between sonorants), are more susceptible to voicing than others (such as /t/, which rarely undergoes voicing).

2.1.5.3. Postaspiration

Postaspiration is non-phonemic. While postaspiratopm occurs in voiceless stops, the paucity of examples in the data prevents a fuller description of environments.

2.1.5.4. Preaspiration

As no /hC/ occurs word-initially, I will assume that instead of being a single segment, /hC/ is a consonant cluster. Assuming that preaspirated consonants are clusters allows their lack of occurrence in word-initial position to be explained as the result of sonority sequencing, as discussed in section 3.1.2.

2.1.5.5. Labialized consonants

In most positions there would appear to be no way to determine whether Cw is a single segment (a labialized consonant) or two segments (a consonant followed by [w]). However, in word-final position the existence of a consonant followed by [w] would violate the Sonority Sequencing Generalization, as discussed in section 3.1.2. Moreover, those consonants which can be followed by word-final [w] may also be followed by word-final [u]. So, if [Cw] is considered to be the sequence /Cu/ a problem arises: as [w] and [u] are both underlyingly /u/ (as discussed in section 2.2.4.3.), there would be no reason for the sequence /Cu#/ to consistently surface as [Cw#] in some words, but consistently as [Cu#] in others. This problem does not arise if [Cw] is considered a single labialized segment.

There are three consonants which can be followed by a word-final [w], /k/ and /t/ and /m/[67].

328	nɨst$^{\omega}$	'three'	nisht^{u}
329	mɨstuk$^{\omega}$	'stick of wood'	mishtik^{u}
330	a:ʃəmwɔk$^{\omega}$	'red throated loon'	âshimuâk^{u}

---

[67] All examples of word-final [mw] in the data are cases of third person singular verbs. The third person singular is often marked by /u/ in Mushuau Innu. So, it is possible that these cases of word-final [mw] are the result of a labialization of /m/ due to the following third person suffix /-u/, with subsequent deletion of the vowel. If this is the case then it is possible that there is no labialized phoneme /m$^{\omega}$/ in Mushuau Innu.

331	ni:**m**$^{\omega}$	'he dances'	nîmu
332	nɨss'to:htu**m**$^{\omega}$	'he understands'	nishtû(h)tam^{u}

Given the arguments outlined above, these sounds (/k^{ω}/, /t^{ω}/ and /m^{ω}/) are underlyingly single labialized segments. This segmental status is further discussed in section 3.1.2.

2.1.5.6. Phonemes

The above analysis provides the following list of consonant phonemes for Mushuau Innu.

p	t	k	
-	t^{ω}	k^{ω}	
m	n	-	
m^{ω}	-	-	
-	ʧ	-	
-	s	-	h

Figure 2.4. Consonant phonemes

The following is a list of consonant phonemes and their allophones.

/p/	[p], [p^h], [pp], [b]
/t/	[t], [t^h], [tt], [d]
/k/	[k], [k^h], [kk], [g]
/m/	[m], [mm]
/n/	[n], [nn], [n̥]
/t^{ω}/	[t^{ω}], [t]

/k$^{\omega}$/	[k$^{\omega}$], [k], [g$^{\omega}$]
/m$^{\omega}$/	[m$^{\omega}$], [m]
/ʧ/	[ʧ], [ʧʧ], [ʤ], [tʤ], [ʦ], [t], [s]
/s/	[s], [ss], [ʃ], [ʒ], [h]
/h/	[h]

Table 2.5. Individual segments

/hp/	[hp], [p], [f], [hɸ], [ɸ]
/ht/	[ht], [t], [θ], [çt]
/hk/	[k], [x], [h]
/hʧ/	[hʤ], [hʦ], [ʦ], [çʦ]
/hk$^{\omega}$/	[x], [x$^{\omega}$], [k], [k$^{\omega}$]
/sp/	[sp], [ʃp]
/st/	[st]
/sk/	[sk], [ʃk]
/nn/	[nn]
/ss/	[ss], [ʃʃ]
/ʃʃ/[68]	[ʃʃ], [ss], [ʃ], [s]

Table 2.6. Notable consonant clusters

2.2. Vowels

Sections 2.2.1. to 2.2.4. discuss allophonic distribution, while section 2.2.5. discusses the grouping of these allophones into phonemes.

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[68] This is the diminutive morpheme.

The following is a vowel chart showing all of the phonetic vowel sounds which occur in Mushuau Innu.

i/i:/iy	ɨ/ɨ:/ɨy	u/u:/uw
		ʊ/ʊ:/ʊw
e/e:		o/o:/ow
ɛ/ɛ:	ʌ/ə	ɔ/ɔ:/ɔw
	a/a:	

Figure 2.5. Vowel allophones of Mushuau Innu

The following charts show the short and long vowel phonemes of Mushuau Innu.

i		u
	a	

Figure 2.6. Short vowel phonemes

i:		u:
e:		
	a:	

Figure 2.7. Long vowel phonemes

The following diagrams show the allophones of each vowel phoneme in Mushuau Innu.

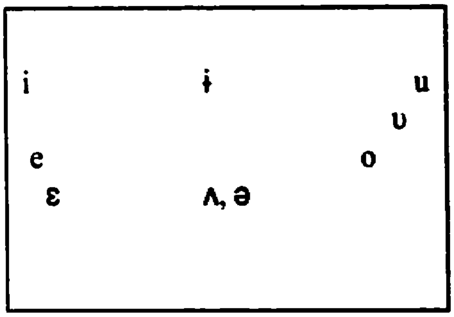

Figure 2.8. Allophones of /i/

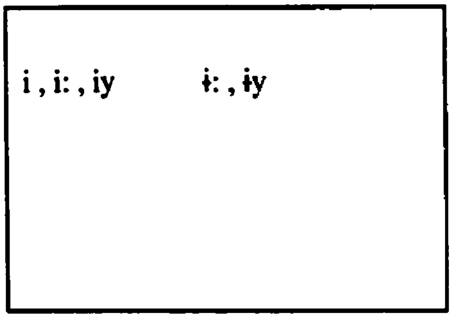

Figure 2.9. Allophones of /iː/

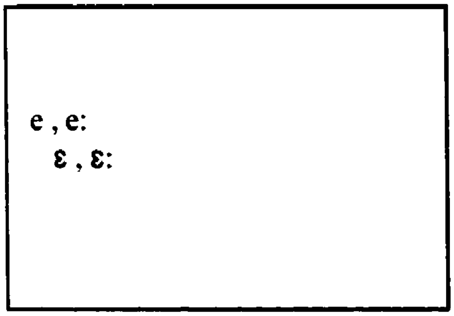

Figure 2.10. Allophones of /eː/

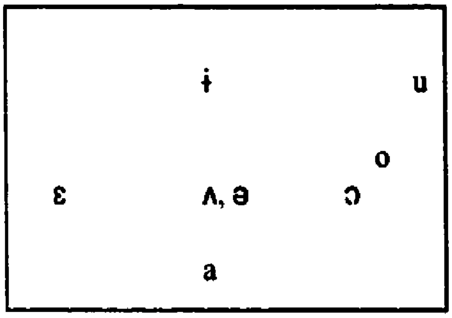

Figure 2.11. Allophones of /a/

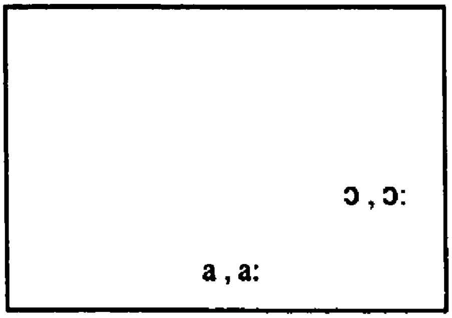

Figure 2.12. Allophones of /aː/

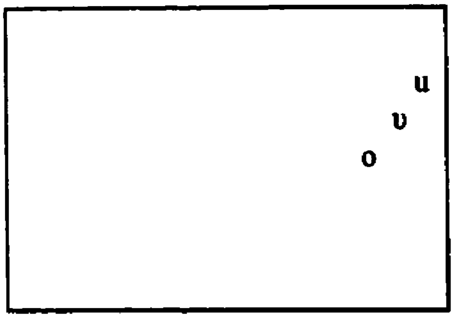

Figure 2.13. Allophones of /u/

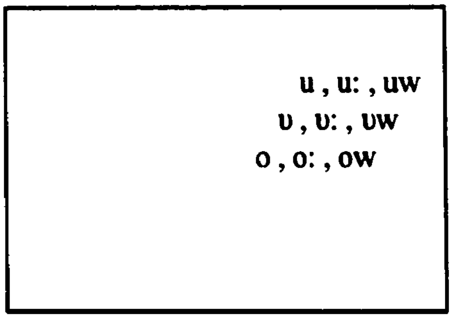

Figure 2.14. Allophones of /u:/

2.2.1. Front vowels

2.2.1.1. High

[i] occurs in word-initial, word-final or word-medial position, in open or closed syllables.

333	ˈi̲nnʊ	'person'	iǹnu
334	i̲skwewʊʦ	'women'	ishkueu
335	məttɛnni̲	'tongue'	miteǹnî
336	nutawi̲	'my father'	nû(h)tâuî
337	məssi̲nah	'shoe (pl.)'	massina
338	kami̲ˈhuʃi̲t	'red (apple)'	kâmî(h)kushit
339	mi̲sta:buʃ	'type of hare'	mishtâpush

[i] becomes a rounded vowel immediately before or after [kw]. Example alternations are provided below:

340	ʧiʒi̲kɔw	'it is daytime'	tshîshikâu

341	ʧi:ʒʊ̲kᵚ	‘day, sky’	tshîshikᵘ

In example 340 [i] occurs before [kɔ], (which is not an environment for rounding). However, when [i] occurs before [kᵚ] it becomes [ʊ] as seen in example 341. It appears that the environment for this rounding is not limited to [kᵚ], the orthography suggests that several instances of [um] are underlyingly /imᵚ/[69]:

342	a:tʰum	‘dog’	atimᵘ
343	pi:ʒʊm	‘moon’	pîshimᵘ

This suggests that the rounding of [i] next to labialized /kᵚ/ occurs when [i] is next to any labialized consonant (the phonemic status of labialized consonants is discussed in sections 2.1.5.5. and 3.1.2.).

[i] rounds after [w], as seen in the following examples:

344	'i̲nnʊ	‘person, (Indian, Innu)’	iǹnu
345	məʧi̲nnu	‘bad Indian’	matshiǹnu
346	wi:nipawʊ̲nno	‘Innu’	uîǹipâuǹnu

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[69] It should be noted that the evidence for the existence of an underlying /i/ in these examples is limited to the existence of /i/ in related dialects (as shown by the orthography). As such, the evidence should not be considered conclusive.

Rounding also takes place when [i] occurs before [w]. The sequence [iw] is rare, and when it occurs, the [i] is underlyingly long, and so is not a target for rounding[70]. There are no instances of short [i] followed by [w], and so [i] rounds in this environment. The allophones of /i/ and /u/ that surface when these sounds are next to each other are further discussed in section 3.1.3.3.

As discussed in section 1.8.2., in Sheshatshiu, /i/ and /a/ become rounded when they are followed by a labial consonant and /u/ (Clarke 1982: 12). In Mushuau Innu, the rounding of /i/ is restricted to occurring before or after /u/ or a labialized consonant[71]. In certain sequences, instead of rounding, /i/ surfaces as [y] when adjacent to /u/; this is done to avoid hiatus as discussed in section 3.1.3.1.

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[70] Examples 1 and 2 below appear to contain the sequence [iw], but the [i] is underlyingly long /i:/.

1	ubwi̲wɨyʃəp	'feather'	upîuîship
2	nutawi̲	'my father'	nû(h)tâuî
3	o:'tawi̲y̲a	'his father'	u(h)tâuia

The orthography suggests that the /i/ in the first of these examples is actually long /i:/. This is supported by the fact that [i] is a frequent allophone of /i:/, as discussed in section 2.2.5.2. The last example demonstrates that the [i] in 'my father' is underlyingly long, as it surfaces in 'his father' as [iy], which can only be an allophone of /i:/, as discussed in section 2.2.4.3.

[71] There is one item that shows <ipu> in the orthography but [upu] in the phonetic notation: p$^{\omega}$ʊp$^{\omega}$ʊn 'year' <pipun>. Another item shows <ipu> in the orthography but demonstrates no rounding: nəppo 'he dies' <nipu>. Perhaps there is a rounding rule operative in Mushuau Innu similar to that of Sheshatshiu. The lack of rounding in the form nəppo 'he dies' <nipu> can be accounted for by assuming that consonant lengthening (discussed in section 2.1.5.1.) bleeds this rounding rule. Alternatively the rounding of /i/ before /pu/ may be an historical rule that affected some words but is no longer active. As there are only these two examples, no conclusions can be drawn.

This rounding rule can be expressed as follows:

$$347 \quad /i/ \quad \rightarrow \quad [u]^{72} \quad \% \quad \begin{array}{c} \text{V-place}^{73} \\ | \\ \text{[LAB]} \end{array} \quad \_$$

This formulation of the rule assumes that [w] is an allophone of /u/, as discussed in section 2.2.4.3. Furthermore, the fact that the place specification depends from a V-place node means that in order for rounding to occur, the segment which induces rounding must be a round vowel or a consonant with a labial secondary articulation (both of which have their [LABIAL] specification depending from a V-place node as discussed in section 1.9.1.).

[ʊ] is not exclusively an allophone of /i/, as there are many instances of [ʊ] occurring outside a rounding environment. In these cases, [ʊ] realizes short /u/ as discussed in section 2.2.5.2.

[i] alternates with [ɨ], suggesting that these sounds are allophones of the same

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[72] Rounded /i/ can surface as any of the allophones of /u/, (see section 2.2.5.2.)

[73] There are a few items that show [uku] where the orthography shows <iku>. I suggest that this is the result of this same rounding rule. In these few instances, /k/ may be attaching to the [LABIAL] specification of the following vowel and so becoming $/k^{w}/$, allowing the rounding rule to apply.

phoneme (the distribution of [ɨ] is discussed in section 2.2.2.1. below).

348	ntʌ'kuʃi̱n / nto/ɔk$^{\omega}$ʊʃɨ̱n	‘I come’	nitakushin
349	i̱skʊttew / nɨ̱sk$^{\omega}$ʊt'tew ‘fire’		ishkuteu

[i] also alternates with [e] and [ɛ], though rarely.

350	i̱skʊttew	‘fire’	ishkuteu
351	e̱ʃkʊtew	‘(where is the) fire’	ishkuteu
352	ʊti̱s'kwe:ma	‘his wives’	utishkuema
353	n'tɛ̱skwɛm	‘my wife’	nitishkuem

The full citation of example 351 above is: *tante eʃkutew* ‘where is the fire’. The initial vowel of ‘fire’ may have assimilated to the final [e] of the preceding word. This alternation suggests that /i/ can surface as [e] or [ɛ], but with so few examples of the process, the environments under which this change occurs cannot be determined.

The above analysis suggests a phoneme /i/ with the allophone [u][74] occurring in rounding environments and the allophones [i], [ɨ], [e] and [ɛ] occurring in non-rounding environments. [i] and [ɨ] are the most common allophones with [e] and [ɛ] occurring

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[74] Rounded /i/ can surface as any of the allophones of /u/ ([u], [ʊ] and [o]). The allophones of /u/ are discussed in section 2.2.5.2.

rarely (the environments determining the occurrence of [e] and [ɛ] are unclear). /i/ also has allophones [ɵ] and [ʌ] as discussed in section 2.2.2.2. and the allophone [y] as discussed in section 2.2.4.3.

[i:] occurs in open or closed syllables, but never in word-final position and rarely in word-initial position.

354	mi:n	'berry'	mîn
355	ni:piya	'leaves'	nîpîa
356	wi:nipɛkw	'ocean'	uînipek^u^
357	ni:ʦ'nana	'our (incl.) home'	nîtshinâna

There are several instances of [i] alternating with [i:] suggesting that [i] is an allophone [i:].

358	ʌ'weʃi:ʃ	'animal'	aueshîsh
359	awe:hiʃ	'animal'	aueshîsh
360	wi:ʃwɔwɔw	'it is yellow'	uîshâuâu
361	kawiʃwɔwʃiʦ	'yellow (apples)'	kâuîshuâushit(sh)

[i:] is in complementary distribution with [iy]. [i:] only occurs before consonants, while [iy] only occurs before vowels, or occasionally (though rarely) word-finally. These observations suggest the following rule:

362 /i:/ → [iy] / _ V (:)[75]

MacKenzie (1980: 104) states that /iy/ and /i:y/ are not distinguishable in any dialect. This is borne out by the data for Mushuau Innu, as no cases of [i:y] are recorded, only [iy] which as discussed above is an allophone of /i:/..

[i] alternates with [iy] in word-final position (though [iy] is rare in this position).

363	u:ʃwi(y)	'his tail'	ushui
364	miskʊmi(y)	'ice'	mishkumî
365	ni:pi(y)	'leaf'	nîpî

As [iy] is an allophone of /i:/, these observations suggest that /i:/ tends to surface as [i] (and occasionally as [iy]) word-finally.

366 /i:/ → [i] ~ [iy] / _ #

The observations above indicate that there is a phoneme /i:/ which surfaces as [i:] before consonants; as [iy] before vowels (and occasionally word-finally) and as [i] word-finally[76].

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[75] This rule is motivated by syllable structure, as discussed in section 3.1.3.2.

[76] /i:/ also has allophones [ɨ:] and [ɨy] as discussed in section 2.2.2.1.

2.2.1.2. Mid

[e] occurs in open syllables, or immediately before word-final [w], but *is rare in word-initial or word-final position. [e] rarely occurs before a long consonant (this observation is discussed in section 2.2.5.2.).

367	ma:teʃum	'he cuts'	mâtisham^{u}
368	atsɨnnepukw	'snake'	(a)tshinepik^{u}
369	wi:nipegut	'at the ocean'	uînipekû(h)t(sh)
370	'metwew	'he plays'	metueu
371	mi:new	'he gives'	mîǹeu

[e:] occurs exclusively in open syllables. It does not occur word-initially, word-finally or before a long consonant.

372	ʃi:be:go	'it is green'	shîpeku
373	te:piskat	'night'	tepishkât(sh)
374	ne:teh	'there'	nete
375	ne:new	'he breathes'	ǹe(h)ǹeu
376	awe:hiʃ	'animal'	aueshîsh

[e] and [e:] often alternate, suggesting that they are allophones of the same phoneme.

377	ʌ'weʃi:ʃ / awe:hiʃ	'animal'	aueshîsh

378	pɨnnɛʃi:ʃ / pənnɛ:hiʃ	‘bird’	piṅeshîsh

[ɛ] tends to occur in closed syllables; *when [ɛ] does occur in an open syllable, the following consonant (the onset of the following syllable) is typically [n]. [ɛ] rarely occurs word-initially and never occurs word-finally. [ɛ] rarely occurs before a long consonant (this observation is discussed in section 2.2.5.2.).

379	mɛskeyo	‘road’	meshkanau
380	wi:nəpɛk$^{\omega}$	‘ocean’	uînipek^{u}
381	awɛn	‘who’	auen
382	mi:ʧɛnah	‘many’	mî(h)tshena
383	ʧɨsˈsɛni:tɛn	‘you know’	tshitshissenî(h)ten
384	ɛˈmi:xwa:y	‘spoon’	emî(h)kuân

[ɛ:] tends to occur in open syllables; *the following consonant (the onset of the following syllable) is typically [ʃ] or [n]. [ɛ:] does not occur word-initially, word-finally or before a long consonant.

385	upˈmɛ:ʃəno	‘he lies (on the side)’	û(h)pimeshinu
386	ma:mɨttəˈnɛ:nitʊm	‘he thinks’	mâmitunenî(h)tam^{u}
387	mɛ:ʃkənowa	‘roads’	meshkanaua

[ɛ] alternates with [ɛ:], indicating they are allophones of the same phoneme.

388	u:tə'ʧyemɛʃ	'fish guts'	utatshishîmesh
389	nəmɛ:ʃ	'fish'	namesh

[e] and [ɛ] are also in an allophonic relationship, as they alternate.

390	wi:nipegʊt	'at the ocean'	uînipekû(h)t(sh)
391	wi:nəpɛk$^{\omega}$	'ocean'	uînipek^{u}
392	una:'pema	'her husband'	unâpem
393	n̥'na:pɛm	'my husband'	ninâpem

[e:] and [ɛ:] are also in an allophonic relationship as shown in the following alternation:

394	upme:ʃənne:	'if you lie on the side'	û(h)pimeshîne
395	ʊ:p'mɛ:ʃəno	'he lies on the side'	û(h)pimeshinu

All of these alternations between mid front vowels suggest that there is only one mid front vowel phoneme /e:/, which has four allophones (the reason for choosing /e:/ as the underlying representation of this vowel is discussed in section 2.2.5.2.). /e:/ variably surfaces as [e:], [e] or [ɛ:] in open syllables; and as [ɛ] in closed syllables. The only allophone of /e:/ which occurs in word-initial or word-final position is [e].

2.2.2. Central vowels

2.2.2.1. High

[ɨ] occurs almost exclusively in closed syllables. [ɨ] does not occur word-initially or word-finally and is always preceded by a consonant, which means it does not occur in onsetless syllables.

396	ʧɨ̠t.te.wa	‘is it warm’	tshishiteu
397	pən.nɨ̠p.'pɨ̠n.no	‘it is dusty’	panipanu
398	ʧis.pɨ̠ʃ.kun	‘your backbone’	tshishpishkun
399	ʧɨ̠s.'sɛ.ni:.ten	‘you know’	tshitshissenî(h)ten
400	ma:.mɨ̠t.tə.'nɛ:.ni.tʊm	‘he thinks’	mâmitunenî(h)tam^{u}

[ɨ] alternates with [i], as discussed in section 2.2.1.1., indicating that [ɨ] is a centralized allophone of /i/ which surfaces in closed syllables (which have onsets). This gives us the following rule:

401 /i/ → [ɨ] / [C _C]σ

As [ɨ] is an allophone of /i/, it should undergo the rounding rule described for /i/ in section 2.1.1.1. This is confirmed by the fact that [ɨ] never occurs immediately before or after [w] or a labialized consonant.

[ɨ] frequently deletes when it occurs between consonants with the same place of articulation.

402	nɨ̲ʃka:t	‘my leg’	nishkât
403	nɨ̲stɛ:ʃ	‘my older brother’	nishtesh
404	n̩'ti:ʤi:n	‘my hand’	nitî(h)tshî
405	n̩'tɛskwɛm	‘my wife’	nitishkuem

As seen in examples 402 and 403, the first person prefix contains the vowel /i/, surfacing here as [ɨ]. When this vowel occurs between consonants with the same place of articulation (as in examples 404 and 405), the vowel deletes (vowel syncope is further discussed in section 3.1.4.).

[ɨ:] is rare; there are only two instances.

406	pɨ̲:̲θəgəmiʦ	‘in a room’	pî(h)takamî(h)t(sh)
407	nɛʃɨ̲:̲m	‘my sister’	nishîm

In the second of these examples, [ɨ:] alternates with [i:] (as seen by comparing example 407 with example 408), suggesting they are allophones of the same phoneme. As [i:] is very common, while [ɨ:] is limited to these two instances, I will assume that [ɨ:] is a rare allophone of /i:/.

408	ʊʃi̲:̲ma	‘his sister’	ushîma

There is one item that contains [ɨy].

409	ubwiwɨyʃəp	'feather'	upîuîship
410	ubwiwɨyʃəba	'feathers'	upîuîshipa

As discussed above, [i] alternates with [ɨ]; while [i:] alternates with [ɨ:] and [iy]. These observations suggest that [ɨ] is an allophone of /i/ and that [ɨy] is an allophone of /i:/.

2.2.2.2. Mid

[ə] occurs in open or closed syllables, but does not occur word-finally, and is rare word-initially (with only one item in the data).

411	məʃət	'foot'	mishit
412	məskuʃu	'one blade of grass'	mashkushu
413	mətti:ʤi	'hand'	mitî(h)tshî
414	əska:skʷ	'greenwood'	ashkâshk^{u}

[ə] alternates with: [i], [ɨ], [e], [ɛ], [ʌ], [a] and [ʊ]. This range of alternants suggests that [ə] is an allophone of several vowel phonemes. This suggestion is supported by evidence from Pessamiu, where /i/ and /a/ have neutralized to [ə] in almost all environments; additionally there is evidence of /u/ undergoing the same neutralization (MacKenzie 1980: 140-141). As there is no evidence of [ə] alternating with a long vowel allophone, I assume that [ə] is an allophone of several **short** vowels[77]. [ə] alternates most frequently with [ɨ] and [a].

[ə] alternates with [ɨ] and [i] almost exclusively in the environment of an adjacent [n] (examples 415 - 426) or before a word-final /sk/ (example 427) or /ʧ/ (example 428) (word-final /ʧ/ surfaces as [ʦ] as discussed in section 2.1.4.1.).

415	wa:pmɨ̲n	'apple'	uâpimin
416	wa:pəmə̲na	'(he bites an) apple'	uâpimina
417	pɨ̲nneʃi:ʃ / pə̲nne:hiʃ	'bird'	piǹeshîsh
418	mɨ̲ni:	'drink (your water)'	minî
419	mə̲nno	'he drinks'	minu
420	una:ʃɨ̲no / una:ʃə̲no	'(he eats) meat (obv.)'	uiâshiǹu
421	wi:ni̲pegʊt	'at the ocean'	uînipekû(h)t(sh)
422	wi:nə̲pɛk$^{\omega}$	'ocean'	uînipek^{u}
423	nɨ̲ppi:hts	'water (loc.)'	nipî(h)t(sh)
424	nə̲ppi	'water'	nipî
425	niʃi:mi:kɔwn	'my younger third cousin'	nishîmî(h)kâun
426	nə̲ʃi:m	'my younger sibling'	nishîm

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[77] Though [ə] does occasionally alternate with [e] and [ɛ], this does **not** mean that the phoneme /e:/ can surface as [ə], as this alternation might suggest (since [e] and [ɛ] are usually allophones of /e:/). Rather, this alternation is the result of other vowels (such as /i/ and /a/) alternating between [ə] and [e] or [ɛ]. Both /i/ and /a/ include the phones [ə], [e] and [ɛ] among their possible realizations.

427	mɨ̱ʃkʷ / mə̱ʃkʷ	'bear'	mashkᵘ
428	'wi:pɨ̱ʦ / wi:pə̱ʦ	'early'	uîpat(sh)

This gives us the following rules:

429 /i/ → [ə] / $\_ \left\{ \begin{array}{l} /sk/\# \\ /\text{ʧ}/\# \end{array} \right\}$

430 /i/ → [ə] % n _

As there appears to be no phonological motivation for these rules, perhaps the realization of /i/ as [ə] in these environments is the result of coincidence, and so [ə] should be considered in free variation with the other allophones of /i/.

[ə] often deletes between consonants which have the same place of articulation.

431	wa:pə̱məna	'apple (obv.)'	uâpimina
432	wa:pmɨn	'apple'	uâpimin
433	mɨsko:d(ə̱)n	'it freezes'	mishkûtin
434	wa:p(ə̱)'mew	'he sees (an Indian)'	uâpameu
435	nə̱'to:təmʊʦ	'they listen'	natû(h)tamuat(sh)
436	n̩to:ta	'listen'	natû(h)ta

Deletion between homorganic consonants also occurs to [ɨ] as discussed in section 2.2.2.1. Syncope is discussed in section 3.1.4.

[ʌ] can occur in open or closed syllables, word-initially or word-finally.

437	a:yʌ̲pi:n	'fishnet'	a(h)ǹapî
438	wi:pʌ̲ʦ	'early'	uîpat(sh)
439	ʌ̲mʌ̲ 'ta:ha:w	'it is not cold'	ama tâ(h)kâu

[ʌ] alternates with [ɨ], [ə], [a], [u], [o]. This wide range of alternants, suggests that like [ə], [ʌ] is a centralized allophone of several short vowel phonemes. [ʌ] alternates most frequently with [a].

[ʌ] alternates with [ɨ] and [i] in final closed syllables.

440	'wi:pʌ̲ʦ / wi:pɨ̲ʦ	'long time ago'	uîpat(sh)
441	ʌ'wa:ʃʃʌ̲ʦ / awassi̲ʦ	'boys'	auâssat(sh)

This gives us the following rule:

442 /i/ → [ɨ] ~ [i] ~ [ʌ] / _ C#

2.2.2.3. Low

[a] occurs in open or closed syllables, word-initially, word-finally and word-medially.

443	ta:ma̲ka̲t	‘cod fish (tom cod)’	tâmakat
444	wi:na̲stəgey	‘caribou stomach’	uînâshtakai
445	a̲tti:χ$^{\omega}$	‘caribou’	atî(h)k^{u}
446	pi:ʃkwe:ˈuna̲	‘hairs’	pîshkueuna

[a] alternates with [ʌ], particularly in word-initial position.

447	a̲wassiʦ / ʌ̲ˈwa:ʃʃʌʦ	‘boys’	auâssat(sh)
448	a̲we:hiʃ / ʌ̲ˈweʃi:ʃ	‘animal’	aueshîsh
449	a̲tti:x$^{\omega}$	‘caribou’	atî(h)kuat(sh)
450	ʌ̲ˈtti:xuʦ	‘caribou (pl.)’	atî(h)k^{u}

This gives us the following rule:

451 /a/ → [a] ~ [ʌ] / # _

[a] frequently alternates with [ɔ] when following or preceding [w].

452	pɨskʊtna̲wah	‘mountains’	pishkutinâua
453	pɨskʊtnɔ̲w	‘mountain’	pishkutinâu
454	usˈka̲w	‘horn hair is coming off’	ushkâu
455	uskɔ̲wpi:ʒʊm	‘September’	ushkâu-pîshim^{u}
456	okɔwɔwa̲	‘their mother’s (shoes)’	ukâuâua

457	ʊkɔwɔwɔ̱	‘their mother’s (sister)’	ukâuâua

This alternation is the result of an underlying /a/ rounding to [ɔ] in the environment of [w]. [ɔ] only realizes /a/. This means that any instance of [ɔ] is underlyingly /a/.

Rounding of /a/ also occurs next to /k$^{\omega}$/.

458	nto/ɔk$^{\omega}$ʊʃɨn	‘I come’	nitakushin
459	mənaːʃkwɔw	‘forest’	minâshkuâu

The suggestion that /a/ undergoes rounding next to /k$^{\omega}$/ is supported by the fact that /i/ undergoes rounding in the same environment as discussed in section 2.2.1.1. To remain consistent with the rounding rule described for /i/ in section 2.2.1.1., I assume that /a/ rounding occurs when /a/ is adjacent to any labialized consonant, although there are no examples in the data to support (or refute) this suggestion. This allows /a/ rounding to be described with the following rule (which is identical to the /i/ rounding rule described in section 2.2.1.1.):

460 /a/ → [ɔ] % V-place
|
[LAB] _

The rounded form of /a/ typically surfaces as [ɔ]; however rounded /a/ can also surface as [u][78]. This suggests the following optional rule:

461 [ɔ] → [ɔ] ~ [u] ~ [ʊ] ~ [o]

The sequence of /a/ followed by [w] can surface as [o] (though rarely).

462	ne:kɔ̲w	'sands'	nekaua
463	ne:ko̲	'sand'	nekau

/a/ occasionally (though rarely) undergoes rounding before the sequence [ku][79].

No rounding:

464	a̲kʊ:pənno	'(she sews a) coat'	akû(h)piǹu
465	ʌ̲ku:hpʰ	'coat'	akû(h)p

Rounding:

466	ˈstu̲ku:hp̆	'(take off) your coat'	tshitakû(h)p

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[78] I use the symbol [u] here to represent any of the allophones of /u/ ([u], [ʊ], [o]). These allophones are discussed in section 2.2.5.2.

[79] There is some evidence of /a/ also undergoing rounding after the sequence /uk/: *mi:ˈtogʊn* / *mi:ˈtogey* 'ear' <mî(h)tûkai>. In this example, we see [ʊ] alternating with [e]. This alternation is the result of /a/ either rounding to [ʊ] because of the preceding /uk/ or raising to [e] due to the following [y] (see rule 480). The alternation between [y] and [n] seen in this word is discussed in section 3.3.

This rounding of /a/ next to the sequence /ku/ is a rare occurrence, which I suggest is the result of /k/ optionally attaching to the [LABIAL] specification of the adjacent labial vowel. This would allow /k/ to optionally take on secondary labial articulation when next to a round vowel, creating the segment /k^w/ which would trigger the /a/ rounding rule described above. This explains why /a/ occasionally rounds next to the sequence /ku/. The same explanation was used in section 2.2.1.1. to explain the occasional rounding of /i/ next to the sequence /ku/.

[a] alternates with [ɛ] and [ɨ], though rarely. The alternation appears to be the result of raising under the influence of high vowels in the preceding and following syllables.

No raising:

467	ʧima̲ssɨnno	'our (incl.) shoe'	tshimassinnu
468	nəma̲ssɨnna:y	'our (excl.) shoe'	nimassinnân

Raising:

469	nə'mɛ̲ssɨn	'my shoe'	nimassin
470	ʧɨmɨ̲ssɨnnuwah	'our (incl.) shoes'	tshimassinnua

This gives us the following rule:

471 /a/ → [a] ~ [ɛ] ~ [ɨ] / i .C _ C . C i

MacKenzie (1980: 105) states that "there is raising of a before y in the majority of palatalized communities. In eastern Quebec-Labrador ay may become [ey]". Clarke (1982: 12) reports that /ay/ has raised to [ey] in Sheshatshiu. Ford (1978: 240) observes that this process occurs to all [ay] in Mushuau Innu as well. However, there are a few cases of [ay] in the data that would seem to indicate that raising is optional in Mushuau Innu.

472	pʌ'ka:hw**ay**	'hen'	pakâ(h)kuân
473	na:tw**ay**aʃo	'lake'	nâtuâiâshu
474	ʊnuskɔw**ay**a	'flour'	unushkuâuana
475	ʧəkʊs't**ay**uʦ	'we (incl.) fear'	tshikushtenân
476	**ay**simew	'Eskimo'	âissimeu
477	nɨmmɨ'ʃɨnn**ay**	'our (excl.) sister'	nimishinân
478	ʧwa:p'm**ayay**	'we (incl.) see him'	tshuâpamânân
479	wa:pmʊ'ʃʊn**ay**	'I see myself (subj.)'	uâpamishuiâne

However, there is an alternative explanation which allows the /a/ raising rule to be considered exceptionless: the examples above may contain long /a:/, and so would not be candidates for raising. [a] is a common allophone of /a:/ and the orthography suggests these forms contain long /a:/. For these reasons I will assume that all short /a/ become [e] when they occur before [y], while /a:y/ may surface as [ay] without undergoing raising.

480 /a/ → /e/ / _ /i/[80]

[a] occasionally deletes in word-initial position (vowel syncope is discussed in section 3.1.4.) as seen in the following example:

481	awassiʦ / _wa:ssɨʦ	'children'	auâssat(sh)

[a:] has the same distribution as [a], with the exception that long vowels tend not to occur before long consonants.

482	wa:pʊkʊnaʰ	'flowers'	uâpikuna
483	ʌ'wa:ʃ	'child'	auâss
484	a:yʌpi:n	'fishnet'	â(h)ňapî
485	u:skəna:	'bones'	ushkana

[a] and [a:] alternate, suggesting that they are allophones of the same phoneme. This alternation is particularly common in initial or final syllables.

486	awassiʦ / wa:ssɨʦ	'children'	auâssat(sh)
487	attʊm / a:tʰum	'dog'	atimᵘ

[a:] optionally undergoes rounding to [ɔ:], when it is adjacent to [w].

---

[80] [y] is an allophone of /i/, as discussed in section 2.2.4.3.

488	nwa:pma:w	'I see him'	nuâpamâu
489	nwa:p'mɔ:wʃʊn	'I see myself'	nuâpamâushun

While there are not many examples of alternation between [a:] and [ɔ:] in the data, an allophonic relationship has been established between the short forms of these vowels ([a] and [ɔ]). As well, [ɔ:] only occurs in a rounding environment, which suggests that it is the rounded allophone of some other vowel. For these reasons I will assume that [ɔ:] is the rounded allophone of /a:/.

[a:] optionally alternates with [ɔ]:

490	mi:'χwa:w / mi:gwɔw	'it is red'	mî(h)kuâu

This supports the suggestion that /a:/[81] rounds when adjacent to [w]. The change

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[81] [a:] also alternates with [e]. This alternation is extremely rare (the following example is the only case in the data). This alternation could be the result of assimilation to the following [e]. It may also be a morphophonemic alternation induced by the presence of the suffix [-en]. As there is only one instance of this alternation, there is not enough data to draw a conclusion.

1	taska:h-am	'he splits wood'	tâshkâ(h)am
2	nta:skeh-en	'I split wood'	ni-tâshkâ(h)en

The standard orthography for these examples would be <tâshkaim^{u}> and <nitâshkein> respectively. The reason for the discrepancy is that the standard orthography reflects a phonological process which occurs in other dialects but which is not operative in Mushuau Innu.

in length is consistent with other long vowels which display short allophones, particularly in final and initial syllables, as discussed in section 2.2.5.1.

This gives us the following rule:

491 /a:/ → [a:] ~ [ɔ:] % _ u[82]

2.2.3. Back vowels

2.2.3.1. High

[u] occurs in open or closed syllables and can occur word-initially and word-finally. [u] is the only round vowel to occur frequently before /k^{w}/.

492	wapuyan	'blanket'	uâpuiân
493	innuwuts	'people'	innuat(sh)
494	məssi:ʒukw	'eye'	missîshik^{u}
495	attussew	'he works'	atusseu
496	upme:ʃənne:	'if you lie (on the side)	û(h)pimeshîne
497	məskuʃu	'one blade of grass'	mashkushu
498	mɨstukw	'stick of wood'	mishtik^{u}
499	peyukw	'one'	peik^{u}
500	mɨstukwan	'head'	mishtikuân

---

[82] [w] is simply an allophone of /u/, as discussed in section 2.2.4.3.

[u:] occurs in open or closed syllables and can occur word-initially but not word-finally. [u:] never occurs before a long consonant. [u] and [u:] are the only back vowels which occur before [y][83].

501	ku:ku:ʃ	'pork'	kû(h)kûsh
502	otu:t	'fat (of meat)'	utût
503	u:tah	'canoes'	ûta
504	u:skwʊn	'his liver'	ushkun
505	natu:yew	'Iroquois'	nâtueu

[u] and [u:] alternate suggesting they are allophones of the same phoneme. This occurs most frequently in initial and final syllables.

506	u:skəna:	'bones'	ushkana
507	uskən	'bone'	ushkan

The distribution of [u:] and [u] described above suggests the following rule:

508 /u:/ → [u:] ~ [u] % # (C) _

[ʊ] can occur in an open or closed syllable. In either case it has a tendency to

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[83] There are only two lexical items with [u(:)y]: *wa:puyan* 'blanket' <uâpuiân>, and *natu:yew* 'Iroquois' <nâtueu>.

occur before [n], particularly towards the end of a word. [ʊ] does not often occur word-initially or word-finally. When [ʊ] does occur word-initially, it is usually in an open syllable.

509	maʃiga:θʊ̲na:no	'they fight each other'	mâshi(h)ikâtunânu
510	pi:ʃ'kwewʊ̲n	'one hair (person)'	pîshkueun
511	nɛsk$^{\omega}$ʊ̲n	'my nose'	nishkun
512	mi:togʊ̲n	'ear'	mî(h)tûkai
513	ntɔ:wiyʊ̲n	'I hunt'	natû(h)un[84]
514	kʊ̲n	'snow'	kûn
515	ʊ̲tɛʃiniga:ʃʊ̲n	'his name'	utishinî(h)kâshun
516	ʊ̲ta:stə'mi:k$^{\omega}$	'his face'	utâshtamik^{u}
517	ʊ̲mʊ̲nʊ:n	'his right hand'	umiǹûn

[ʊ] alternates with [u] suggesting that they are allophones of the same phoneme. The fact that this alternation often occurs between different elicitations of the same morpheme demonstrates that [u] and [ʊ] are in free variation. I will assume [ʊ] and [u] are allophones of the phoneme /u/.

518	a:t^{h}u̲m / attu̲m	'dog'	atim^{u}

---

[84] The orthography reflects the Pessamiu Montagnais pronunciation; other Montagnais dialects have *natâu* for this word. The Mushuau Innu pronunciation is similar to the Moose Swampy Cree form *natowiho* (Ellis 1995: 498).

519	məssi:ʒu̲kw	‘eye’	missîshik^{u}
520	'ssi:ʒu̲kwa	‘your (sg.) eyes’	tshissîshikua
521	məssi:ʒʊ̲kwa	‘eyes’	missîshikua
522	wa:pu̲'kʊna	‘flower (obv.)’	uâpikuna
523	wa:pʊ̲kʊnaʰ	‘flowers’	uâpikuna

The distribution of [ʊ] suggests the following rule:

524 /u/ → [u] ~ [ʊ] / C _ C

[ʊ:] is not common. It tends to occur in an open syllable, or in a closed syllable before [n]. [ʊ:] never occurs word-finally, and very rarely word-initially. [ʊ:] never occurs before a long consonant (except [ʃʃ]).

525	ʃʊ̲:̲ʃʊwɔw	‘it is smooth’	shûshûâu
526	mʊ̲:̲ʃənɔw	‘everyday’	mûshinâu
527	nɛspa:ʤiyʊ̲:̲n	‘left hand’	nashpâtshiûn
528	mənnʊ̲:̲n	‘right hand’	miǹûn
529	məttʊ̲:̲n	‘mouth’	mitûn

[ʊ:] and [ʊ] alternate, suggesting that they are allophones of the same phoneme.

530	nɛspa:ʤiyʊ̲:̲n	‘left hand’	nashpâtshiûn

531	unɛspa:ʤiyʊn	'his left hand'	unashpâtshiûn
532	məttʊ:n	'mouth'	mitûn
533	utʊnuwawa	'their mouths'	utûnuâua

[ʊ:] alternates with [u:], suggesting that these sounds are allophones of the same phoneme (/u:/). Again, these sounds are in free variation.

534	ʌ'ku:hpʰ	'coat'	akû(h)p
535	akʊ:pənno	'(she sews a) coat'	akû(h)pinu

The distribution of [ʊ:] outlined above suggests the following rule:

536 $$/\text{u:}/ \rightarrow [\text{u:}] \sim [\text{ʊ:}] \quad / \quad \left\{ \begin{array}{l} \_\ \ ]\sigma \\ \_\ n\ ]\sigma \end{array} \right\}$$

[ʊ:] and [u] also alternate, again suggesting an allophonic relationship.

537	ʊ:p'mɛ:ʃəno	'he lies on the side'	û(h)pimeshinu
538	upme:ʃənne:	'if you lie on the side'	û(h)pimeshîne

The above analysis suggests a phoneme /u/ with allophones [u] and [ʊ][85]; and a

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[85] There is one instance of nasalized [ʊ̃:].

1	p(ʊ)mʊ̃:'tew	'he walks'	pimû(h)teu
2	'pmu:htew	'he walks'	pimû(h)teu

Clarke (1982: 13) reports that nasalized vowels occur in Sheshatshiu Montagnais when /n/ is deleted between /a/ and /i/. There is no evidence of a deleted nasal consonant phoneme /u:/ with allophones [u:], [ʊ:], [u] and [ʊ]. This description is not complete and is further discussed in the following section (2.2.3.2.) and in section 2.2.5.

2.2.3.2. Mid

[o] is always in an open syllable and occurs frequently word-finally, but rarely word-initially.

539	nəp.po̲	'he dies'	nipu
540	pɨs.te.'ʃo̲	'he cuts'	pishteshu
541	mi:.'to̲.gʊn	'ear'	mî(h)tûkai
542	ʃiy.o̲.'ti:.ʃa	'candy'	shîutîssa

[o] and [u] alternate, suggesting that they are allophones of the same phoneme. The only examples of this alternation in the data are in the marker of the third person singular. This marker shows up as a word-final [u] or [o]. The environments in which [o] and [u] occur overlap almost completely and so the alternation between them must be characterized as free variation.

543	məʃɛtto̲	'he is big'	mishishtu
544	mi:ʧʃo̲	'he eats'	mîtshishu
545	'a:huʃo̲	'he is sick'	â(h)kushu

---

in this example, and in a different elicitation of this item (example 2 above) the vowel surfaces without nasalization. As this one variable occurrence is the only example of a nasal vowel in the data, there is not sufficient evidence to posit nasalization in Mushuau Innu as a commonly occurring process.

546	pa:pu	'he laughs'	pâ(h)pu
547	pʌga:'ʃɨmu	'he swims'	pakâshimu
548	ʧenniyu	'he is old'	tshisheǹniu

This free variation suggests that, as with [ʊ] and [u], [o] is an allophone of the phoneme /u/ which tends to surface word-finally.

549 /u/ → [u] ~ [o] / _ #

[o:] tends to occur in open syllables, but not often word-finally.

550	ɳto:ta	'listen'	natû(h)ta
551	mo:kʊman	'knife'	mû(h)kumân
552	wastoko:θen	'it floats'	uâshtakû(h)tin
553	ɛʃo:	'clam'	eshu

[o:] alternates with [u:], suggesting that these sounds are allophones of the phoneme /u:/

554	ɛʃo:	'clam'	eshu
555	ɛʃu:wuʦ	'clams'	eshuat(sh)

The distribution of [o:] suggests the following rule:

556 /u:/ → [u:] ~ [o:] / _]σ C

[ɔ] and [ɔ:] always occur before or after [w], as discussed in section 2.2.2.3. above, [ɔ] and [ɔ:] are allophones of /a/ and /a:/ respectively.

[o] and [ɔ] alternate freely in one item, suggesting they are allophones. This alternation is the result of an underlying /a/ rounding to either [ɔ] or [o]. Rounding of /a/ is discussed in section 2.2.2.3.

The analysis above suggests that there are two rounded phonemes in Mushuau Innu, /u/ and /u:/. /u/ has allophones [u], [ʊ] and [o] which occur in free variation in most positions; however, [o] can only occur in an open syllable and is most common word-finally; and the allophone [ʊ] is most common word medially. The phoneme /u:/ has allophones [u:], [ʊ:], [o:], [u], [ʊ] and [o]. These allophones occur in free variation (as with /u/, the allophone [o] does not occur in closed syllables).

2.2.4. Glides

2.2.4.1. Labial

[w] occurs word-initially, word-finally, intervocalically and after most consonants[86]. *[w] also occurs (postvocalically) before [ʦ], [t], [n], [s], [ʒ], [ʃ], [ʤ] and [k$^{\omega}$]

---

[86] [ww] only occurs twice in the data, both times in elicitations of the same item.

1	okɔw'wɔ:wa	'their mother'	ukâuâua
2	ʊkɔ:wwɔ:wa	'their mother's (shoe)'	ukâuâua

557	wʊttəni	‘tail feather’	utinî
558	wa:wa	‘eggs’	uâua
559	wawa:ʤəmʊ:'tew	‘worm’	uâuâtshimû(h)teu
560	issi:ʃwew	‘he says something’	issîshueu
561	iskwewʊʦ	‘women’	ishkueuat(sh)
562	te:təpwa:gənno	‘(they see) a chair’	te(h)tapuâkanǹu
563	'metwew	‘he plays’	metueu
564	ʊmwassɨna	‘his shoes’	umassina
565	tawʦ	‘edge in ground’	tâut(sh)
566	nə'ka:wn	‘my mother’	nikâuî
567	utəʧʧiya:pewk$^{\omega}$	‘large intestine’	utatshîâpek^{u}

[w] does not occur before or after a centralized vowel ([ɨ], [ə], [ʌ]). This is because these centralized vowels are allophones of /i/ and /a/ (see section 2.2.5.2.) which become round when adjacent to [w] as discussed in sections 2.2.1.1. and 2.2.2.3.

2.2.4.2. Apicals

[y] occurs word-finally and intervocalically. [y] also occurs (prevocalically) *after [p], [ʒ], [s] and [ʧ], and (postvocalically) *before [w], [ʤ], [s], [ʃ], [k], [g] and [ʦ]. [y]

The fact that [ww] only occurs in this single item suggests that this item does not actually contain a long glide.

never occurs word-initially.

568	məssegey̲	'skin (human)'	mishakai
569	wi:gwiy̲ey̲	'bag'	uî(h)kuai
570	nə'ppa:y̲a:y̲e	'if I sleep'	nipâiâne
571	mətti:ʤiy̲ah	'hands'	mitî(h)tshîa
572	py̲a:stɛʃkʊmʊk$^{\omega}$	'yellow (dry) moss'	pâshteshkamik^{u}
573	pastsy̲e:wew	'it is thin'	pashtsheueu
574	u:tə'ʧy̲emɛʃ	'fish guts'	utatshishîmesh
575	ut'tey̲wawa	'their hearts'	ute(h)îuâua
576	nwa:pmu'guna:y̲ʤa	'they see us (excl.)'	nuâpamikunânat(sh)
577	ays̲imew	'Eskimo, Innut'	âissimeu
578	waskey̲g̲ən	'Fort Chimo Innu'	uâshkâ(h)ikan
579	nəʃi:mə'ʃɨnay̲ʦ	'our (excl.) little sisters'	nishîmishinânat(sh)

[y] rarely occurs before a long vowel other than /a:/, rarely after a rounded vowel and never after a centralized vowel (with one exception), suggesting that [y] induces neighbouring vowels to display tense allophones.

2.2.4.3. Phonemic status of glides

In Mushuau Innu, [y] is in complementary distribution with /i/ and [w] is in complementary distribution with /u/, suggesting that glides are non-syllabic allophones of the vowels /i/ and /u/. Glides are further discussed in section 3.1.3.1.

2.2.5. Conclusions on vowels

2.2.5.1. Length

Vowel length is phonemic in Mushuau Innu, as expected based on the systems of related dialects (see section 1.8.2.).

Minimal pairs are not common; however the following items should serve to demonstrate the contrastive nature of vowel length.

580	nə̱ppi	'water'	nipî
581	nɨ̱ppi:hts	'water (loc.)'	nipî(h)t(sh)
582	nə̱ppiya	'lakes'	nipîa

As seen in the examples above, the first vowel of the root for 'water' appears to be an underlying /i/. This is seen in the fact that this first vowel surfaces as [ɨ] and [ə]; which are both allophones of [i] as discussed in section 2.2.1.1. In contrast, the second vowel of the root must be /i:/ as it surfaces as [i], [i:] and [iy] all of which are allophones of /i:/ as discussed in section 2.2.1.1. above. This gives us the underlying form /nipi:/ 'water' (the length of /p/ is non-contrastive, as discussed in section 2.1.5.1.). This forms a minimal pair with the root for 'leaf'.

583	ni:pi(y)	'leaf'	nîpî
584	ni:piya	'leaves'	nîpîa

Following the same argument presented for /i:/ above, the underlying form for 'leaf' is /ni:pi:/. The only difference between /nipi:/ 'water' and /ni:pi:/ 'leaf' is the length of the initial vowel.

Long vowels can shorten in many environments, but particularly in initial or final syllables.

585	ʌ'weʃi:ʃ / awe:hiʃ	'animal'	aueshîsh
586	pənne:hiʃ /pɨnneʃi:ʃ	'bird'	pineshîsh
587	u:skəna:	'bones'	ushkana
588	uskən	'bone'	ushkan
589	te:təpwa:gənno	'(they see a) chair'	te(h)tapuâkannu
590	te:təpwa'gə/anno	'(he sees a) chair'	te(h)tapuâkannu
591	wa:ssɨʦ / awassiʦ	'children'	auâssat(sh)
592	a:tʰum / attʊm	'dog'	atimᵘ
593	ʧi:ʒʊk$^{\omega}$	'day, sky'	tshîshikᵘ
594	ʧiʒikɔw	'it is daytime'	tshîshikâu

Vowel alternations pattern as follows: while short vowels may alternate with vowels of different qualities, long vowels tends to alternate with short vowels of the same quality. For example, [i] alternates with [ɨ], [ə] and [ʌ], but [i:] only alternates with [i] and [iy] (see vowel allophone charts in section 2.2.).

This suggests that long vowels have a more restricted set of allophones. Short vowels can centralize to [ɨ], [ə] or [ʌ], but long vowels cannot centralize; they can only shorten[87].

The fact that there are two distinct sets of allophones is further support for the argument that long vowels are phonemically distinct from short vowels. If long and short vowels were merely allophones of each other, we would expect to see many cases of long vowels alternating with centralized vowels. As this does not occur, I conclude that length is a distinctive feature of vowels.

2.2.5.2. Phonemes

There are two high front vowel phonemes: /i/ and /iː/.

/i/ surfaces as [u][88], [i], [ɨ], [ə], [ʌ], [y] and the mid vowels [e] and [ɛ][89].

Exceptionless rules:

595 $$/\text{i}/ \quad \rightarrow \quad [\text{u}] \quad \% \quad \begin{array}{c}\text{V-place}\\ | \\ [\text{LAB}]\end{array} \quad \_$$

---

[87] Some long vowels do undergo a change in quality; for example, /aː/ can become [ɔː] in a rounding environment. As well, /uː/ can surface with the same range of allophones as its short counterpart, though /uː/ still tends to shorten to [u] more often than it becomes other vowel qualities. This is in contrast to the short vowel /u/ which frequently surfaces as vowel qualities other than [u]. This is discussed in section 2.2.5.2.

[88] [u] here and in the rule immediately below stands for all the allophones of /u/, ([u], [o] and [ʊ]).

[89] There are so few examples of /i/ surfacing as [e] or [ɛ] that the environments governing this process cannot be determined.

Variable rules:

596 /i/ → [i] ~ [ɨ] / [C _C]σ

597 /i/ → [ə] / _ $\left\{\begin{array}{l}\text{/sk/\#}\\ \text{/ʧ/\#}\end{array}\right\}$

598 /i/ → [i] ~ [ə] % n _

599 /i/ → [i] ~ [ʌ] / _ C#

600 /i/[90] → Ø / $\underset{\alpha place}{C}$ _ $\underset{\alpha place}{C}$

601 /i/[91] → Ø % # C _ /u/

602 /i/[92] → [y] / $\underset{\left\{\begin{array}{l}\text{[Onset]}\\ \text{[Coda]}\end{array}\right\}}{\_}$

/i:/ surfaces as [i:], [i] and [iy] and very rarely as [ɨ:] or [ɨy].

Variable rules:

603 /i:/[93] → [iy] / _ V (:)

604 /i:/[94] → [i] ~ [iy] / _#

605 /i:/ → [i:] ~ [i] % #(C) _

[ɨ:] occurs very rarely, so no pattern can be determined for its distribution.

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[90] This rule is discussed in section 3.1.4.

[91] This rule is discussed in section 3.1.3.1.

[92] This rule is discussed in section 3.1.3.1.

[93] This rule is discussed in section 3.1.3.1.

[94] This rule is discussed in section 3.1.3.1.

[ɨy] occurs in only one item, so no pattern can be determined for its distribution.

[e:], [e], [ɛ], and [ɛ:] are all allophones of the phoneme /e:/. There is only one mid front vowel phoneme. This is also the situation in related dialects (see section 1.8.2.) where short /e/ has merged with /i/ leaving long /e:/ as the only mid front vowel.

Evidence that the only mid front vowel phoneme in Mushuau Innu is inherently long is that long consonants do not occur after [e], [e:], [ɛ] or [ɛ:] (similarly, long consonants do not occur after /i:/, /a:/ or /u:/). This restriction appears to be unmotivated unless mid front vowel allophones realize an underlyingly long vowel phoneme. Assuming that mid front vowel allophones are all realizations of a long vowel explains this restriction through the already established constraint against long consonants following long vowels[95].

The long status of /e:/ is also supported by the fact that, unlike short vowels, none of the allophones of /e:/ alternates with a centralized vowel ([ɨ], [ə], [ʌ]). This is expected of a long vowel, as discussed above, but short vowels all appear to alternate with centralized allophones.

/e:/ has the allophones [e:], [e], [ɛ:] and [ɛ].

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[95] There are a few cases of an allophone of /e:/ preceding a long consonant. However, this is rare and in the majority of cases, the following long consonant is either [nn], which is often a cluster, not a long consonant (as discussed in section 2.1.2.2.), or is the diminutive suffix [ʃʃ] which is exceptional and can occur after any long vowel (as discussed in section 2.1.3.2.). The remaining cases of /e:/ followed by long consonant may be the result of syncope or may simply be exceptional.

Variable rules:

606 /e:/ → [e:] / _]σ

607 /e:/ → [e:] ~ [e] / _(/u/)#
#_

608 /e:/ → [e:] ~ [ɛ:] / $\_ \left\{ \begin{array}{l} .\text{ʃ} \\ .\text{n} \end{array} \right\}$

609 /e:/ → [e:] ~ [ɛ] / $\_ \left\{ \begin{array}{l} \text{C}]\sigma \\ .\text{n} \end{array} \right\}$

These rules suggest that the short allophones of /e:/ tend to surface when /e:/ occurs in a closed syllable, and that the lax allophones of /e:/ tend to surface when /e:/ occurs before [n] or [ʃ]. It should be noted that these are just general trends for the patterning of /e:/; the phoneme /e:/ is the most unpredictable of vowel phonemes, and the rules above are simply tendencies that are frequently violated.

The analysis of /i/, /i:/ and /e:/ given above, explains the seemingly ad hoc condition that long consonants do not follow front vowels: long consonants cannot follow long vowels (such as /i:/ and /e:/); furthermore, [i] never surfaces before a long consonant because /i/ tends to centralize to [ɨ] or [ɘ] in this environment. Thus, while long consonants do follow the front vowel phoneme /i/, /i/ is realized as a centralized allophone in this environment.

/a/ has the allophones: [a], [ɵ], [ʌ], [e], [ɛ], [ɨ], [ɔ], [o], [u] and [ʊ].

Variable rules:

610 /a/ → [ɔ] % $\begin{array}{c}\text{V-place}\\ |\\ \text{[LAB]}\end{array}\ \_$

611 [ɔ][96] → [ɔ] ~ [u] ~ [ʊ] ~ [o]

612 /a/ → [a] ~ [ɛ] ~ [ɨ] / i .C _ CC . i

613 /a/ → [e] / _ i

614 /a/ → [a] ~ [ʌ][97] / # _

615 /a/ → [a] ~ [ɵ] / C _ C

616 /a/[98] → ∅ / $\underset{\alpha\text{place}}{\text{C}}\ \_\ \underset{\alpha\text{place}}{\text{C}}$

617 /a/[99] → ∅ / # _

/aː/ has the allophones [aː], [a], [ɔː] and [ɔ].

618 /aː/ → [aː] ~ [a] % # (C) _

619 /aː/ → [aː] ~ [ɔː] % _ /u/

---

[96] This rule is included because [ɔ] is an allophone of /a/.

[97] This is not the only environment in which /a/ can surface as [ʌ]. /a/ can surface as [ʌ] in any position, word-initially is simply the most common environment for the [ʌ] allophone.

[98] This rule is discussed in section 3.1.4.

[99] This rule is discussed in section 3.1.4.

There are two back rounded phonemes, /u/ and /uː/.

/u/ has the allophones [u], [ʊ], [o] and [w].

620 /u/ → [u] ~ [ʊ] / C _ C

621 /u/ → [u] ~ [o] / _ #

622 /u/ → [w] / $\underset{\left\{\begin{array}{l}\text{[Onset]}\\ \text{[Coda]}\end{array}\right\}}{\_}$

To illustrate, a word consisting of /uCuCu/ would tend to surface as [uCʊCo]; however, as these rules are variable, the same sequence could also surface as [oCuCʊ] (or other permutations), but more rarely.

/uː/ has the allophones: [uː], [u], [ʊː], [oː] as well as: [uw], [ʊw] and [ow].

623 /uː/ → [uː] ~ [u] % # (C) _

624 /uː/ → [uː] ~ [oː] / _]σ C

625 /uː/ → [uː] ~ [ʊː] / $\left\{\begin{array}{l}\_\ \ ]\sigma\\ \_\ n\,]\sigma\end{array}\right\}$

626 /uː/[100] → [uw] ~ [ʊw] ~ [ow] / _ V

2.3. Summary of phonetic implementation rules

The following is a list of those processes discussed in chapter 2. which can be

---

[100] This rule is discussed in section 3.1.3.1.

categorized as phonetic implementation rules[101]. Phonetic implementation rules are concerned with translating the output of phonology into articulatory gestures (see section 1.9.3.); as such, they are more concerned with articulation than with phonology. As this thesis is concerned with phonology, phonetic implementation rules are not discussed in chapter 3. All of the rules listed below are optional.

Phonetic implementation rules:

Consonants:

627 Aspiration

$$\underset{[-\text{son}]}{C} \rightarrow C^h$$

628 Voicing

$$C \rightarrow [+\text{voice}] \quad / \; [+\text{sonorant}] \_ \quad [+\text{sonorant}]$$

Fricatives:

629 [ɸ]-dentalization[102]

$$[\phi] \rightarrow [\phi] \sim [f]$$

---

[101] Not all rules mentioned in chapter 2. are repeated here, as many rules mentioned earlier have a very narrow application and are replaced by the more general rules listed below.

[102] This rule assumes that the output of the coalescence of /hp/ is [ɸ], which can then dentalize through this phonetic implementation rule.

630 [x]-glottalization[103]

[x] → [x] ~ [h]

631 /s/-retraction I

/s/ → [ʃ] % $\left\{\begin{matrix} \# & \_ & V(:) \\ V(:) & \_ & V(:) \end{matrix}\right\}$

632 /s/-retraction II

/s/ → [s] ~ [ʃ] / $\_ \left\{\begin{matrix} k \\ p \end{matrix}\right\}$

633 /s/-glottalization I

/s/ → [h] ~ [s] / V: _ kw

634 /s/-glottalization II

/s/ → [h] ~ [ʃ] / V: _ V (:)

Affricates:

635 ʧ-fronting

/ʧ/ → [ʧ] ~ [ʦ] / V (:) _ [+son] [+cor]

Vowels:

636 /i/-centralization I

/i/ → [i] ~ [ɨ] / [C _ C]σ

---

[103] This rule assumes that the output of the coalescence of /hk/ is [x], which can then glottalize through this phonetic implementation rule.

637 /i/-centralization II

/i/ → [ə] / _ $\left\{\begin{matrix}\text{/sk/\#}\\ \text{/ʧ/\#}\end{matrix}\right\}$

638 /i/-centralization III

/i/ → [i] ~ [ə] % n _

639 /i/-centralization IV

/i/ → [i] ~ [ʌ] / _ C#

640 /e/[104]-laxing

/eː/ → [eː] ~ [ɛː] / _ $\left\{\begin{matrix}\text{ʃ}\\ \text{n}\end{matrix}\right\}$

641 /e/-laxing/shortening

/eː/ → [eː] ~ [ɛ] / _ $\left\{\begin{matrix}\text{C]}\sigma\\ \text{. n}\end{matrix}\right\}$

642 /a/-raising

/a/ → [a] ~ [ɛ] ~ [ɨ] / i.C _ C.Ci

643 /a/-centralization I

/a/ → [a] ~ [ʌ][105] / # _

644 /a/-centralization II

/a/ → [a] ~ [ə] / C _ C

---

[104] Even though many of the rules involving /eː/ appear to be syllable based, they are so variable that they can best be described as phonetic implementation rules.

[105] This is not the only environment in which /a/ can surface as [ʌ]. /a/ can surface as [ʌ] in any position; word-initially is simply the most common environment for the [ʌ] allophone.

645 /u/-laxing

/u/ → [u] ~ [ʊ] / C _ C

646 /u/-lowering

/u/ → [u] ~ [o] / _ #

647 /u:/-laxing

/u:/ → [u:] ~ [ʊ:] / $\_\left\{\begin{matrix}]\sigma \\ \mathrm{n}]\sigma \end{matrix}\right\}$

648 /u:/-lowering

/u:/ → [u:] ~ [o:] / _]σ C

649 [ɔ]-tensing

[ɔ] → [ɔ] ~ [o] ~ [u] ~ [ʊ]

650 [uw]-lowering

[uw] → [uw] ~ [ʊw] ~ [ow]

Chapter three: non-linear analysis

This chapter deals with the non-linear analysis of Mushuau Innu phonology. This includes analysis of the syllable structure (section 3.1.) and accent (section 3.2.). Chapter 3. also deals with the problem of free variation between [n] and [y] (section 3.3.), and prothetic [n] (section 3.3.3.). Chapter 3. concludes with a categorized list (section 3.4.) of all processes described in the thesis (excepting phonetic implementation rules) and non-linear representations of those processes (section 3.5.).

3.1. Syllable structure

This section deals with the syllable structure of Mushuau Innu. The syllable template is discussed in section 3.1.1. The segmental status of /hC/ and /Cw/ (which is determined through considerations of the syllable structure) is discussed in section 3.1.2. Syllable based processes are discussed in section 3.1.3; the processes discussed are glide formation (section 3.1.3.1.), syncope (section 3.1.4.) and epenthesis (section 3.1.5.).

3.1.1. Syllable template

Mushuau Innu has the syllable template: (C) V(:) (C) (henceforth abbreviated as CVC). The reasons for assuming this template will be discussed below.

The following figure displays the clusters of Mushuau Innu; clusters resulting from syncope have been omitted. Suspect clusters (those which are exceptional and are not similar to cognates in related dialects) have been marked with an asterisk. The segments $/k^{w}/$, $/t^{w}/$ and $/m^{w}/$ are shown in the chart as individual segments, not clusters, following the analysis provided in sections 2.1.5.5. and 3.1.2.

Initial Clusters	Medial Clusters			Final Clusters	
Onset	Nucleus	Coda	Onset	Coda	
pw		y	k	w	k^{ω}
*py		y	ʧ	w	ʧ
		y	s	w	n
		y	w	h	p
		w	t	h	t
		w	ʧ	h	k
		w	s	h	k^{ω}
		w	n	h	ʧ
	w	s	t	s	t
		s	p	s	k
		s	t	s	t^{ω}
		s	k	s	k^{ω}
		s	p w	s	ʧ
		s	k^{ω}		
		s	ʧ		
		*s	y		
		s	w		
		s	s		
		h	p		
		h	t		
		h	k		
		h	ʧ		
		h	n		
		p	w		
		*p	y		
		ʧ	y		
		n	n		
		n	ʧ		

Figure 3.1. Consonant clusters of Mushuau Innu

The list of possible word-initial clusters in figure 3.1. supports the hypothesized CVC syllable template. There are only two word-initial clusters possible, /pw/ and /py/.

Other clusters do occur word-initially, but these are always the result of syncope[106]. As indicated in figure 3.1. (by an asterisk), word-initial [py] is a suspect cluster[107]. Assuming that [py] is exceptional, [pw] remains the only word-initial cluster. /pw/ occurs in word-medial onsets as well word-initial onsets. However, as /pw/ is the only possible complex onset in Mushuau Innu, it would not be reasonable to assume complex onsets in the syllable template of Mushuau Innu on the basis of this one sequence. In order to maintain a CVC syllable template, either the underlying sequence /pw/ must be syllabified as a single segment when it occurs in an onset position; or the analysis of labialized consonants in sections 2.1.5.5. and 3.1.2. must be expanded to include /pw/ as a single segment underlyingly. As there is no other evidence supporting the segmental status of /pw/, I will assume the former interpretation: that the sequence /pw/ is syllabified as a single segment when it occurs in onset position. This is a rather ad hoc explanation of the data. Perhaps a better analysis would be to assume that /pw/ is in fact a single labialized segment. This would explain why it is able to surface as an onset in a language where

---

[106] /k$^{\omega}$/ and /m$^{\omega}$/ occur word-initially, but as discussed in sections 2.1.5.5. and 3.1.2., these are not clusters but segments, and so fit into a syllable template that only permits single consonants word-initially.

[107] The only instance of word-initial [py] in the Mailhot data is *pya:stɛʃkɯmɯk*$^{\omega}$ 'yellow (dry) moss' <pâshteshkamik^{u}>. The [y] in this word-initial cluster is unexpected as it does not occur in other elicitations of the same morpheme *pa:stew* ' it is dry' <pâshteu>; similarly, related dialects show no [y] or [i] in this position, cf. Montagnais <pashteu> 'dry' (Drapeau 1991: 485). Perhaps this one elicitation of word-initial [py] was a slip of the tongue.

onset clusters are disallowed. The segmental versus cluster status of /pw/ is a question that future research will need to address.

Clusters consisting of two segments are common in medial position (as seen in figure 3.1.) where their distribution is consistent with a CVC syllable template: medial clusters syllabify as a single coda consonant followed by a single onset consonant. However, there are two exceptions:

Firstly, the sequence /spw/ is a single coda consonant followed by a complex onset (as discussed in sections 2.1.5.5. and 3.1.2. /pw/ is a sequence and not a single segment). As discussed above, this is the only complex onset in Mushuau Innu, so rather than postulate a more complicated syllable template, I assume that /pw/ is syllabified as a single segment when it is forced into onset position.

Secondly, the sequence [wst] occurs as a medial cluster. This sequence only occurs after a short vowel, so the glide can be considered part of the nucleus of the preceding vowel, forming a diphthong; the /s/ can then be considered the coda consonant and the /t/ the onset of the following syllable. This implies that a diphthong (a short vowel followed by a glide) is functionally equivalent to a long vowel and so a diphthong may be followed by a coda consonant without violating the CVC syllable template.

The distribution of word-final clusters requires some mechanism in addition to core syllabification, as word-final codas may contain two phones (two phones are only permitted in a word-final coda if the first is [+continuant] and the second is

[-continuant]). To accommodate two phones word-finally, I posit a word-final appendix[108]:

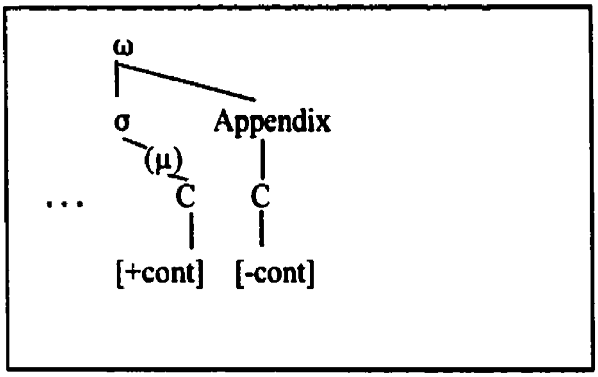

Figure 3.2. Word-final appendix

The requirement that the appendix can only attach when the preceding segment is [+continuant] rules out any word final cluster that does not have a glide or fricative as its first member; this limits word final clusters to those shown in figure 3.1. The absence of /m/ from consonant clusters (final and medial) appears to be an accidental gap.

The appendix shown in figure 3.2. is constrained by the Sonority Sequencing Generalization (see section 1.9.5.1.). This means that the cluster created by the addition of the word final appendix must show a drop in sonority from left to right. This drop in sonority can be small, as it is in clusters such as /st/ and /hk/.

---

[108] In figure 3.2., the [+continuant] segment before the appendix may be moraic or non-moraic (hence the brackets around the mora). If the preceding vowel is short, then the segment before the appendix would receive a mora by the weight-by-position rule (see section 1.9.6.); however if the preceding vowel is long, then the syllable would already have its maximum two moras, so the [+continuant] segment would not be moraic.

That the Mushuau Innu word-final appendix obeys the Sonority Sequencing Generalization may be considered unusual, as sonority sequencing is generally considered to operate within the domain of the syllable. As the appendix is considered extra-syllabic, operation of sonority sequencing in the appendix is unexpected. The reason for postulating that the Mushuau Innu word-final appendix obeys sonority sequencing is that this explains the absence of word-final sequences of a fricative followed by a nasal.

Alternatively, the absence of fricative-nasal final clusters could be explained by requiring that the appendix agree with the [sonorant] specification of the preceding phone. Keeping in mind the restrictions that the appendix must be [-continuant] and the phone preceding the appendix must be [+continuant], this new restriction would limit word-final clusters to sequences of glide-nasal and fricative-stop.

However, as seen in figure 3.1. above, there are word-final sequences of glide-stop, in which the two phones do not agree in their specification for [sonorant]. Many instances of these word-final glide-stop clusters can be explained as the result of syncope between [w] and the /ʧ/ of the plural suffix /-iʧ/. Other word-final glide-stop clusters can be explained by assuming that the glide is actually part of the nucleus of the syllable, forming a diphthong with the preceding vowel (this can only be the case when the preceding vowel is short).

Unfortunately, there remain certain exceptions to the [sonorant]-agreement constraint that cannot be explained by either means; for example: *tawʦ* "edge in the ground" <tâut(sh)>, in which the vowel preceding [w] is long (as seen in the orthography); and *utəʧʧiya:pewkʷ* “large intestine”<utatshîâpekᵘ>, in which the vowel preceding [w] is a mid front vowel, which must be long as there is only one mid front vowel, long /e:/ (see section.2.2.5.2.).

There are not many such examples, and perhaps they can simply be considered exceptional: *tawʦ* “edge in the ground” <tâut(sh)> may have a short vowel despite the orthography, and the [w] in the final cluster of *utəʧʧiya:pewkʷ* “large intestine”<utatshîâpekᵘ> could be considered a labialization of the vowel caused by the following labial consonant (a possibility suggested by the orthography), and so not truly a segment contributing to the word-final cluster.

If these glide-stop clusters can be considered exceptional, then instead of postulating that the word-final appendix obeys the Sonority Sequencing Generalization, perhaps it would be better to postulate that the appendix must agree with the [sonorant] specification of the preceding phone. However, as there are exceptions to this postulated [sonorant]-agreement constraint, for now I will assume instead that the word-final appendix does obey the Sonority Sequencing Generalization. Future research may determine that word-final clusters consisting of a glide and a stop are not exceptions to the [sonorant]-agreement constraint, in which case the [sonorant]-agreement constraint would be a simpler explanation of the data.

Many Mushuau Innu words surface with word initial clusters, such as [st] and [ss] (discussed in section 2.1.4.1.) and [pm] (see section 2.2.2.2.) and [nw] (see sections 2.2.1.1. and 2.1.2.2.); these clusters result from syncope and so need not be explained through core syllabification. Syllabic [n̩] (see section 2.1.1.2.) also results from syncope.

In summary, Mushuau Innu has a CVC syllable template and a word-final [-continuant] appendix which may be added if the preceding consonant is [+continuant]. This analysis assumes that /pw/ in onset position is either syllabified as a single segment or that the interpretation of /pw/ (in sections 2.1.5.5 and 3.1.2.) should be adjusted to include /pw/ as an underlyingly labialized segment and not a cluster. This analysis further assumes that a glide following a short vowel forms a diphthong. This diphthong is functionally equivalent to a long vowel and so a diphthong may be followed by as many as two consonants without violating the CVC syllable template.

3.1.2. Segmental status of /hC/ and /Cw/

As discussed in section 2.1.5.4. /hC/ does not occur word initially, and for this reason /hC/ must be considered a sequence and not a single segment. The explanation for this inference is given below.

If there were a series of preaspirated consonants, its absence in initial position would have to be explained without recourse to the Sonority Sequencing Generalization (SSG) (see section 1.9.5.1.): the SSG states that sonority must rise (from left to right) between segments in an onset and fall (from left to right) between segments in a coda, though the degree of this change in sonority varies from language to language. If /hC/ were a single segment, the SSG would not apply (as the SSG applies to sequences, not individual segments). Furthermore if /hC/ were a segment and not a cluster, it would not violate the CVC syllable template of Mushuau Innu (see section 3.1.1.) and so its absence in onset position could not be explained through syllable structure constraints. This demonstrates that if /hC/ were analyzed as a single segment, its absence in word-initial position could not be explained by the SSG or by syllable structure constraints, and so an ad hoc constraint would have to be postulated[109]

Assuming that /hC/ is a sequence of segments simplifies the phonology of Mushuau Innu by reducing the total number of phonemes, and by explaining one aspect of the distribution of these sounds through independently motivated constraints (the SSG and the CVC syllable structure of Mushuau Innu), instead of postulating ad hoc constraints.

As discussed in section 2.1.5.5., certain sequences of consonant and [w] (/Cw/) are underlyingly segments, while others are clusters. As with /hC/ (discussed above), the segmental status of particular /Cw/ can be determined by referring to the SSG, as explained below.

As discussed above, sonority sequencing prevents codas which show a rising sonority. Since /k^{w}/, /t^{w}/ and /m^{w}/ can occur word finally, they must be single segments. If

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[109] An alternative explanation for the absence of word-initial /hC/ (which I do not adopt) is that /^{h}C/ is a single preaspirated segment, but that preaspiration cannot be realized word-initially, so /^{h}C/ is realized as a plain consonant in this position (aspirated consonants are neutralized with plain consonants word-initially). If this were the case we would expect to see the neutralized word-initial aspiration surface again when a vowel-final prefix is added to a stem with an initial aspirated consonant. As there is no evidence for this in the data, I do not adopt the neutralization hypothesis.

/k^{ω}/, /t^{ω}/ and /m^{ω}/ were clusters they would violate the SSG.

The lack of 'segmenthood' of all other /Cw/ (/pw/, /nw/, /ʧw/ and /sw/) is demonstrated by their inability to occur in word-final position, where a sequence of /Cw/ is ruled out by the SSG, but where a single segment (/C^{ω}/) is permitted.

Assuming segmental status for /k^{ω}/, /t^{ω}/ and /m^{ω}/ also simplifies the syllable template of Mushuau Innu; if /k^{ω}/, /t^{ω}/ and /m^{ω}/ were a sequence of segments, the syllable template of Mushuau Innu would have to be expanded to allow for clusters containing three segments, and all non-occurring three segment clusters would have to be ruled out by ad hoc constraints.

Further evidence for the segmental status of /k^{ω}/, /t^{ω}/ and /m^{ω}/ is that these sounds induce rounding in the vowels /a/ and /i/, when adjacent to these vowels (see sections 2.2.1.1. and 2.2.2.3.); other /Cw/ do not induce rounding.

The fact that /pw/ occurs in onsets (despite the CVC syllable template of Mushuau Innu) suggests that /pw/ may also be a single labialized segment. However, there are no instances of word-final /pw/ in the data (though this may be an accidental gap), and there is no evidence that /pw/ regularly induces rounding. For these reasons, I will assume that /pw/ is a sequence which can be realized as a single segment when it occurs in onset position.

3.1.3. Syllable based processes

3.1.3.1. Glide formation

Vowel hiatus is avoided in Mushuau Innu. To avoid hiatus, /i/ and /u/ become glides when they occur next to other vowels[110]. A similar process of glide formation is discussed in Dell and Emedlaui (1985) for Tashlhiyt Berber.

651 /u̲i:takai̲atihk$^{\omega}$/ → [w̲ittəgey̲atti:x$^{\omega}$] 'male caribou genital organs' uîtakaiatî(h)k^{u}

Glide formation is depicted in the following figures, which show the syllabification (without glide formation) of the underlying structure of /ui:takaiatihk$^{\omega}$/ 'male caribou genital organs' <uîtakaiatî(h)k^{u}> (figure 3.3.), followed by the syllabification (with glide formation) of the same word (figure 3.4.)[111].

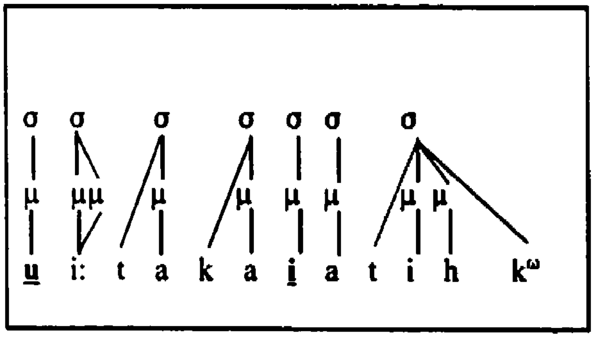

Figure 3.3. Syllabification without glide formation

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[110] /i/ can also be realized as [n] when it occurs before or after another vowel. This is discussed in section 3.3.

[111] In all figures in this section, the transcription line is used as an abbreviation for the root node and all the features below the root node.

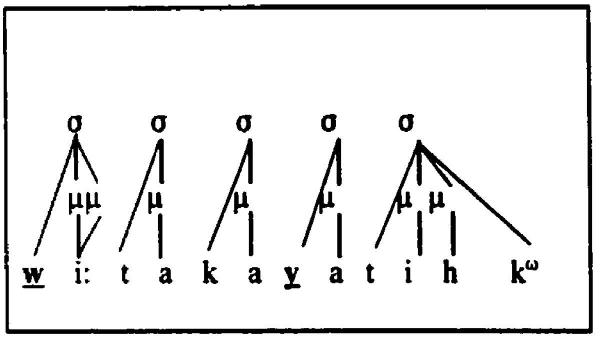

Figure 3.4. Syllabification with glide formation

Syllabification without glide formation (figure 3.3.) creates sequences of vowels with no intervening onsets (i.e. hiatus). With glide formation, onsets are created (figure 3.4.) and hiatus is avoided.

As seen in figures 3.5. and 3.6. below, when /i/ (or /u/) occurs intervocalically it syllabifies as the onset of the following vowel.

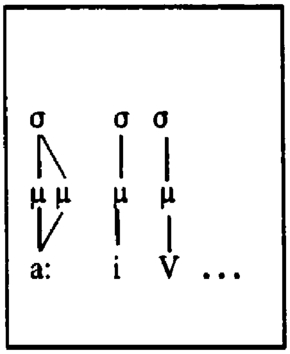

Figure 3.5.
Syllabification of
/a:iV/ without glide
formation

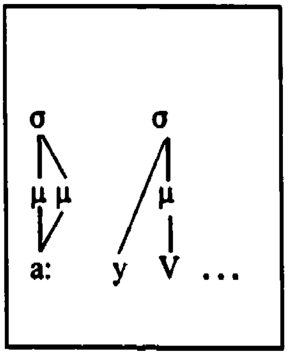

Figure 3.6.
Syllabification of
/a:iV/ with glide
formation

When /i/ (or /u/) occurs after another vowel and before a consonant (or a word boundary), it is syllabified as the coda of the preceding vowel[112]:

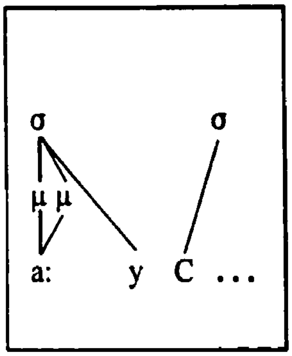

Figure 3.7.
Syllabification of
/a:iC/ with glide
formation

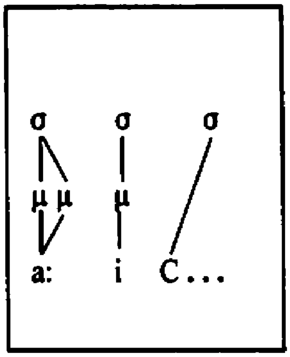

Figure 3.8.
Syllabification of
/a:iC/ without glide
formation

Figures 3.7. and 3.8. show that hiatus can be avoided through coda formation.

3.1.3.2. Diphthongization

When /i:/ and /u:/ occur before another vowel, they tend to be realized as diphthongs ([iy] and [uw][113]) to avoid hiatus.

652 /miti:ʧi:a/ → [mɵtti:ʤiyah] 'hands' mitî(h) tshîa

653 /miskumi:a/ → [mɨskʊmiya] 'winter lakes' mishkumîa

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[112] As discussed in section 3.1.1. if the preceding vowel is short, /i/ (or /u/) is not syllabified as a coda, but as the glide portion of a diphthong. The distinction between coda position and second element in a diphthong is moot for the purposes of glide formation and so is ignored in this discussion of glide formation.

[113] The quality of the first part of a diphthong derived from /u:/ can be any of the allophones of /u/: [u], [ʊ], [o].

654	/utaʧi:a:peuk$^{\omega}$/	→	[utəʧʧiya:pewk$^{\omega}$]	'large intestine'	utatshîâpek^{u}
655	/pu:a:mu/	→	[puwa:mu]	'he dreams'	puâmu
656	/su:su:a:u/	→	[ʃʊ:ʃʊwɔw]	'it is smooth'	shûshûâu
657	/si:pu:a/	→	[ʃi:puwa]	'rivers'	shîpûa

The following figures depict the syllabification of examples 652, 655 and 657 without diphthongization and with diphthongization.

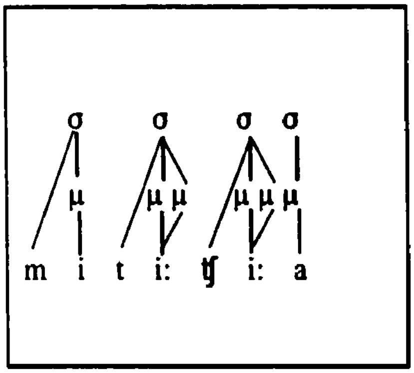


Figure 3.9. Syllabification of 'hands' without diphthongization

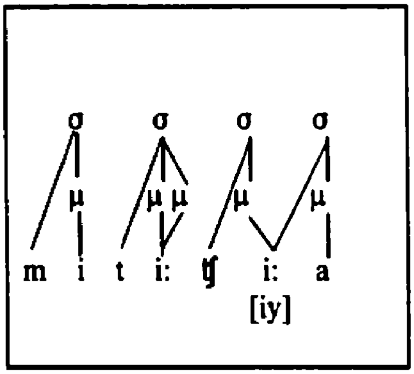


Figure 3.10. Syllabification of 'hands' with diphthongization

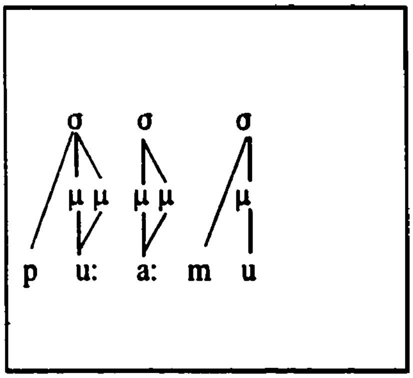


Figure 3.11. Syllabification of 'he dreams' without diphthongization

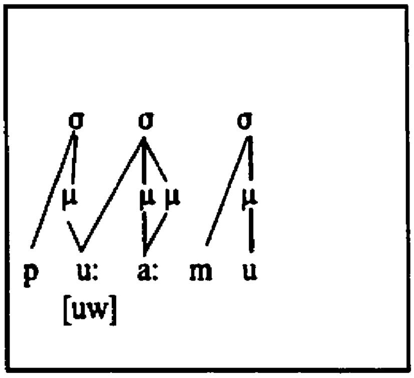


Figure 3.12. Syllabification of 'he dreams' with diphthongization

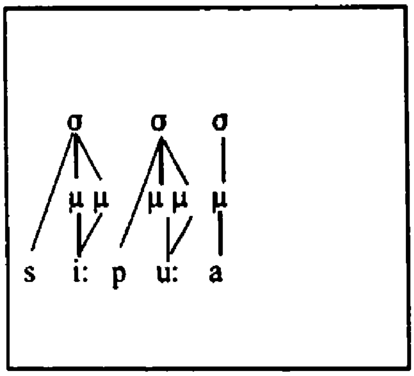


Figure 3.13. Syllabification of 'rivers' without diphthongization

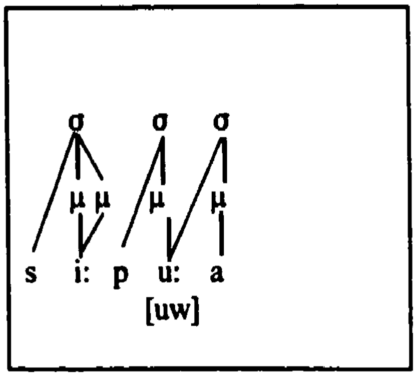


Figure 3.14. Syllabification of 'rivers' with diphthongization

As seen in these figures above, when /i:/ or /u:/ is followed by another vowel, hiatus is avoided through diphthongization. The diphthongization of a long vowel results in the loss of a mora, as shown in figures 3.10., 3.12. and 3.14. This is because the second 'half' of the long vowel has given up its mora to become a glide and act as the onset of the following syllable.

3.1.3.3. Sequences containing both /i/ and /u/

While /i/ and /u/ typically become glides when adjacent to non-high vowels, their behaviour when they are adjacent to each other (as they often are) is more complex, and is governed by the fact that onsets are preferred in Mushuau Innu: a sequence of /i/ and /u/ (in either order) will preferably syllabify as *onset - nucleus*. Thus, the sequence /i:u/ in final position or before a consonant, will surface as [iyu], [iyʊ] or [iyo][114].

658 /pimi:u/ → [pmiyu] 'oil' pimîu

---

[114] This also demonstrates the tendency described immediately above for /i:/ to be realized as a diphthong when another vowel follows.

659	/minusi:u/	→	[mənnʊʃiyʊ]	‘good boy’	minushîu
660	/unespa:ʧi:un/	→	[unɛspa:ʤiyʊn]	‘his left hand’	unishpâtshîun
661	/nipi:u/	→	[nəp'piyo]	‘it is wet’	nipîu
662	/si:uti:sa/	→	[ʃiyo'ti:ʃa]	‘candy (obv.)’	shîutissa

This process can be seen in figure 3.15. which demonstrates the syllabification of the sequence /i:u/.

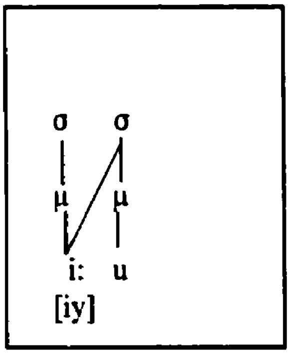


Figure 3.15.
Syllabification of /i:u/
with glide formation

Alternatively, the sequence /i:u/ may occasionally be realized as [i:wu] to avoid hiatus; however, this is rare.

663	/ni:ut/	→	[ni:wut]	‘my suitcase’	nîut

Example 663 syllabifies as follows:

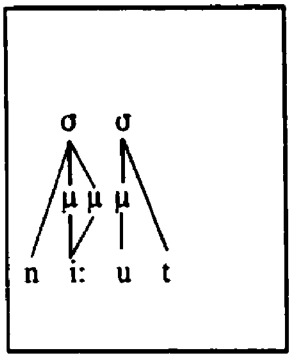


Figure 3.16.
Syllabification of 'my suitcase' without glide formation

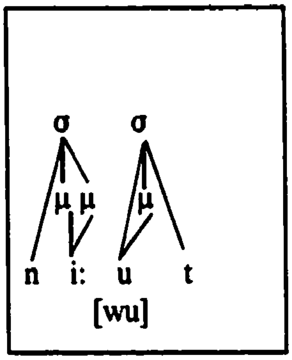


Figure 3.17.
Syllabification of 'my suitcase' with glide formation

Figure 3.17. shows /u/ forming an onset by becoming doubly linked to a mora and to the syllable node. This process does not affect the length of /u/, as onsets are non-moraic.

/i/ may occasionally delete between /u/ and a consonant (typically at word edges). This deletion process is discussed in section 3.1.4.

664	/ihkui ʧ/	→	[i:xʊʦ]	'lice'	î(h)kuat(sh)[115]
665	/iskueui ʧ/	→	[iskwewʦ]	'woman'	ishkueuat(sh)

When /i/ occurs in the sequence /u(:)iV/ it does not undergo the rounding rule discussed in section 2.2.1.1. but is realized as [y].

---

[115] The vowel in the orthography is <a>, reflecting the situation in Montagnais; however, in Mushuau Innu this plural marker clearly contains /i/.

666 /natu:i̲eu/ → [natu:y̲ew] 'Iroquois' nâtueu

667 /uapui̲an/ → [wapuy̲an] 'blanket' uâpuiân

The syllabification of the sequence /uiV/ is shown in figures 3.18. and 3.19. below, which depict example 667.

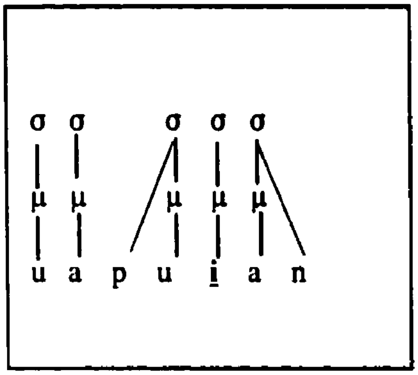


Figure 3.18. Syllabification of 'blanket' without glide formation

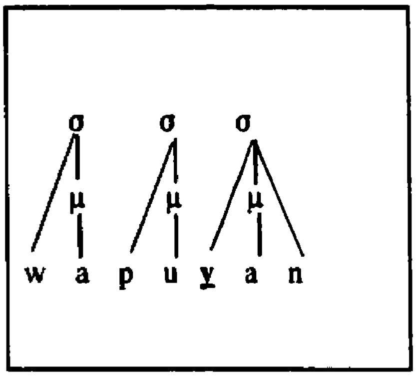


Figure 3.19. Syllabification of 'blanket' with glide formation

The following is a (non-exhaustive) list of sequences of /u/ and /i/ and how they are realized:

668 /uiC/ → [wuC] (also optionally [uC] and [wC])

669 /uiV/ → [uyV]

670 /ui:C/ → [wi:C]

671 /ui:V/ → [wiyV]

672 /u:iC/ → [uwuC]

673 /u:iV/ → [u:yV]

674 /u:i:C/→ [uwi:C]

675 /u:i:V/→ [uwiyV]

676 /iuC/→ [yuC]

677 /iuV/ → [uwV]

678 /iu:C/ → [yu:C]

679 /iu:V/ → [yuwV]

680 /i:uC/ → [iyuC] (also optionally [i:wuC])

681 /i:uV/ → [i:wV]

682 /i:u:C/→ [iyu:C]

683 /i:u:V/→ [iyuwV]

In general, the syllabification of sequences of /i(:)/ and /u(:)/ avoids hiatus. This is typically achieved through onset formation. Short /i/ rounds in the presence of /u/ (as discussed in section 2.2.1.1.), however this rounding does not occur if /i/ is syllabified as a glide.

3.1.4. Syncope

/i/ and /a/ are the only vowels that undergo syncope in Mushuau Innu, as in related dialects. MacKenzie (1980: 116) notes that "in initial position a and i (but seldom u) are often deleted". She also mentions that:

> "syncope of short vowels is common in the palatalized dialects [such as Mushuau Innu]. The prevalent environment for syncope is found, not surprisingly, between

homorganic consonants under weak stress. Both a̱ and i̱ may be lost while u̱ only loses its syllabicity"(1980: 125)

This is also the case in Mushuau Innu. However, unlike some CMN dialects, in Mushuau Innu, initial /i/ does not undergo deletion (procope). Procope in the related dialect of Pessamiu is illustrated in example 684.

Deletion in Pessamiu (MacKenzie 1980: 117):

684 [_skwe:w] 'woman' vs. [nti̱skwe:m] 'my wife'

Compare example 684 with the same word in Mushuau Innu which does not display deletion:

685	i̱skwew	'woman'	ishkueu

[i] is also often deleted after a word-initial consonant and before /u/. Thus, the /i/ of the first person prefix /ni-/, as well as the /i/ of the second person prefix /ʧi-/ often deletes:

The following examples show the second person prefix /ʧi-/ with no vowel deletion:

686	ʧi̱ne:'nenaw	'you (pl.) breathe'	tshiǹe(h)ǹenâu
687	ʧi̱nnəppa:na:n	'we (incl.) sleep'	tshinipânân

The following examples show the second person prefix /ʧi-/ with its vowel deleted:

688	ʧwa:pe'ka:yʤena:n	'we (incl.) wash'	tshuâpekâ(h)itshenân

689	ʧwa:ˈpa:tenan	'we (incl.) see'	tshuâpâ(h)tenân

The following examples show the first person prefix /ni-/ with no vowel deletion:

690	ni̱nna:gənniʃkwɛn	'my daughter-in-law'	ninâ(h)âkanishkuem
691	niʃi:mi:kɔwn	'my younger cousin'	nishîmîkâun

The following examples show the first person prefix /ni-/ with its vowel deleted:

692	nwa:pma:wʦ	'I see them'	nuâpamâuat(sh)
693	nwa:pˈmɔ:wʃʊn	'I see myself'	nuâpamâshun

Non-linear diagrams of syncope are shown below.

Deletion of [i] is also common after /u/ and before a word-final consonant. For example, the animate plural marker /-iʧ/[116] often surfaces as [ʦ] after a stem ending in [w] (this deletion is further discussed in section 3.1.4.).

The following examples show the animate plural suffix /-iʧ/ with no vowel deletion:

694	awassi̱ʦ	'children'	auâssat(sh)
695	nəkʊsˈtanani̱ʦ	'we fear'	nikushtenân

The following examples show the animate plural suffix /-iʧ/ with deletion of the vowel:

696	na:pewʦ	'men'	nâpeuat(sh)
697	wa:p(ə)ˈmewʦ	'they see'	uâpameuat(sh)

---

[116] The sound [ʦ] is an allophone of /ʧ/ as discussed in section 2.1.4.1. The plural marker is indicated by <at(sh)> in the orthography, reflecting the vowel found in other dialects; however, in Mushuau Innu the vowel is /i/.

This process can be described in the following rule:

698 /i/ → 0 % # C _ /u/

As with the glide formation processes described in section 3.1.3. this syncope rule is another way in which hiatus is avoided.

/i/ and /a/ are the only vowels which undergo syncope between homorganic consonants in Mushuau Innu; the evidence for this is as follows: As discussed in section 2.2.2.1. [ɨ] (an allophone of /i/) often deletes between consonants with the same place of articulation, [ə] also frequently deletes between consonants with the same place of articulation (see section 2.2.2.2.). These are the only instances of syncope between homorganic consonants. As [ə] is an allophone of (only) /a/ and /i/ (see section 2.2.5.2.), this demonstrates that only /i/ and /a/ undergo syncope between homorganic consonants in Mushuau Innu.

As discussed in section 2.2.2.3., /a/ can delete word-initially.

In summary: only short /a/ and /i/ undergo deletion. Both tend to be deleted between homorganic consonants[117]. /a/ is also variably deleted word-initially (see section

---

[117] There are many items in the data which do not show vowels where the orthography suggests that vowels are present. The absent vowels are typically <a> or <i> in the orthography and the vowels are typically absent between homorganic consonants. This is expected based on the analysis above. However, there are occasional instances of an <a> or <i>, between non-homorganic consonants, which is present in the orthography but not in the data. This suggests that while deletion is most common between homorganic

2.2.2.2.) and /i/ is often deleted at word edges in the environment of /u/ (see section 2.2.1.1.).

Not only does syncope occur between homorganic consonants, it can also occur between identical consonants, creating a geminate consonant. This gemination is not in violation of the OCP (discussed in section 1.9.4.) because tautomorphemically, identical consonants can be considered doubly linked to the same feature representation. So, the deletion of a vowel between identical consonants creates a geminate with no violation of the OCP. This is depicted in the figure below:

---

consonants, it is not completely restricted to that environment. It should be noted, however, that evidence for this occasional deletion between non-homorganic consonants is based on related dialects and so is external to Mushuau Innu, and as such should not be considered conclusive for Mushuau Innu.

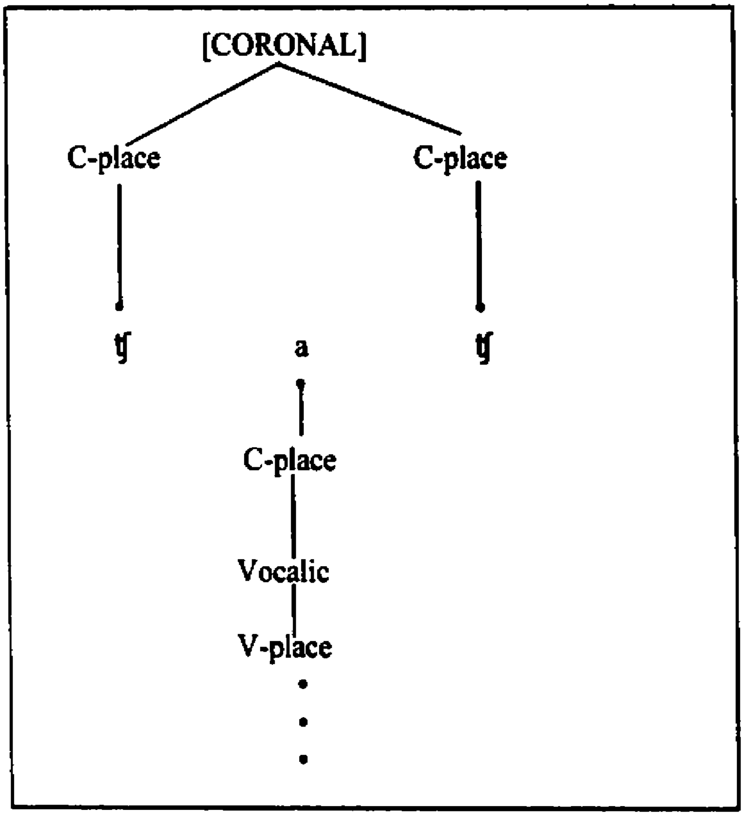


Figure 3.20. Representation of shared features of identical consonants

Deleting the vowel from the sequence shown in figure 3.20. simply creates a surface geminate consonant.

MacKenzie (1980: 125) states that syncope in CMN occurs in positions of weak stress. While the role of stress in determining Mushuau Innu syncope is unclear (the accentual system of Mushuau Innu is discussed in section 3.2.), it is clear that syncope only affects short vowels. As accent in Mushuau Innu tends to occur on long vowels, it is reasonable to assume that syncope only affects unaccented vowels in Mushuau Innu, as in other CMN dialects.

The above discussion of syncope leads to the following rules:

699 $\{/a/, /i/\} \rightarrow \emptyset \;/\; \underset{\alpha\text{place}}{\text{C}} \_ \underset{\alpha\text{place}}{\text{C}}$

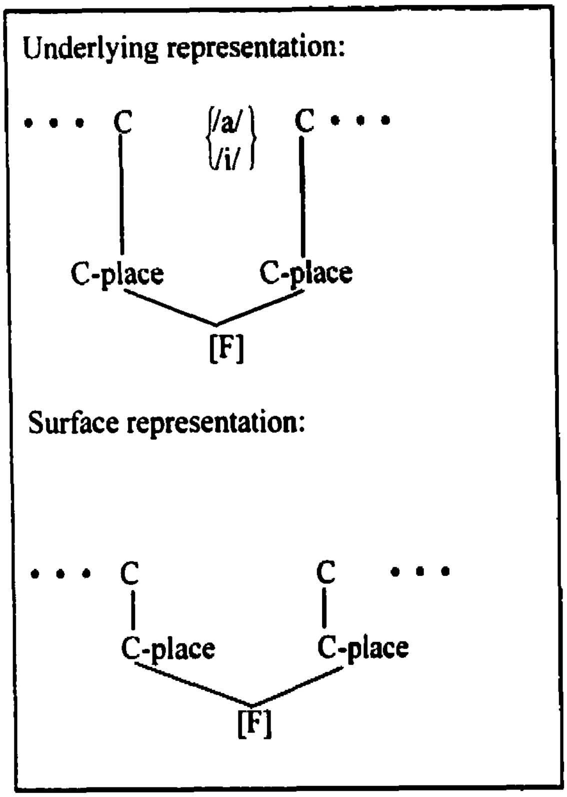
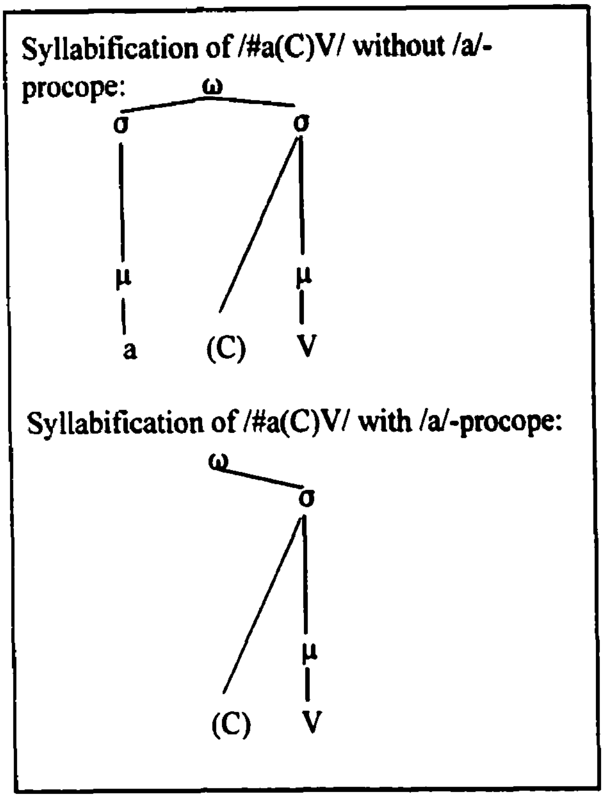


Figure 3.21. Syncope between homorganic consonants

700 $/a/ \rightarrow \emptyset \;/\; \# \_$


Syllabification of /#a(C)V/ without /a/-procope:

Syllabification of /#a(C)V/ with /a/-procope:

Figure 3.22. /a/-procope

/a/-procope can be seen in the word 'children' <auâssat(sh)> which can be realized as *a̲wassiʦ* or *wa:ssɨʦ*.

701 /i/ → Ø % # C _ /u/[118] V

---

[118] In figure 3.23. the sequence /Cu/, created by the deletion of /i/, is presumably syllabified as a single labialized consonant, as shown.

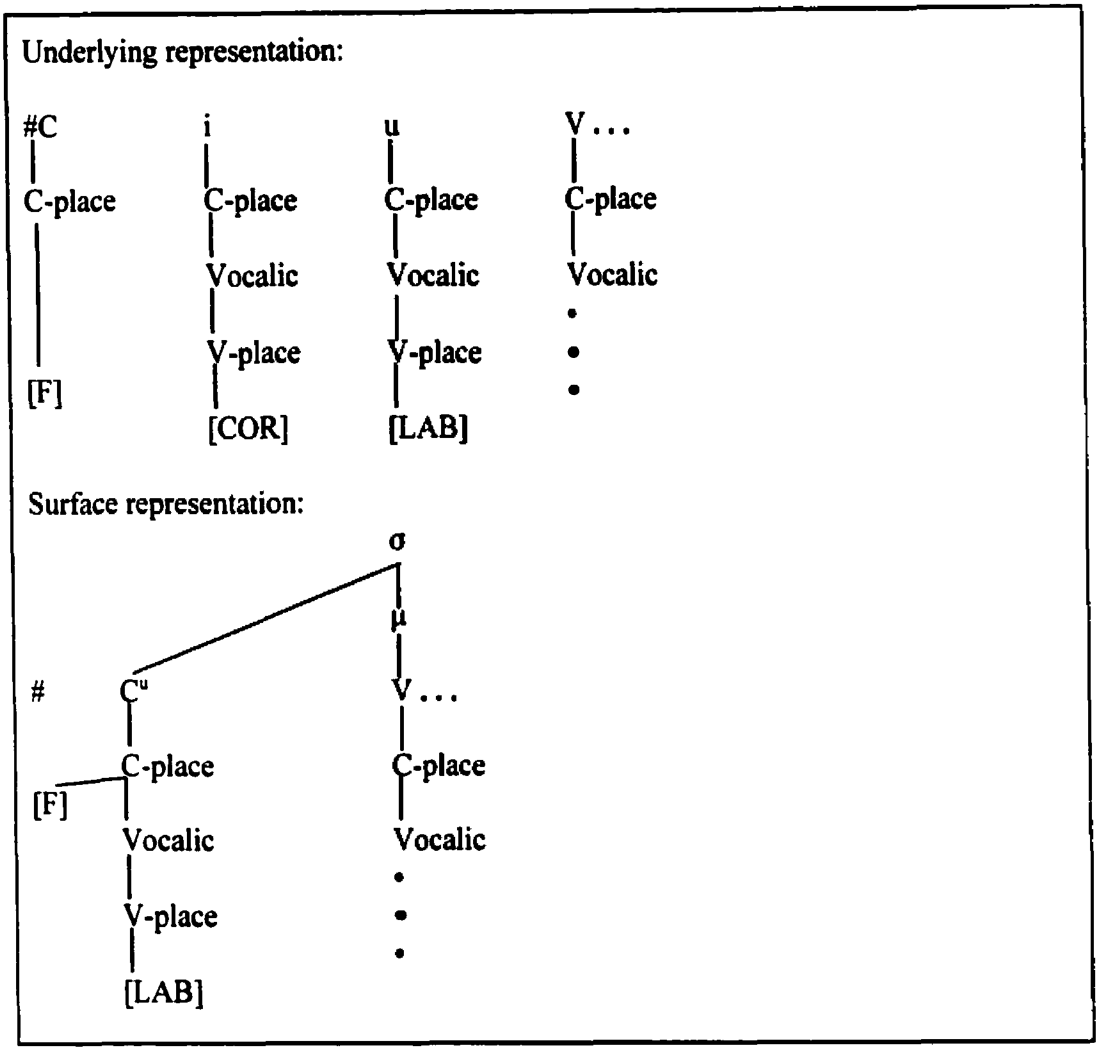


Figure 3.23. /i/-syncope

The process shown in the figure above (/i/-syncope) also occurs in the mirror environment. /i/-syncope is seen in the word *ʧwa:ˈpa:tenan* ‘we (incl.) see’ <tshuâpâ(h)tenân>, in which the /i/ of the second person prefix /ʧi-/ has deleted between the preceding [ʧ] and the following /w/, resulting in [ʧw].

3.1.5. Epenthesis

Mushuau Innu has an epenthesis rule which must be postlexical, as it only occurs between words. Certain words which are normally consonant-final have a final [ə] when they occur before a consonant-initial word. There are only two instances of this epenthesis in the data, and in both cases the epenthesis occurs between consonants which have the same place of articulation.

702	a:tʰum_	'dog'	atimᵘ
703	a:tʊmə̲ ˈma:kwa:ʤew	'the dog bites'	atimᵘ mâkuâtsheu
704	wi:pəʦ_	'early'	uîpat(sh)
705	wi:pʌtsə̲ tʌkuˈʃɨnno	'he comes early'	uîpat(sh) takushinu

The epenthesis seen in examples 703 and 705 above is motivated by the OCP (see section 1.9.4. for discussion of the OCP). As discussed in sections 1.9.4. and 3.1.4., the OCP prevents sequences of adjacent identical features. Within words, OCP violations are not an issue because identical phones are linked to the same feature specifications (as shown in figure 3.20. above). In contrast, across word boundaries, multiple linking is not possible and so a sequence of identical phones would violate the OCP; this violation of the OCP motivates the epenthesis seen in examples 703 and 705.

However, there are many instances of adjacent [w] on either side of a word boundary, as well as adjacent [n] on either side of a word boundary, and the presence of these adjacent identical phones does not motivate any form of epenthesis. Since violation these adjacent identical phones does not motivate any form of epenthesis. Since violation of the OCP across words in Mushuau Innu is possible, I hypothesize that epenthesis is an optional rule; in some instances epenthesis does not apply and OCP violations across word boundaries do occur.

In summary, I postulate the following optional rule of epenthesis:

706 $\emptyset \rightarrow \text{ə} \ / \ \underset{\alpha\text{place}}{\text{C\#}} \ \_ \ \underset{\alpha\text{place}}{\text{\#C}}$

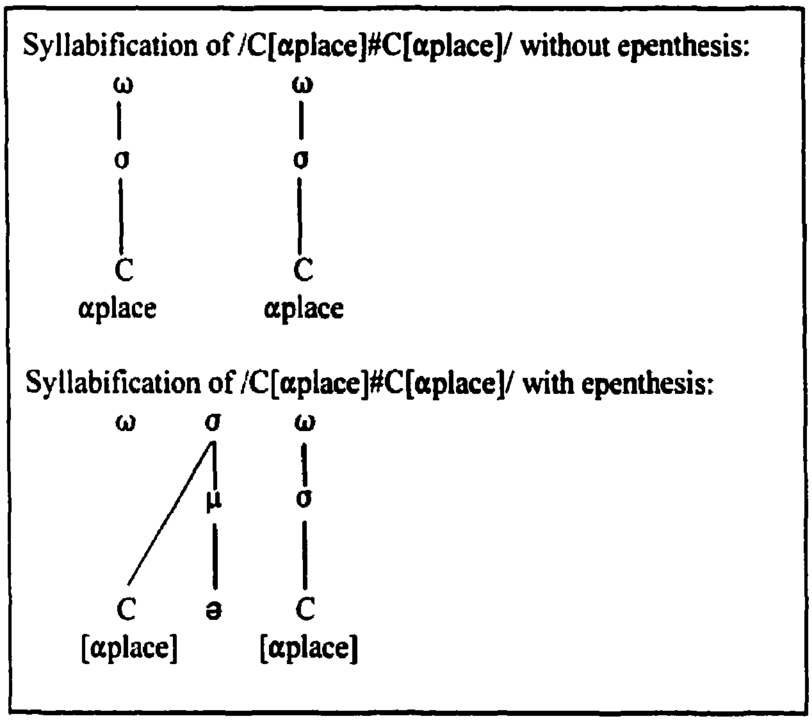


Figure 3.24. [ə]-epenthesis

3.2. Accent

Mushuau Innu has iambic feet (for a discussion of metrical theory see section

1.9.6.); word accent occurs on the head of the rightmost iambic foot. The direction of parsing is left to right. Final syllables are optionally extrametrical. Stray light syllables are not parsed into feet.

This accentual system is different from that of many Montagnais dialects which have accent on word-final syllables (for example, Ekuanitshu Montagnais has word-final stress (Martin 1991: 43)): However, iambic systems are quite common in Algonquian languages (Brittain 2000: 2).

The Mushuau Innu accentual system does not recognize coda material as contributing to syllable weight[119] (see section 1.9.5. for a discussion of syllable weight); therefore syllable weight is determined by vowel length alone: a long vowel forms the nucleus of a heavy syllable and a short vowel forms the nucleus of a light syllable. The reasons for assuming this analysis are discussed below.

Mushuau Innu accent may fall on the final syllable. When this occurs the accented vowel is typically long (as discussed in section 2.2.5.2. /e/ is a long vowel).

707 nɨspa:'ya:w 'it is high' ishpânâu
L H **H**[120]

---

[119] There is one possible exception to this, word final /m$^{\omega}$/ may contribute to syllable weight, this is discussed below. As discussed in section 1.9.5., while all languages are assumed to have weight-by-position, metrical systems often use different parameters from weight-by-position to determine syllable weight.

[120] In this section, syllable weight is indicated in examples (L for light and H for heavy). The accented syllable is bolded and underlined. Brackets surround syllables whose vowel may or may not be present, due to syncope, and syllables which consist of syllabic [ŋ̩].

708	uʃpwa:'gɛy L H **H**	'pipe'	ushpuâkan
709	mi:'χwa:w H **H**	'it is cold'	mî(h)kuâu
710	wa:p(ə)'mewʦ H (L) **H**	'they see'	uâpameuat(sh)
711	nəp'pa:w L **H**	'he sleeps'	nipâu
712	ʊta:stə'mi:k$^{\omega}$ L H L **H**	'his face (is dirty)'	utâshtamik^{u}
713	ta:'ha:w H **H**	'it is cold'	tâ(h)kâu
714	ʌ'wa:ʃ L **H**	'child'	auâss

The word-final accent shown in the examples above could be accounted for by positing a single unbounded foot with stress occurring on the right edge of the foot. However, the occurrence of syncope at the left edges of words (see section 3.1.4.) suggests the presence of more than a single foot. Syncope is often motivated by metrical considerations in CMN dialects and this appears to be the case in Mushuau Innu as well. Syncope does not affect long vowels (which attract stress) in Mushuau Innu, as discussed in section 3.1.4.; the lack of long vowel syncope is explained by assuming that long vowels are always in the strong position in a foot and so cannot undergo syncope. This implies that there is typically more than one foot in a Mushuau Innu word and that syncope only occurs in the weak branch of a foot. Furthermore, though secondary accent is not marked in the phonetic transcription provided by Mailhot, listening to the recordings of the native speakers, I can make out secondary stress on some words[121]. The presence of secondary stress argues for multiple feet and not a single unbounded foot. For these reasons, I will assume that Mushuau Innu has multiple feet.

The pattern shown in the examples above is consistent with a metrical structure of right headed (iambic) feet. These feet consist of the sequence L H, or, if no light syllable is available to form this sequence, a foot may consist of a single heavy syllable. Word accent is on the head of the rightmost foot. The following examples demonstrate the assumed rules of accentuation.

715	*	Word accent		
	(* *)	Feet heads		
	(* *)(* *)	Accentable syllables, feet		
	L H L **H**			
	ʊta:stə'mi:k$^{\omega}$		'his face (is dirty)'	utâshtamik^{u}
716	*	Word accent		
	(* *)	Feet heads		
	(* *) (*)	Accentable syllables, feet		
	L H **H**			
	uʃpwa:'gɛy		'pipe'	ushpuâkan

---

[121] It is difficult to disentangle vowel length from secondary stress, especially for someone like myself who does not speak the language. For this reason I will rely on Mailhot's transcriptions of primary stress; secondary stress will not be dealt with further.

717	*	**Word accent**	
	(* *)	**Feet heads**	
	(*) (*)	**Accentable syllables, feet**	
	H **H**		
	ta:ˈha:w	**‘it is cold’**	**tâ(h)kâu**

*The most common stressed final syllable is [ew].

718	ini:ˈnew	‘grouse’	iǹnîǹeu
	L H **H**		
719	ʧino:ˈʃew	‘pike’	tshinusheu
	L H **H**		
720	peto:ˈtew	‘he comes’	petû(h)teu
	H H **H**		
721	pəmənnəˈwew	‘she cooks’	piminueu
	L L L **H**		
722	p(ʊ)mʊ̃:ˈtew	‘he walks’	pimû(h)teu
	(L) H **H**		

Certain final stressed syllables contain a short vowel and are therefore light.

723	ʌmˈmɨʃk^{ω}	‘beaver’	amishk^{u}
	L **L**		
724	wa:pa:ˈtum	‘he sees’	uâpâ(h)tam^{u}
	H H **L**		
725	ka:ʃi:ˈnʊm	‘she wipes’	kâshînam^{u}
	H H **L**		

Example 723 can be explained within the framework for Mushuau Innu accent discussed above: a sequence of two light syllables (L L) may be parsed as a single iambic foot. This gives us the following structure:

726 • Word accent
(*) Feet heads
(* *) Accentable syllables, feet
L $\underline{\mathrm{L}}$
ʌm'mɨʃk$^{\omega}$ 'beaver' amishk^{u}

Examples 724 and 725 present a problem for the iambic analysis in that the syllables preceding the final light syllable (in both cases) are heavy; so, the final light syllables in these examples should not be parsed into feet, and the metrical structure should be blind to them. Perhaps, unlike other coda material, word-final /m$^{\omega}$/ contributes to the weight of a syllable[122]. This would allow examples 724 and 725 to be parsed as follows[123]:

727 * Word accent
(* • *) Feet heads
(*)(*)(*) Accentable syllables, feet
H H $\underline{\mathbf{H}}$
wa:pa:'tum 'he sees' uâpâ(h)tam^{u}

---

[122] Though neither of these words shows a word-final /m$^{\omega}$/, its presence can be inferred from both the orthography and the fact that the preceding vowel is round (/m$^{\omega}$/ induces rounding in neighbouring /a/ and /i/ as discussed in sections 2.2.1.1. and 2.2.2.3.), the fact that the labialization is missing from the phonetic form in these examples is not unusual, as labialized consonants frequently show non-labialized allophones in word-final position, as discussed in section 3.1.2.

[123] As both words have the same structure only one example metrical grid is provided.

If coda material (other than /m^w/) counted towards syllable weight, there would be many accented short vowels occurring in closed syllables, as this does not occur (other than in explicable instances such as 723 to 725), I assume that syllable weight is determined by vowel length alone[124] (with the stipulation that /m^w/ can contribute to syllable weight). Brittain (2000: 44) reports that all nasals (and glides) contribute to syllable weight in Southern East Cree.

The accent may also fall on the penult. When this occurs the penultimate syllable typically contains a long vowel, and so is heavy.

728	ʧine:ˈnenaw L H **H** H	'you (pl.) breathe'	tshiṅe(h)ṅenau
729	pʌˈka:hway L **H** H	'hen'	pakâ(h)kuân
730	mi:ʧuˈwa:pi:hʦ H L **H** H	'house'	mîtshuâ(h)pî(h)t(sh)
731	n̩ .ˈna:pɛm (L) **H** H	'husband'	ninâpem
732	ʌˈwa:ʃʃʌʦ L **H** L	'boys'	auâssat(sh)
733	ˈwi:pʌʦ **H** L	'long time ago'	uîpatsh

---

[124] I assume that a short vowel and following glide count as a long vowel for the purposes of accentuation; however, there are no clear examples in the data (such as a sequence of short vowel and glide receiving accent) to confirm this assumption.

In examples 728 to 731 above, penult accent is created through extrametricality (see section 1.9.6.1.). Word-final syllables are optionally extrametrical in Mushuau Innu[125]. This allows for the creation of penultimate accent in Mushuau as seen in the following examples:

734 ● Word accent
(* *) Feet heads
(* *) Accentable syllables, feet
L **H** <**H**>
pʌ'ka:hway 'hen' pakâ(h)kuân

735 * Word accent
(*) Feet heads
(* *)(*) Accentable syllables, feet
L H **H** <H>
ʧine:'nenaw 'you (pl.) breathe' tshiǹe(h)ǹenau

While an accented penult is typically heavy (contains a long vowel), on occasion it is light. When this happens the preceding and following syllables are also light.

736 kami'huʃit '(it is) red' kâmî(h)kushit
H L **L** L

737 n̥ . tʌ'kuʃin 'I come' nitakushin
(L) L **L** L

738 mət'ʧɨma 'it is near' matshima
L **L** L

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[125] In generative phonology, extrametricality cannot be optional; however, Optimality Theory (Archangeli 1997: 29), allows for variability through the equal ranking of constraints.

739	uʃkas'sina L L L L	'new shoe'	ushkassina
740	atti:kus'kəna L H L L L	'caribou bone'	atî(h)kushkana
741	kəskʊ'wʊnɨʦ L L L L	'clouds'	kashkunat(sh)

Two factors account for penult accent in the examples above: extrametricality of the final syllable and parsing (from right to left) of the sequence L L into a single iambic foot. These factors are demonstrated in the examples below.

742 * Word accent
(*) Feet heads
(* *) Accentable syllables, feet
L L <L>
mət'ʧɨma 'it is near' matshima

743 * Word accent
(*) Feet heads
(* *) Accentable syllables, feet
L L L<L>
kəskʊ'wʊnɨʦ 'clouds' kashkunat(sh)

As seen in example 743, stray light syllables are not parsed into feet, and so the initial syllable of *kəskʊ'wʊnɨʦ* 'clouds' <kashkunat(sh)> is not part of a foot.

Example 743 also demonstrates that the direction of parsing in Mushuau Innu must be right to left. If parsing were from left to right, the sequence L L L L would have to be parsed as either: (L L) (L L); or (with a final extrametrical syllable): (L L) L <L>, where the penult is a stray light syllable and so would not be parsed into a foot. Neither of these left to right parsings of L L L L could produce penultimate accentuation, and so parsing in Mushuau Innu must be from right to left.

The accent may also fall on the antepenult. As with accent on the ultima and penult, an accented antepenult typically contains a long vowel. Antepenultimate accent is achieved through extrametricality of the final syllable, and the exclusion of the penultimate syllable from parsing because it is a stray light syllable. Therefore, when accent is on the antepenult, the penult must be light in order to escape parsing, as shown in the examples below.

744	u'ta:kʊʃ/hiʦ L **H** L L	'yesterday'	utâkushît(sh)
745	's .si:ʒukwa (L) **H** L L	'your (sg.) eyes'	tshissîshikua
746	ʊ:p'mɛ:ʃəno H (L)**H** L L	'he lies on the side'	û(h)pimeshinu
747	ʧəppə'ka:ʃɨmʊn L L **H** L L	'you swim'	tshipakâshimun

The following metrical grids demonstrate how antepenultimate accent is achieved.

748	*	Word accent	
	(*)	Feet heads	
	(* *)	Accentable syllables, feet	
	L **H** L <L>		
	u'ta:kʊʃ/hiʦ	'yesterday'	utâkushît(sh)

749 * Word accent
(*) Feet heads
(* *) Accentable syllables, feet
L L **H** L<L>
ʧəppə'ka:ʃɨmʊn ‘you swim’ tshipakâshimun

In example 748 the penult is a stray light syllable and so is not parsed into a foot. In example 749 both the penult and initial are stray light syllables and so are not parsed into feet.

The accent may not fall any further to the left than the antepenult; this is consistent with the analysis given above.

Many words display different accents from one elicitation to another.

750	p(ʊ)mʊ̃:'tew (L) H **H**	‘he walks’	pimû(h)teu
751	'p . mu:htew (L) **H** H	‘he walks’	pimû(h)teu
752	ta:'ha:w H **H**	‘it is cold’	tâ(h)kâu
753	ʌmʌ 'ta:ha:w L L **H** H	‘it is not cold’	ama tâ(h)kâu
754	n̥ . ti:h'ʤi:n (L) H **H**	‘my hand’	nitî(h)tshî
755	ta:χaw n̥ .'ti:ʤi:n H H (L) **H** H	‘my hand is cold’	tâ(h)kâu nitî(h)tshî

This variability in the position of the accent can be explained, in most instances, by the fact that final syllable extrametricality is optional. In the examples above, if the final syllable is extrametrical, accent falls on the penult, if the final syllable is not extrametrical, the accent falls on the final syllable. This is demonstrated in the examples below.

Extrametrical final syllable:

756	*	Word accent		
	(*)	Feet heads		
	(*)	Accentable syllables, feet		
	H <H>			
(ʌmʌ)	'ta:ha:w		‘it is not cold’	ama tâ(h)kâu

Non-extrametrical final syllable:

757	*	Word accent		
	(* *)	Feet heads		
	(*) (*)	Accentable syllables, feet		
	H **H**			
	ta:'ha:w		‘it is cold’	tâ(h)kâu

As seen in examples 753 and 755, accentual variability may take the form of a leftward shift of the accent, when the word is preceded by another word. There are several exceptional accentuations which can be explained as resulting from this accent shift caused by a preceding word:

758	ta:hta 'kuʃka:ya:n	‘sewing machine’	tâ(h)tâ kushkâiân
	H H **L** H H		

759	mɨniː ˈʧɨnɨpiːm L H **L** L H	‘drink your water’	minî tshinipîm

In the examples above, a light syllable receives stress (and is not the head of a L L foot, which would support stress). This is exceptional and can perhaps be explained by assuming that the accent is being shifted to the antepenult under the influence of the same accent retraction seen in examples 753 and 755. If this is the case, accent retraction (caused by the presence of a preceding word) has the effect of drawing accent to the left edge of a word's accentual domain (so to the antepenult in words of three or more syllables, and to the penult in words of only two syllables). The exact conditions for this accent retraction are not clear based on the data at hand as there are few cases from which to draw generalizations (the data consist largely of elicitations of individual words, not phrases; so a study of the phonology of phrase structure is not possible). The nature of Mushuau Innu phrase structure, and its effect on accent retraction, warrants further research. The process of accent retraction will not be dealt with further in this thesis.

There are a few items in the data that do not conform to the analysis given above. Most of these exceptions appear to be the result of accent retraction (which draws the accent of a word to the left edge of the accentual domain); however, there are two instances which cannot be explained through accent retraction:

760	ʧwaːˈp**aː**tenan (L)H **H** H H	‘we (incl.) see’	tshiuâpâ(h)tenân

761 pɨste'ʃo 'he cuts' pishteshu
L H L

Both of these examples are exceptions to the analysis provided above. Rather than propose an unmotivated rule, based on little data, these examples should simply be considered exceptional.

In conclusion, accent must fall within the last three syllables of a Mushuau Innu word. This is achieved through right to left parsing of syllables into iambic feet and accentuation of the head of the rightmost foot in the word, along with optional final-syllable extrametricality (as well, stray light syllables are not parsed into feet). Syllable weight is determined by vowel length alone, with the exception of word-final /m^{w}/ which contributes to syllable weight. There is an accent retraction process which draws the accent of a word to the left edge of the accentual domain when the word is preceded by another word in the phonological phrase.

3.3. Alternation between [n] and [y][126]

MacKenzie (1980: 44) reports on an unusual process in Mushuau Innu, in which

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[126] For the sake of convenience, alternation between [n] and [y] is abbreviated to n/y-alternation hereafter.

[n] and [y] alternate freely in certain words. She states that the process only affects /n/[127] derived from PA *n and not /n/ derived from PA *l.

762	aʃinin̲a / aʃɨniy̲a	'stones'	ashinîa
763	mətʤəpe'tɛn̲/y̲ɔw	'you (pl.) do not hear'	ma tshipe(h)tenau
764	ʧwa:pe'ka:y̲ʤen̲a:n̲ / ʧwa:be'ga:n̲ʤey̲a:y̲	'we (incl.) wash'	tshiuâpekâ(h)itshenân
765	awɛn̲o / awey̲o	'who is that'	auen̂ û
766	wa:n̲o / wa:y̲o	'far away'	uâ(h)n̂au[128]

I argue that this alternation is the result of an underlying /i/ being realized as [i], [y] or [n] based on its position within its syllable[129]. In the syllable peak, /i/ is realized as the most sonorous allophone [i], while in positions of typically lower sonority (in the

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[127] There is no mention in the literature and no evidence in the data of alternation between [y] and long [nn]. This leaves unanswered the question of how the sequence /nn/ discussed in section 2.1.2.2. above is affected by n/y-alternation.

[128] As seen in the orthography, the segment alternating between [n] and [y], in this and the subsequent example, is derived from PA *l (segments originating from PA *l are marked in the orthography by the symbol <n̂>). PA *l is generally realized as non-alternating /n/ in Mushuau Innu, so these examples must be the result of reanalysis, as discussed in appendix 1.

[129] It should be noted that [i], [y] and [n] are almost identical sounds, differing only in sonority (and nasality in the case of [n], but as argued below, nasality is non-distinctive in this case). These three sounds are the only coronal sonorants in the language.

onset or coda) /i/ is realized as a less sonorous allophone[130].

Not all instances of [n] alternate with [y]. Ford (1978: 240) reports that many [n] do not alternate, always surfacing as [n]. (MacKenzie 1980: 83) reports the same fact.

There are many words in the data that consistently surface with [n] and show no alternation.

767	wa:pmɨn̲	'apple'	uâpimin
768	wa:pᵊmən̲ɨʦ	'apples'	uâpiminats
769	wa:pəmən̲a / wa:p(ə)mɨn̲za	'apple (obv.)'	uâpimina
770	wa:ˈbuyan̲ / wa:puyan̲	'blanket'	uâpuiân
771	uska:bwuyan̲	'new blanket'	ushkâpuiân
772	ʧiya:ʃa:ˈbuyan̲	'old blanket'	tshiâshâpuiân

There are also words that consistently display [y], with no sign of alternation[131].

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[130] The proposed analysis for n/y-alternation in Mushuau Innu, finds a parallel in similar alternations in another language: in Porteño Spanish (Hume 1992: 65), /i/ surfaces as [i] in the head of the nucleus, as [y] in the non-head nuclear position and as [ʒ] in the onset or coda. This demonstrates that /i/ can alternate with segments even less sonorous than [n], such as [ʒ].

[131] It is not conclusive that these words never show alternation. They may simply be not displaying their alternation in this set of data. As many words are elicited only once or twice in the data, it is impossible to determine if these words are exceptions to alternation or if they simply happen not to show alternation in this set of data. This question needs to be resolved by working closely with native speakers. This limitation prevents environmental restrictions on n/y-alternation from being determined with the data at hand.

773	wa:ˈbuy̱an / wa:puy̱an	‘blanket’	uâpuiân
774	uska:bwuy̱an	‘new blanket’	ushkâpuiân
775	ʧiya:ʃa:ˈbuy̱an	‘old blanket’	tshiâshâpuiân
776	a:y̱ʌpi:n	‘fishnet’	â(h)ǹapî[132]
777	a:y̱ʌˈpi:nʌʦ	‘fishnets’	â(h)ǹapîats

Ford (1978) attempts to describe the environment for alternation, and offers an analysis of the process. Ford says that there are several types of n/y-alternation; he reports the existence of free variation between [n] and [y] in certain words, as well as predictable alternation in certain morphological environments. The data collected by Mailhot only support the existence of free variation of [n] and [y] in certain words, with no evidence in the data of predictable variation based on morphological environment.

3.3.1. Process of alternation

The pattern of distribution for the allophones of /i/ is as follows: when /i/ occurs between consonants, it is syllabified in the head of the nucleus and retains its vocoid status. When /i/ occurs after another vowel, vowel hiatus must be prevented and /i/ therefore loses its syllabicity. When this happens, /i/ is syllabified as the onset of a

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[132] As seen in the orthography, the segment surfacing as [y̱] in this and the next example is derived from PA *l (segments originating from PA *l are marked in the orthography by the symbol <ǹ>). PA *l is generally realized as non-alternating /n/ in Mushuau Innu, so these examples must be the result of reanalysis, as discussed in appendix 1.

following syllable or as the coda[133] of a preceding syllable. /i/ in an onset or coda can surface as either [y] or [n].

This analysis may be represented by the following syllable structures:

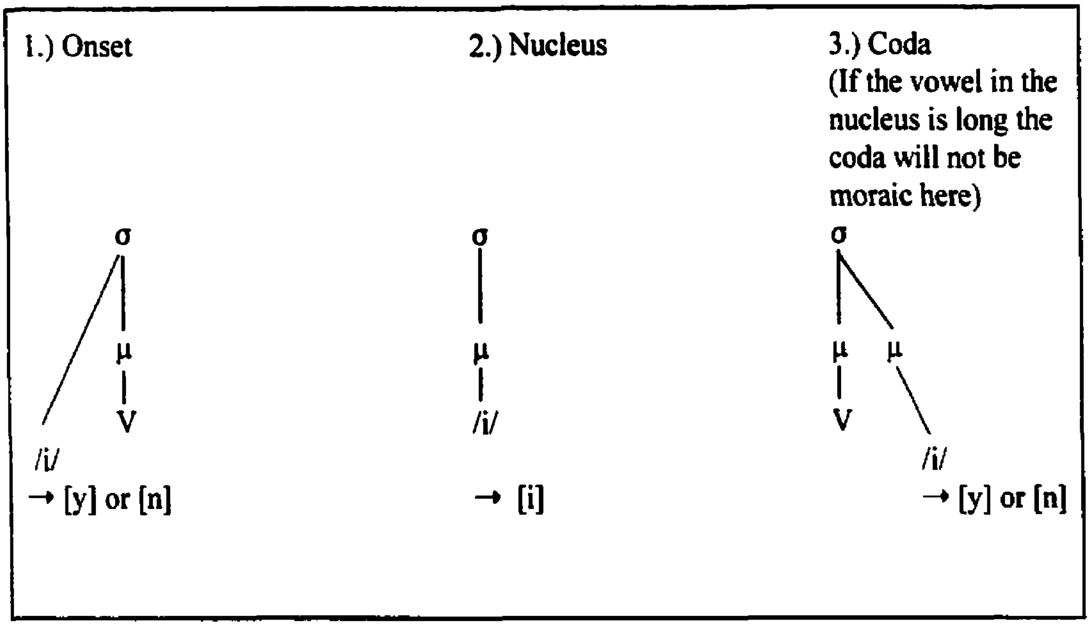

Figure 3.25. /i/ in its three possible positions within the syllable

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[133] As discussed in section 3.1.1., a glide may be considered part of the nucleus when it follows a short vowel, forming a diphthong. With respect to n/y-alternation, the difference between a glide that is within the nucleus and a glide that is within the coda is moot. In either instance the /i/ loses its syllabicity and may surface as either [y] or [n]. The only position in which /i/ surfaces as [i] is when it is the head of the nucleus (and so is attached to the leftmost mora in the syllable). Throughout this section n/y-alternation is referred to as occurring in onset and coda positions. However, it should be noted that this is a generalization made for ease of exposition, any /i/ which loses its syllabicity may surface as [y] or [n]; this includes /i/ in onset position, coda position and non-head position within the nucleus.

An account of the pattern of distribution for [i], [y] and [n], based on underspecification of sonority features, is provided below.

3.3.2. Underspecification of /i/

The features that distinguish the three allophones of /i/ ([i], [y] and [n]) from each other can be summarized in the following chart (all of these phones are [CORONAL]):

	i	y	n
[vocoid]	+	–	–
[approximant]	+	+	–
[sonorant]	+	+	+
[nasal]	–	–	+

Table 3.1. Features of [i], [y] and [n]

/i/ can be analysed as a coronal sonorant which is underspecified for [nasal], [approximant] and [vocoid]. When /i/ occurs in the nucleus of a syllable, it has the highest degree of sonority, with the specification [+vocoid]. When /i/ syllabifies as the onset or coda of a syllable, it has less sonority and is assigned either [-vocoid] or [-approximant][134]. Which of these two features is assigned is variable and out of this variability arises the free variation between [n] and [y], as explained below.

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[134] The features [vocoid] and [approximant] are used because these are the features that pertain to sonority.

The remaining unspecified values for [nasal], [approximant] and [vocoid] are filled in by positionally determined redundancy rules (see Steriade (1995: 158) for a discussion of redundancy rules as they relate to positions within the syllable). When /i/ is assigned the feature [+vocoid] (when it is in the nucleus), [-nasal] and [+approximant] are filled in by redundancy rules, and /i/ surfaces as [i]. When /i/ occurs in an onset or coda, it has less sonority and so is assigned [-vocoid] or [-approximant]. If [-vocoid] is assigned, [-nasal] and [+approximant] are filled in, and /i/ surfaces as [y][135]. If [-approximant] is assigned, the features [+nasal] and [-vocoid] are filled in, and /i/ surfaces as [n].

The following feature-by-position redundancy rules derive the allophones of /i/:

778 [COR], [+son] → [+vocoid] / $\underset{\text{[nucleus]}}{\_}$

779 [COR], [+son] → [-vocoid] ~ [-approximant] / $\underset{\left\{\begin{array}{l}\text{[onset]}\\ \text{[coda]}\end{array}\right\}}{\_}$

and the following redundancy rules:

780 [COR], [+son], [±voc] → [+approx], [-nas]

781 [COR], [+son], [-approx] → [-voc], [+nas]

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[135] These are in fact the same features required to complete the specification of [i]. This allows [i] and [y] to have their specifications filled in by the same redundancy rule.

It should be noted that this analysis is not suggesting that the feature [±vocoid] is determined by syllable structure for all vowels; rule 778 is specific to coronal sonorants (though /u/ also has a non-vocoid allophone).

The construction of syllable structure should be considered cyclic (occurring at several different levels of the lexical phonology). Vowels other than /i/ (and /u/) would project syllable head positions at an early stage in the construction of syllable structure, while at a later stage, /i/ (and /u/) would either project a syllable head position or not, depending on the requirements of the syllable structure at that point. Dell and Emedlaui (1985: 109-111) describe a similar situation in Tashlhiyt Berber, in which /a/ must have an opportunity to project a syllable head before /i/ or /u/ can project syllable heads.

If /i/ (or /u/) is in a position where an onset or coda is required, for example when adjacent to a syllable head (a vowel which projected a syllable head position earlier in the derivation), then /i/ (or /u/) does not project a syllable head position and instead surfaces as a non-vocoid allophone; for /i/ this allophone is either [y] or [n]; these non-vocoid allophones are then incorporated into onsets and codas. The construction of onsets and codas must occur after /i/ receives its vocoid specifications. This thesis does not deal with the details of syllable structure construction at the various levels of lexical phonology.

Non-alternating [n] can be analyzed as a coronal sonorant which is underlyingly specified as [-approximant] and so is always assigned [-vocoid] and [+nasal] by redundancy rule 781 above. From this it can be seen that non-alternating /n/ acquires its nasality by the same redundancy rule that assigns nasality to an [n] derived from /i/.

The underlying feature specifications for /i/ and /n/ would be as follows:

782 /i/ = [COR], [+son]

783 /n/ = [COR], [+son], [-approx]

Feature tree diagrams of these underlying specifications would be as follows (only relevant structure is shown):

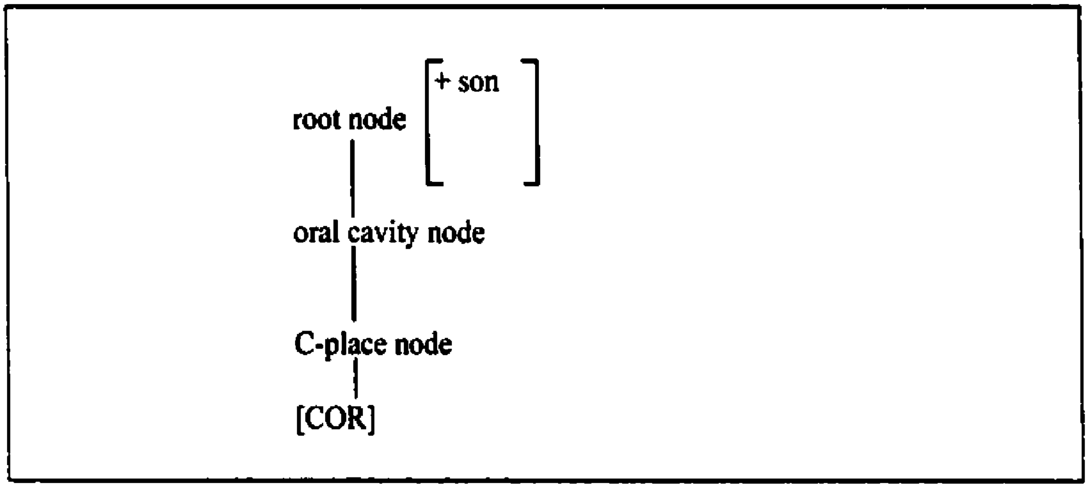

Figure 3.26. Feature diagram of underspecified /i/

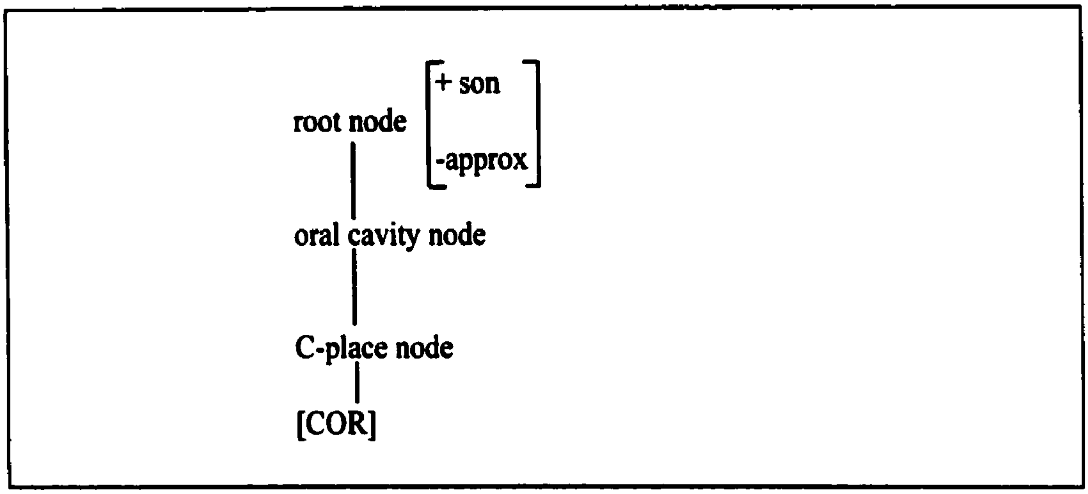

Figure 3.27. Feature diagram of underspecified non-alternating /n/

It should be noted that the alternation process discussed above only affects the coronal vowel /i/. The data show no evidence of corresponding alternations between other vowels and nasal consonants.[136] The exclusivity of this rule to /i/ may be the result of the historical process that resulted in n/y alternation (a tentative proposal for this historical process is outlined in appendix 1).

The analysis above assumes that all [n] which alternate with [y] are underlyingly /i/. Since MacKenzie (1980: 44) states that alternating n/y were *n in PA, it follows that a merger of *i and *n must have occurred at some point in the history of the language,

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[136] Despite the fact that /u/ does alternate with [w] as discussed in sections 3.1.3.1. to 3.1.3.3. and example 185 and rule 186 suggest that /u/ can surface as [ŋ], there is not enough evidence to support the suggestion that /u/ undergoes a ŋ/w alternation corresponding to the n/y alternation that affects /i/.

preceding the merger of *l and *n[137]. The merger of *i and *n must have only been a partial one, as not all PA *n surface as alternating n/y in Mushuau Innu[138]. This means that certain PA *n became *i in the history of Mushuau Innu, while other PA *n retained their original phonemic status. The factors determining which PA *n underwent merger and which retained their original phonemic status are unclear.

This analysis would suggest that if alternating n/y is synchronically derived from /i/ (which is the modern Mushuau Innu reflex of PA *i and some PA*n), then some PA *i should surface as alternating n/y in Mushuau Innu. I assume that this is in fact the case.[139]

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[137] An account of the merger of *l and *n, arising from this discussion, is contained in Appendix 1.

[138] This analysis leaves the problem of non-alternating [y]. As the environments where n/y, non-alternating /n/ and non-alternating [y] occur cannot be determined based on the evidence at hand, it is possible that non-alternating [y] is simply the result of environmental factors that have yet to be discovered. This would mean that non-alternating [y] is underlying /i/, but that in certain environments this /i/ cannot surface as [i] or [n], so always surfaces as [y]. One possible environmental explanation of non-alternating [y] is that /i/ after short vowels can only surface as [y]. This would be because after short vowels /i/ would syllabify as the moraic glide portion of a diphthong (see section 3.1.1). This analysis would mean that moraic /i/ (within the nucleus) would always surface as [i] or [y], while non-moraic /i/ (in onsets or codas) would surface as either [y] or [n]. This is a tentative proposal: while alternating n/y does show a preference for occurring after long vowels, there are a small number of alternating n/y after short vowels.

Perhaps other factors (such as vowel shortening) are obscuring the effect of the moraic non-moraic distinction.

[139] This suggestion is potentially supported by the orthography of examples 776 and 777 which show < î > (representing PA * î) where Mushuau Innu shows [i:n]. This is more complicated than PA *i surfacing as [n], because in these examples PA long * î surfaces as the sequence [i:n]. This is unexpected and may be the result of long * î being analyzed

However, most PA *i will only surface as [i] in Mushuau Innu because of their position within the syllable: if /i/ occurs between consonants, or between a word boundary and a consonant, it must be the head of the syllable and so can only surface as [i], not as [y] or [n]. As a vowel, PA *i would have typically occurred between consonants or between a word boundary and a consonant. So, it follows that most PA *i will surface as [i] in Mushuau Innu, and are not able to undergo n/y alternation.

On the other hand, PA *n, as a consonant, would have typically occurred adjacent to a vowel in PA. When adjacent to a vowel, any Mushuau Innu /i/ derived from PA *n would not be able to surface as the head of a syllable, as that would result in hiatus (which, as discussed in sections 3.1.3.1. to 3.1.3.3., is avoided in Mushuau Innu) and so, such an /i/ (from PA *n) would have to surface as one of the less sonorous allophones of /i/ in Mushuau Innu. For this reason, most Mushuau Innu /i/ derived from PA *n are in positions where they must surface as [y] or [n].

It follows from this discussion that most PA *i must continue to surface as [i] in Mushuau Innu, while most of those PA *n which underwent merger with *i must surface

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as a sequence of two short vowels; • i i (possible because identical adjacent phones can share a single feature specification in many languages, avoiding an OCP violation, as discussed in section 1.9.4.). Under this analysis the second *i in the sequence surfaces in Mushuau Innu as [n]. Using this analysis, the first *i in the sequence would have to have undergone lengthening at some point to create the synchronically observed long vowel. This is a rather unusual sequence of events and an alternative explanation is that these examples are the result of feature spreading into an epenthetic coda position, mirroring the prothetic [n] discussed in section 3.3.3. These are both tentative proposals and will not be pursued further in the thesis.

as alternating n/y in Mushuau Innu. However, based on this analysis it is theoretically possible for PA *i to surface as alternating n/y in Mushuau Innu and for some PA *n to surface as [i] in Mushuau Innu.

3.3.3. Prothetic [n]

The analysis of n/y described above has the advantage of explaining another unusual process in Mushuau Innu phonology. As described by MacKenzie (1980: 85), word-initial short /i/ is often preceded by a prothetic [n]:

784	_iskwewʊʦ / niskwewuʦ	'women'	ishkueuat(sh)
785	_iskʊttew / nɨsk$^{\omega}$ʊt'tew	'fire'	ishkuteu

This process can be ascribed to the tendency for syllables to have an onset. Those word-initial syllables which have an initial /i/ may optionally add an onset by spreading features of /i/ into onset position, resulting in prothetic [n]. In contrast, /a/ and /e/ do not trigger this process because they have no allophones which could fill the onset position[140]. This spreading of features into onset position can be represented as follows:

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[140] This leaves the question of what happens to /u/. Like /i/, /u/ has an allophone which could fill the onset position: [w]. If the above analysis of prothetic [n] is accurate, we would expect to see prothetic [w] before /u/; however, there is no evidence of a prothetic [w] in Mushuau Innu. Perhaps prothetic [w] does exist but did not surface in the data (prothetic [n] is quite rare in the data), or perhaps there is a phonological reason that prothetic [w] does not occur. This is something that future research will have to resolve. Dyck (1999: personal communication) suggets that [w]/[u] may have too many features to be used epenthetically.

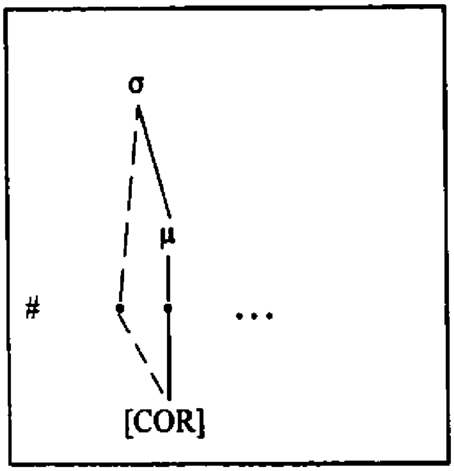

Figure 3.28. Spread of /i/ to onset position

Because [+sonorant] is a root node feature, it cannot spread from /i/ (see section 1.9.1.), and so the figure above assumes that the epenthetic segment is assigned the feature [+sonorant] by a redundancy rule. This creates an epenthetic [+sonorant] segment which picks up the feature [CORONAL] from the following /i/.

Although both [y] and [n] are possible realizations of /i/ in onset position, only prothetic [n] occurs. Prothetic [y] is prevented because word-initial [y] is not permitted in Mushuau Innu (see section 2.2.4.2.); so [n] is the only allophone of /i/ which can surface as a word-initial onset[141].

---

[141] This analysis presumes that word-initial [y] does not occur in Mushuau Innu, which is suggested by the data. If future research determines that word-initial [y] is possible in Mushuau Innu, the above analysis of prothetic [n] can still be used if the constraint on word-initial [y] can be modified to a restriction on the word-initial sequence [yi]

There is one aspect of the prothetic [n] that remains unresolved. MacKenzie (1984: 85) reports that prothetic [n] only occurs before initial short /i/. This is borne out by Mailhot's data. The lack of prothetic [n] before initial long /i:/ may simply be due to the rarity of /i:/ in word-initial position[142] in Mushuau Innu and in all Montagnais dialects. Mailhot's data contains only one word (two forms) containing a word-initial long /i:/; *i:x*$^{\omega}$ 'louse' <î(h)k^{u}> and *i:xʊʦ* 'lice' <î(h)kuats>. This suggests that the lack of prothetic [n] before long /i:/ is simply an accidental gap.

3.4. List of all feature-geometry and syllable based rules[143]

The following is a categorized list of all processes discussed in the thesis (with the exception of phonetic implementation rules, which are listed in section 2.3.). The purpose of this list is to consolidate all of the processes discussed throughout the thesis (excepting phonetic implementation processes), and to define those processes that are analyzed in a non-linear framework in section 3.5. below. The rules are categorized as feature-spreading or syllable based. The categorization of rules is further broken down into those which are exceptionless and those which are optional; however, it should be noted that almost all of the processes discussed in this thesis are optional.

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[142] Dyck (1999: personal communication)

[143] Processes pertaining to alternation between [n] and [y] are not included in this list. A detailed discussion of these processes can be found in section 3.3.

3.4.1. Feature-geometry rules

Exceptionless:

786 /i/-rounding

/i/ → [u] % V-place
|
[LAB] _

787 /a/-fronting

/a/ → [e] / _ /i/

Optional:

Stops:

788 Coalescence I

hC → C ~ C / _ V (:)
[-son] [+cont]

789 Coalescence II

/hC/ → C
[-son] [+cont]
[LAB]

790 Labialization

/m/ → [mw] / # /ü/ _ V (:)

791 /ʧ/-fronting[144]

/ʧ/ → [ʦ] / _ #

---

[144] This is similar to the /ʧ/-fronting rule (number 635) described in the list of phonetic implementation rules given in section 2.3.; however, the environments for these two rules are different.

792 Deaffrication I

/ʧ/ → [t] / _ #

793 Deaffrication II

/ʧ/ → [s] / # _ t

Vowels:

794 /a/-rounding

/a/ → [ɔ] % V-place
|
[LAB] _

795 /a:/ -rounding

/a:/ → [ɔ:] % _ u

796 /u/-nasalization

/u/[145] → [ŋ] / a _ k

3.4.2. Syllable based rules

Exceptionless:

797 Vowel lengthening[146]

VhC → V:hC

---

[145] [w] is an allophone of /u/ as discussed in section 2.2.4.3. This rule is included for the sake of completeness, despite the fact there is only one instance of its occurrence in the data. Because of the rarity of this process, it is not discussed further.

[146] This may be a diachronic rule; there is no evidence in the data to determine its synchronic status. It is included here for the sake of comprehensiveness, on the assumption that it is synchronic.

Optional:

Consonants:

798 Gemination

$$C_i \rightarrow C_i C_i \;/\; V \;\_\; V(:)$$

Nasals:

799 n-syllabification[147]

$$/n/ \rightarrow [\text{n̩}] \;/\; \# \;\_\; \begin{array}{l} C \\ [\text{COR}] \\ [\text{-cont}] \end{array}$$

Vowels:

800 h-insertion

$$\emptyset \rightarrow h \;/\; V \;\_\; \#$$

801 Vowel shortening

$$V: \rightarrow V \;\%\; \# C_0 \;\_$$

802 Glide formation I

$$/\text{i:}/ \rightarrow [\text{iy}] \;/\; \_ \left\{\begin{array}{l} V(:) \\ \# \end{array}\right\}$$

803 Glide formation II

$$/\text{u:}/ \rightarrow [\text{uw}] \sim [\text{ʊw}] \sim [\text{ow}] \;/\; \_ \; V(:)$$

---

[147] This rule presupposes vowel syncope between the /n/ and the following consonant. This syncope rule is described below (this section; rule 806) and in section 3.1.4.

804 Glide formation III

{/i/ , /u/} → [-syllabic] % V (:) _

805 /i/-syncope

/i/ → Ø % # C _ /u/ V

806 Syncope

/i/ , /a/ → Ø / $\underset{\alpha\text{place}}{\text{C}}$ _ $\underset{\alpha\text{place}}{\text{C}}$

807 Procope

/a/ → Ø / # _

3.5. Syllable and feature diagrams for phonological processes

This section provides non-linear representations for the processes discussed in chapters 2. and 3. and listed in section 3.4. above. These representations include only sections of structure relevant to the rule being described. This is intended to make the representations easier to read, and is not an indication that the omitted structure is underspecified. An ellipsis (...) is often used to indicate omitted structure.

The representations below make one other assumption: following underspecification (described in section 1.9.2.) not all features are present in the underlying structure of a phone. These features are filled in by later default rules. Similarly, when any feature is delinked, a negative value is typically assigned for that feature by default rules later in the derivation.

Feature geometry and syllable structure representations which were discussed earlier in chapter 3. are repeated here for ease of reference (so that all feature geometry and syllable structure diagrams are located in one place). The only exception is the group of rules pertaining to alternation between [n] and [y] which are not repeated here; the discussion of these processes is found in section 3.3.

3.5.1. Feature-geometry rules

Exceptionless:

808 /i/-rounding (discussed in section 2.2.1.1.)

$$/\text{i}/ \quad \rightarrow \quad [\text{u}] \quad \% \quad \begin{array}{c}\text{V-place}\\ | \\ [\text{LAB}]\end{array} \quad \_$$

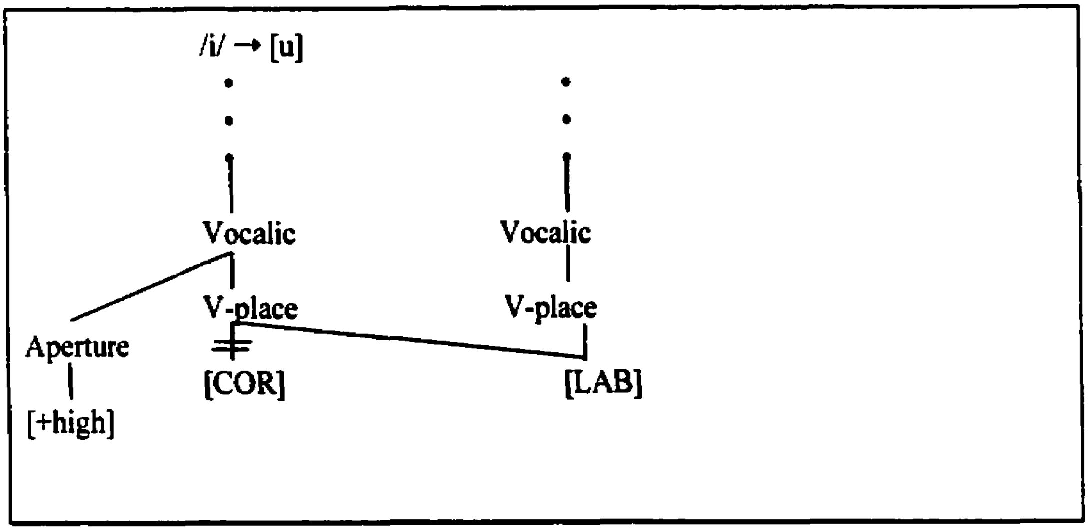


Figure 3.29. /i/-rounding

The process depicted in the figure above also occurs in the mirror environment, so spreading is bidirectional. The figure above depicts the rounding of /i/ to [u], which occurs whenever /i/ is adjacent to a labial vowel or a labialized consonant. The triggering environment is captured in the figure above by specifying a [LABIAL] segment with a V-place node. The remaining structure of the triggering environment is omitted to capture the fact that this segment may have a separate C-place specification (in which case it is a labialized consonant) or may not have a separate C-place specification (in which case it is the [LABIAL] vowel /u/).

809 /a/-fronting (discussed in section 2.2.2.3.)

/a/ → [e] / _ /i/

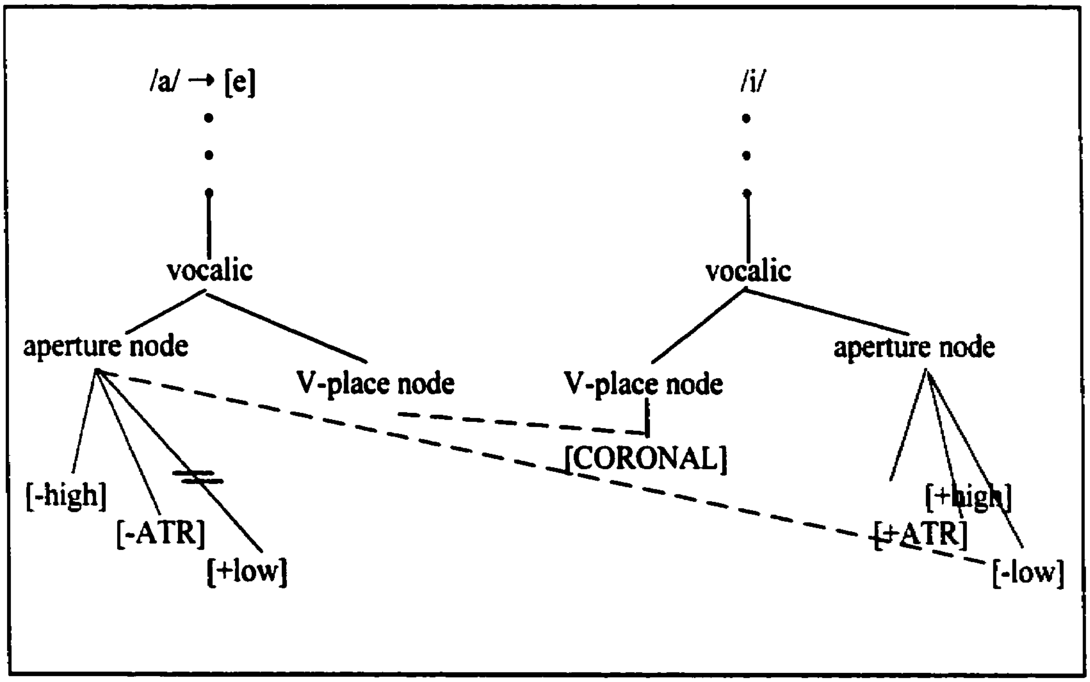


Figure 3.30. Fronting of /a/

The figure above depicts the fronting of /a/ to /e/, which occurs without exception. This fronting is achieved by spreading the [CORONAL] place specification of the following /i / to the preceding /a/. It is assumed in this diagram that /a/ has no dorsal node. The dorsal node of /a/ may be underspecified because /a/ is the only low vowel. The feature [+low] must also be delinked from the specification of /a/, and the [-low] specification of the following /i/ is spread to the /a/.

Optional:

Stops:

810 Coalescence I (discussed in section 2.1.5.4.)

$$\underset{[-son]}{hC} \rightarrow \underset{[+cont]}{C} \sim C \;/\; \_ \; V(:)$$

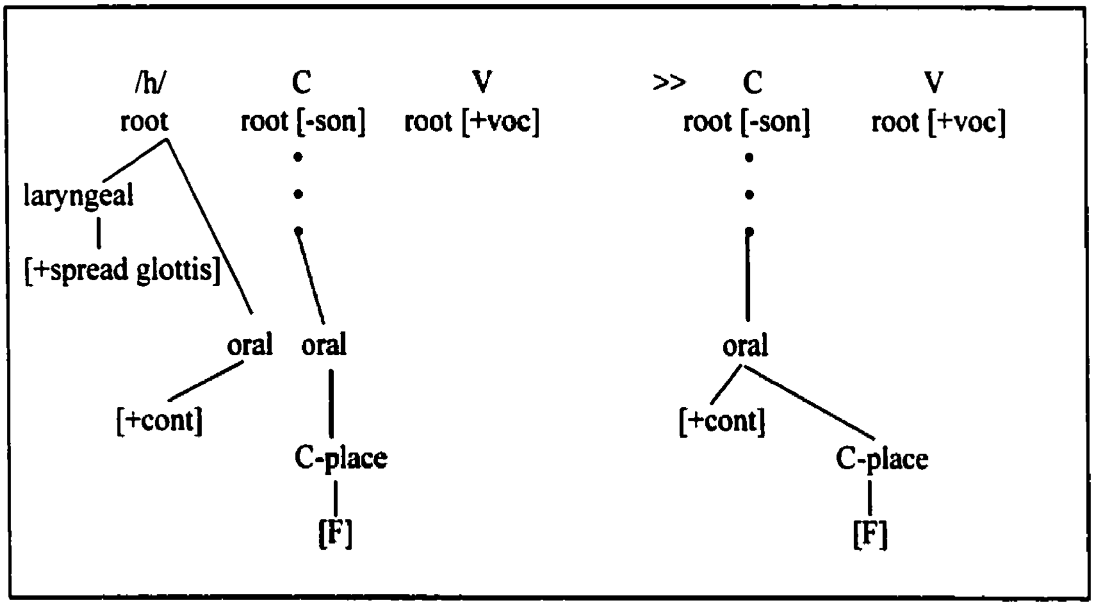


Figure 3.31. Prevocalic coalescence of /h/ and obstruent

The figure above shows the prevocalic coalescence of /hC/. This type of coalescence affects all obstruents, but is limited to prevocalic environment. Below is another coalescence rule which only affects obstruents with a [LABIAL] articulation, but has no environmental conditioning. These two rules capture the fact that obstruents with a [LABIAL] articulation can coalesce with /h/ word-finally, but other obstruents are limited to coalescence with /h/ prevocalically.

811 Coalescence II (discussed in section 2.1.5.4.)

/hC/ → C
[-son] [+cont]
[LAB]

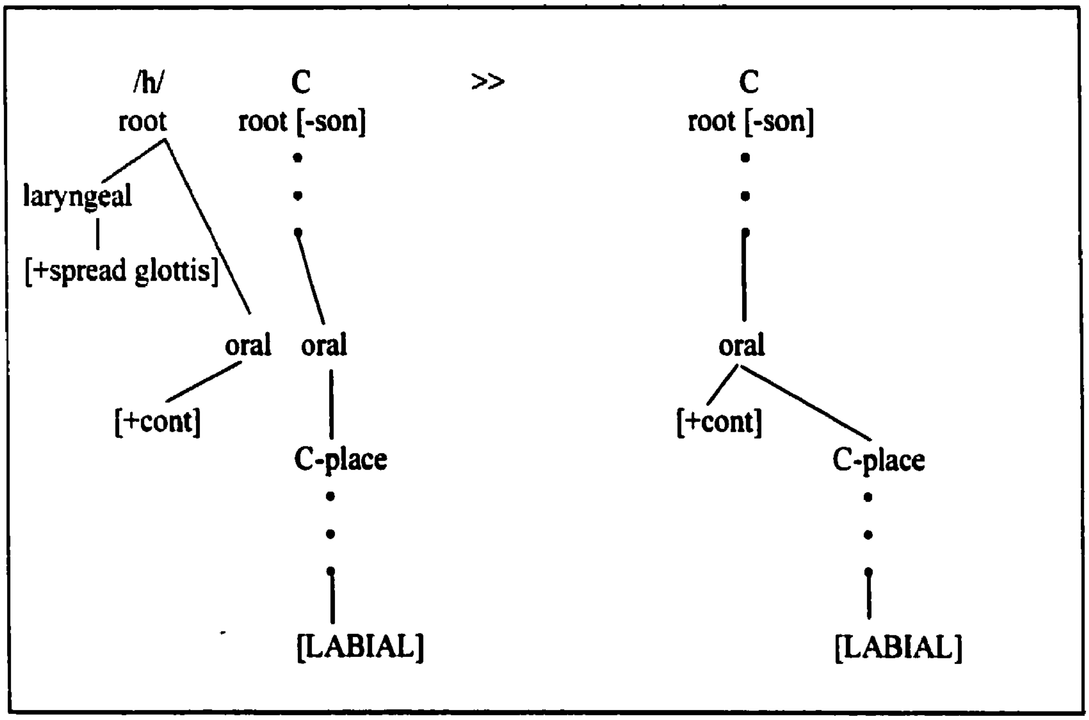


Figure 3.32. Coalescence of /h/ and obstruent with [LABIAL] articulation

By leaving the structure between the C-place node and the [LABIAL] node unspecified, the figure above captures the fact that any consonant which has a [LABIAL] specification (whether [LABIAL] is a primary articulation: /p/; or a secondary articulation: /k$^{\omega}$/, /t$^{\omega}$/) can undergo coalescence with /h/ in any position.

Sequences of /hC/ are limited to intervocalic and word-final position by the syllable structure of Mushuau Innu, as discussed in sections 3.1.1. and 3.1.2. Therefore, the figure above indicates that /p/, /k$^{\omega}$/ (and theoretically /t$^{\omega}$/ though there is no data for this) can undergo coalescence with /h/ in word-final and intervocalic position, while obstruents which have no [LABIAL] articulation are limited to coalescence with /h/ in intervocalic position (as shown in rule 810 above).

812 Labialization (discussed in section 2.1.2.1.)

/m/ → [mw] / # /u/ _ V (:)

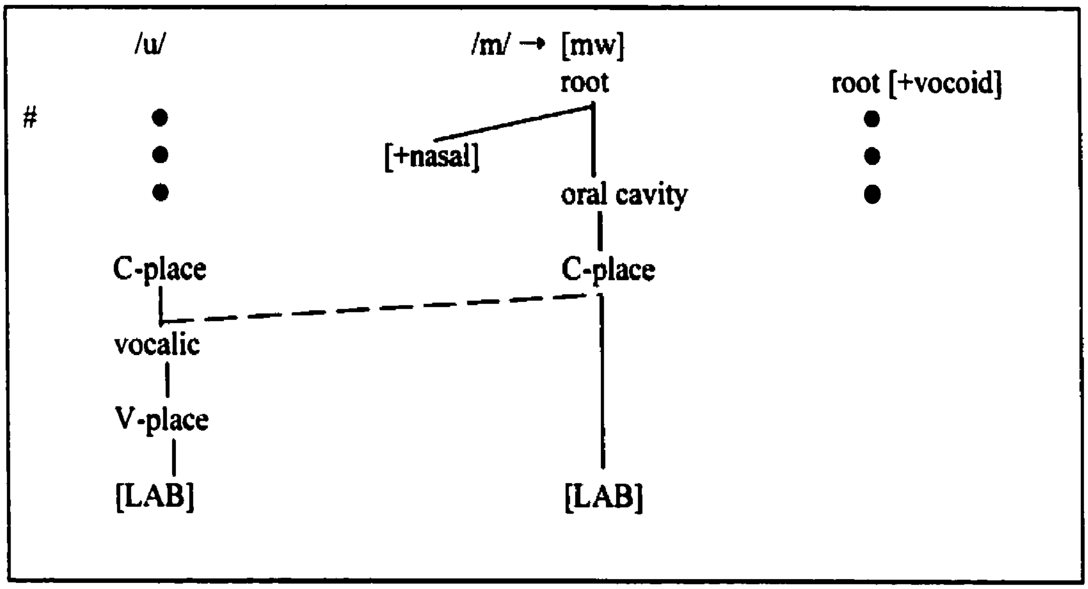


Figure 3.33. /m/-labialization

The figure above shows the labialization of /m/ after a word-initial /u/. Unlike related dialects, Mushuau Innu does not delete the triggering segment, /u/.

813 /ʧ/-fronting (discussed in section 2.1.4.1.)

/ʧ/ → [ʦ] / _ #

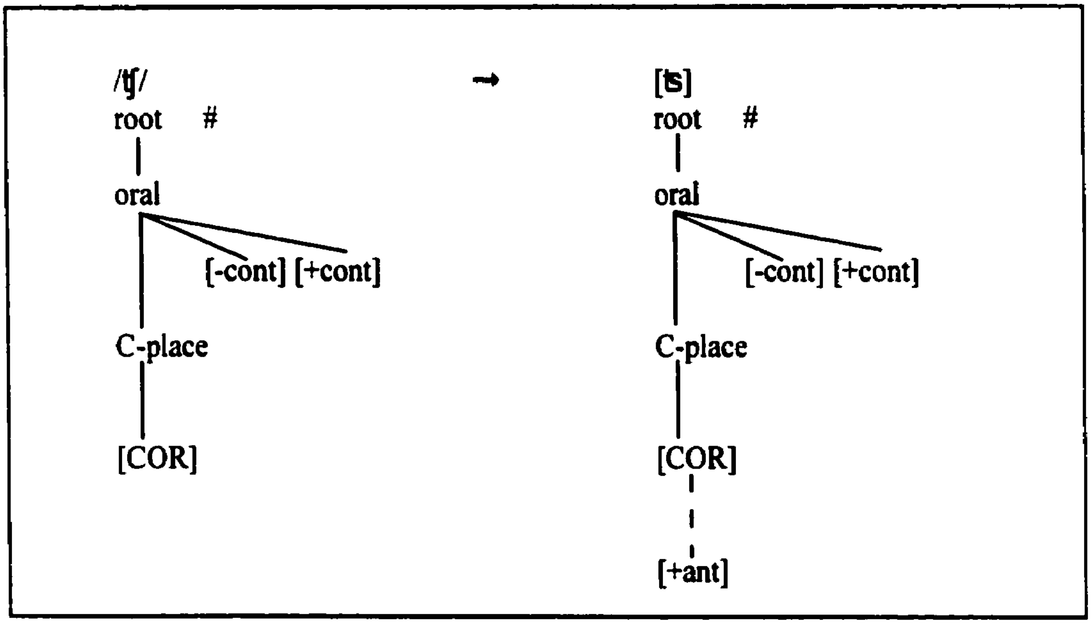


Figure 3.34. Affricate fronting

The figure above depicts the fronting of /ʧ/, which takes place in word-final position. This representation of affricates, in which the entire affricate is represented by a single feature tree with two sequential specifications for [continuant], is taken from Kenstowicz (1994: 499). As mentioned in section 1.9.1., features are each typically given a separate tier in feature geometry to capture the fact that features are usually not sequentially ordered within the sound. In the figure above, the two specifications for the features [continuant] are on the same tier indicating that these features are sequentially ordered.

The fronting of /ʧ/ is achieved by adding the feature [+anterior] to its specification, creating the surface affricate [ʦ]. This addition of the feature [+anterior], based on the position of /ʧ/ within the word, is a feature-by-position default rule, similar to the rule which adds the feature [+nasal] to /i/, based on the position of /i/ within the syllable (discussed in section 3.3.2.).

The rule described above is in free variation with the following rule.

814 Deaffrication I (discussed in section 2.1.4.1.)

/ʧ/ → [t] / _ #

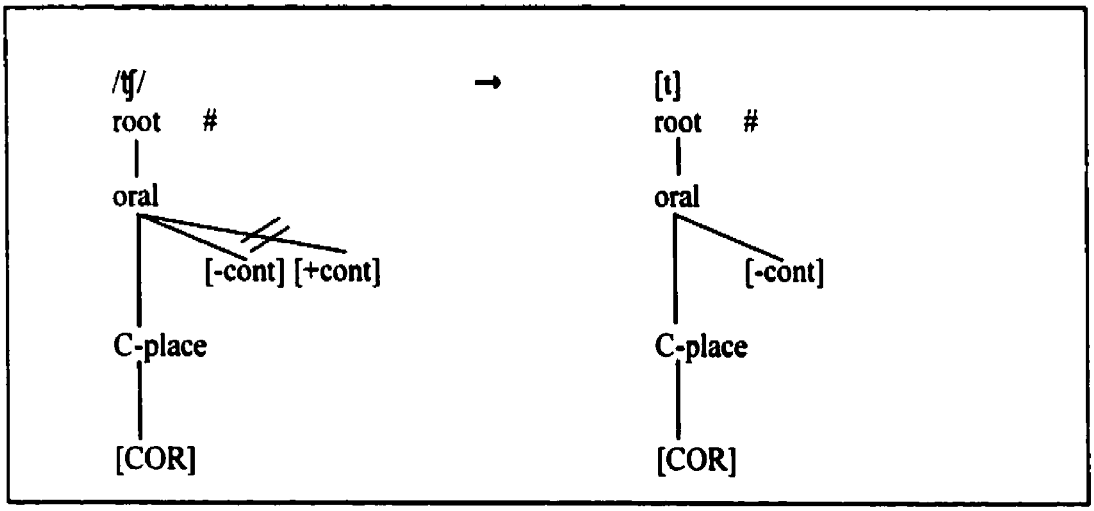


Figure 3.35. /ʧ/-deaffrication to [t]

The figure above depicts the loss of the fricative component of the affricate /ʧ/ in word-final position. This deaffrication is in free variation with the /ʧ/-fronting rule described above (rule 813). As in the /ʧ/-fronting rule, the affricate is represented here by a single feature with two sequential specifications for [continuant]. The delinking of the [+continuant] section of the affricate results in the specification for the phone [t].

815 Deaffrication II (discussed in section 2.1.4.1.)[148]

/ʧ/ → [s] / # _ t

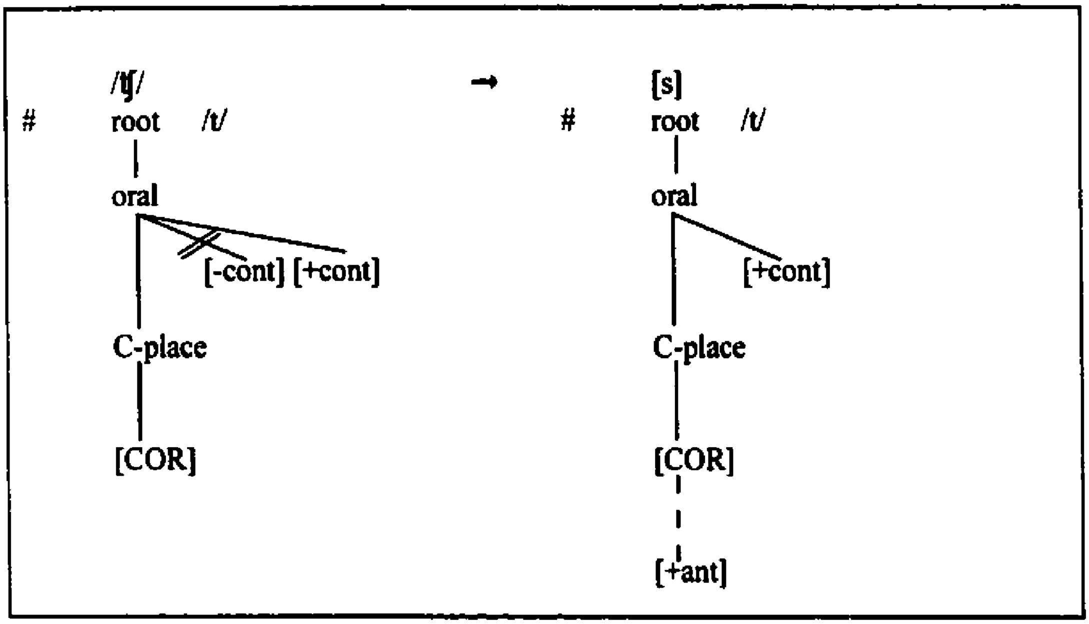


Figure 3.36. /ʧ/-deaffrication to [s]

The figure above depicts the deaffrication of /ʧ/ to [s], which occurs word-initially before /t/. As in figures 3.34. and 3.35. the affricate is represented by a single feature tree with two sequential specifications for [continuant]. The deaffrication of /ʧ/ is achieved through the delinking of the [-continuant] portion of the affricate. The feature [+anterior] must also be added to the specification, in order to create the [+anterior] phone [s]. As with rule 813, this addition of [+anterior] is achieved through a feature-by-position default rule.

---

[148] The feature geometry representation of the following environment is not provided in the figure below, in order to keep the diagram uncluttered.

Vowels:

816 /a/-rounding (discussed in section 2.2.2.3.)

/a/ → [ɔ] % V-place
|
[LAB] _

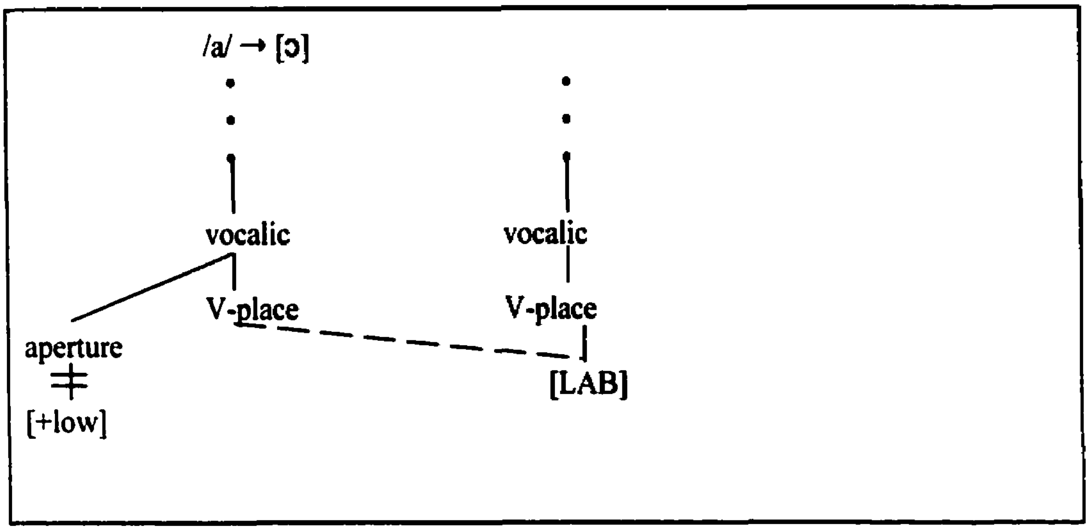


Figure 3.37. /a/-rounding

The process depicted in the figure above also occurs in the mirror environment, and so spreading is bidirectional. After [+low] has been delinked, the value [-low] is assigned to the aperture node by a default rule[149].

/a/-rounding is not identical to the process shown immediately below. Long /a:/-rounding can only be triggered by /u/, while short /a/-rounding can also be triggered by a labialized consonant. In the figure shown below, the aperture node of the [LABIAL]

---

[149] The figure depicts the rounding of /a/ to [ɔ]. This is the most common realization of round /a/; however, /a/ is occasionally realized as [u], [ʊ] or [o]. These less common realizations of round /a/ are not depicted as they are the result of phonetic implementation rule 649 ([ɔ] → [ɔ] ~ [o] ~ [u] ~ [ʊ]).

trigger is included to specify that the triggering segment for long /a:/-rounding is the vowel /u/.

817 /a:/ -rounding (discussed in section 2.2.2.3.)

/a:/ → [ɔ:] % _ u

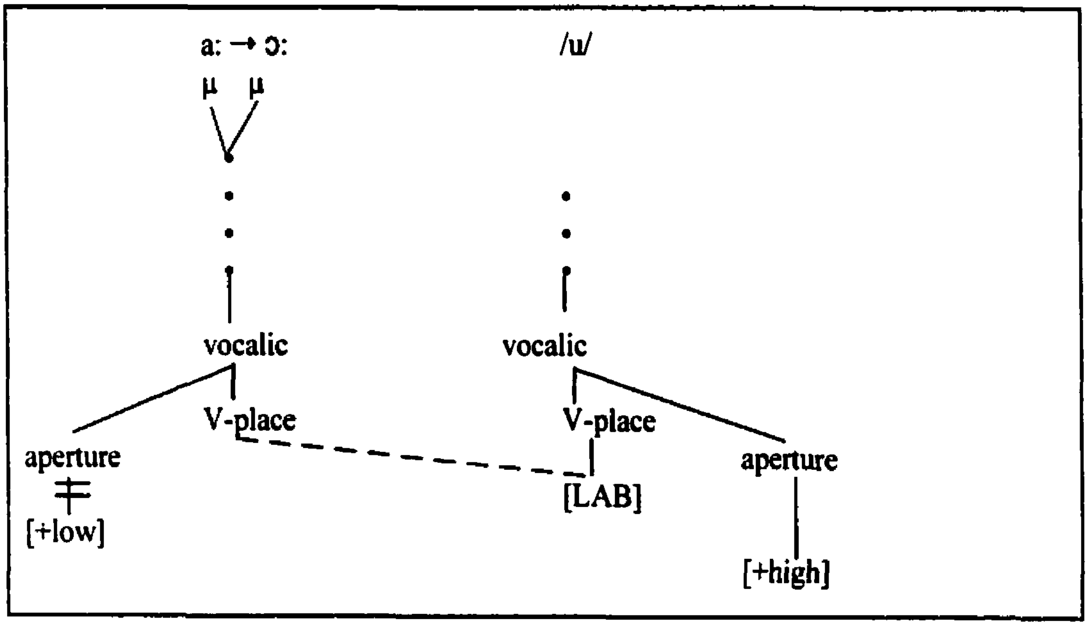


Figure 3.38. /a:/-rounding

The process depicted in the figure above also occurs in the mirror environment and so spreading is bidirectional. After [+low] has been delinked, the value [-low] is assigned to the aperture node by a default rule which assigns a negative value to any unspecified features.

3.5.2. Syllable based rules

Optional:

Consonants:

818 Gemination (discussed in section 2.1.5.1.)

$C_i \rightarrow C_iC_i$ / V _ V(:)

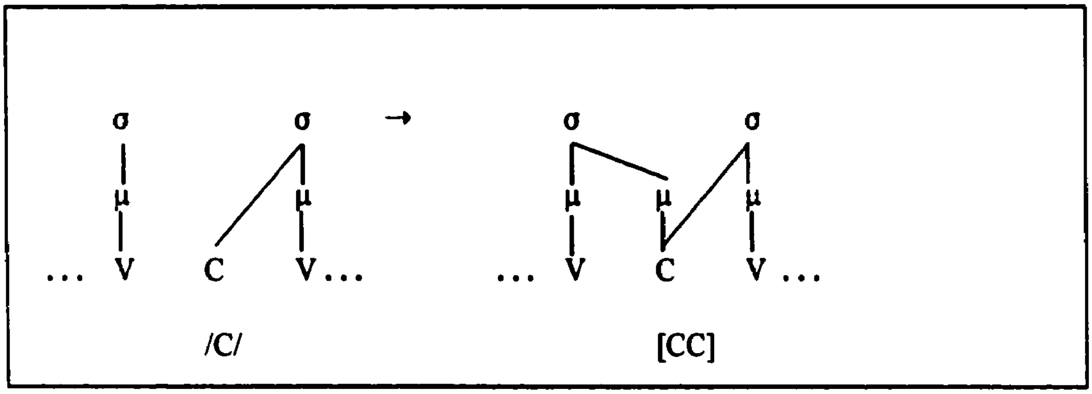


Figure 3.39. Obstruent lengthening (gemination)

The figure above shows the process by which an intervocalic obstruent becomes long: it forms the coda of the preceding syllable as well as the onset of the following syllable. As a coda, the obstruent becomes moraic, as shown (due to weight-by-position as discussed in section 1.9.5.).

Nasals:

819 n-resyllabification[150] (discussed in section 2.1.2.2.)

/n/ → [n̩] / # _ C
[COR]
[-cont]

---

[150] This rule presupposes vowel syncope between the /n/ and the following consonant. This syncope rule is described below (this section; rule 826) and in section 3.1.4.

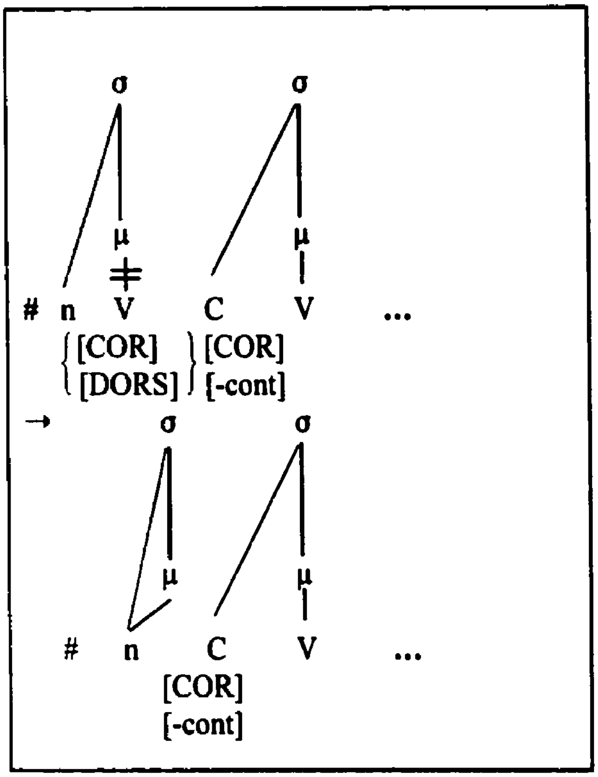


Figure 3.40. Syllabic [n̩]

The figure above shows the syncope of short /a/ or /i/ (represented by [COR] and [DORS]) between word-initial /n/ and a coronal non-continuant. Following this syncope, the word-initial /n/ attaches to the mora left by the deleted vowel and forms the nucleus of the syllable, creating syllabic [n̩]. The syncope of /a/ and /i/ between homorganic consonants is further described in rule 826.

Vowels:

820 Vowel lengthening (discussed in section 2.1.1.4.)

VhC → V:hC

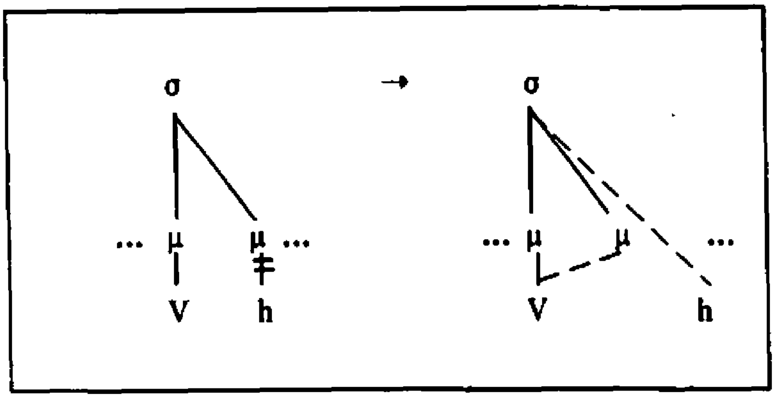


Figure 3.41. Vowel lengthening process

The figure above shows the lengthening of vowels before moraic (and therefore coda) /h/. The vowel attaches to the mora of the /h/ and in so doing becomes bi-moraic (long). The /h/ delinks from its mora and attaches directly to the syllable node, becoming a non-moraic coda consonant. This process is similar to compensatory lengthening except that in the process described above there is no deleted segment. It is unclear, based upon the data, whether this rule is synchronic or diachronic.

821 Vowel shortening (discussed in section 2.2.5.1.)

V: → V % # C_0 _

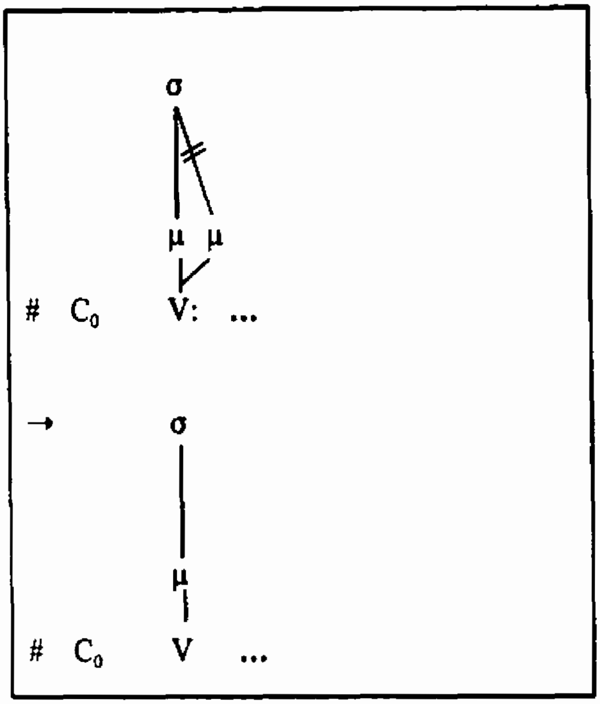


Figure 3.42. Vowel shortening

The process shown in the figure above also occurs in the mirror environment. The figure above shows that in initial and final syllables, a long vowel may become short. The effect stress has on this rule is not clear based on the evidence at hand.

822 Glide formation I (discussed in section 3.1.3.2.)

$$/\mathrm{i}\text{ː}/ \quad \rightarrow \quad [\mathrm{iy}] \quad / \quad \_ \begin{Bmatrix} \mathrm{V}\,(\text{ː}) \\ \# \end{Bmatrix}$$

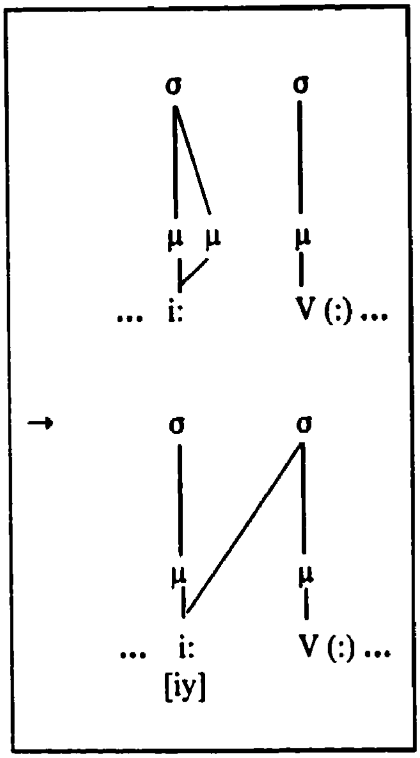


Figure 3.43. Pre-vocalic /i:/ diphthongization

Or:

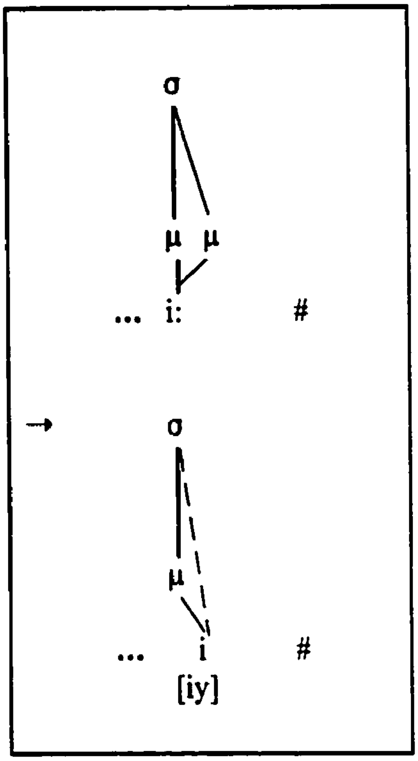


Figure 3.44. Word-final /i:/ diphthongization

The figures above depict the diphthongization of /i:/ to [iy], which occurs before vowels and word-finally. This is represented by delinking /i:/ from one of its moras and linking /i:/ directly to a syllable node, either its own syllable node (as happens word-finally), or the syllable node of the following syllable (as happens before another vowel). In both instances, /i:/ loses a mora.

823 Glide formation II (discussed in section 3.1.3.2.)

/u:/[151] → [uw] / _ V(:)

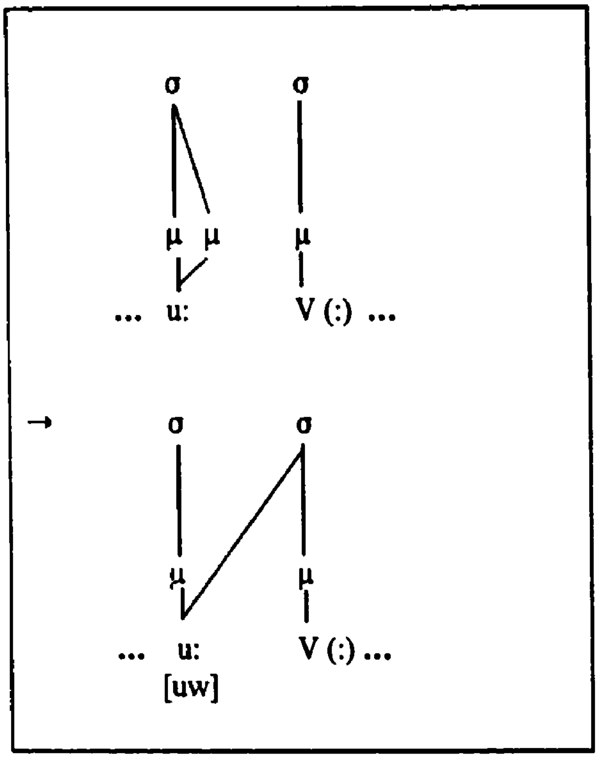


Figure 3.45. Prevocalic /u:/-diphthongization

The figure above shows the prevocalic diphthongization of /u:/; the diagram is essentially identical to diagram 3.43. above which depicts prevocalic /i:/ diphthongization. /u:/ becomes a diphthong by transforming its second mora into an onset for the following vowel; and as onsets are non-moraic, /u:/ becomes monomoraic when it undergoes diphthongization, as shown in the figure above.

---

[151] This rule assumes that the diphthongization of /u:/ creates [uw]; [uw] may then be realized as [uw], [ʊw] or [ow], through phonetic implementation rule 650 (section 2.3.).

824 Glide formation III (discussed in section 3.1.3.1.)

{/i/, /u/} → [-syllabic] % V _

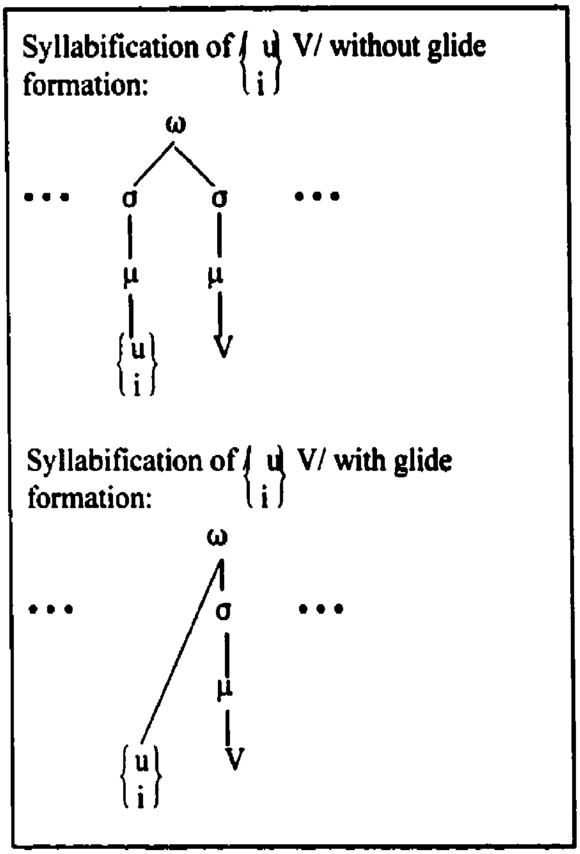


Figure 3.46. Glide formation

The process depicted in the figure above also occurs in the mirror environment. The figure above shows the syllabification of /u/ and /i/ when adjacent to another vowel: /i/ and /u/ attach to a neighbouring syllable, preferably forming the onset of a following syllable, or if there is no following syllable, forming the coda of a preceding syllable. When /i/ or /u/ forms an onset it loses has no mora, as onsets are non-moraic; however if /i/ or /u/ forms a coda it has a mora if the preceding vowel is short but loses its mora if the preceding vowel is long, following the rules for weight-by-position discussed in section 1.9.5.

825 /i/-syncope (discussed in section 3.1.4.)

/i/ → Ø % # C _ /u/ V

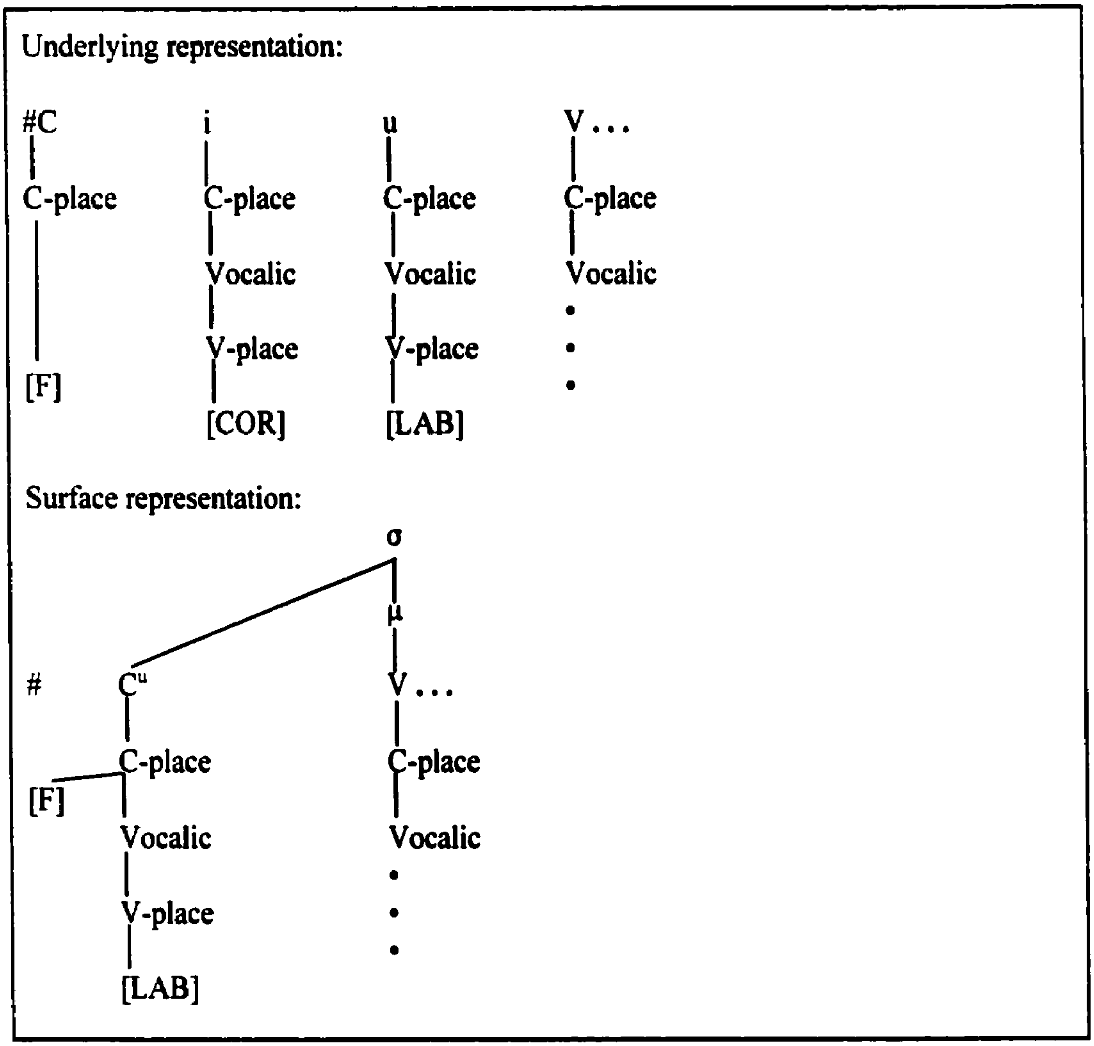


Figure 3.47. /i/-syncope

The process depicted in the figure above also occurs in the mirror environment.

The figure above depicts the deletion of /i/ between [w] and a word-initial or word-final consonant.

826 Syncope (discussed in section 3.1.4.)

$$/i/\,,\,/a/ \rightarrow \emptyset \;\; / \;\; \underset{\alpha\text{place}}{C} \;\_\; \underset{\alpha\text{place}}{C}$$

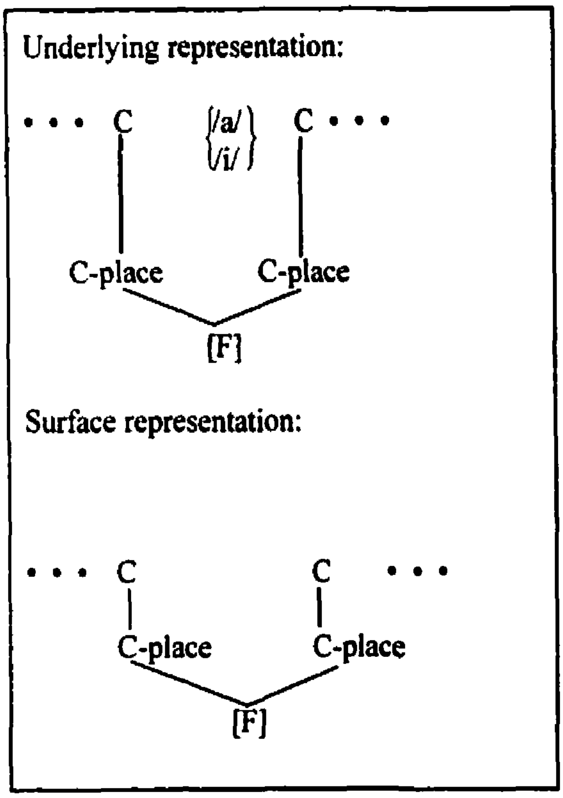
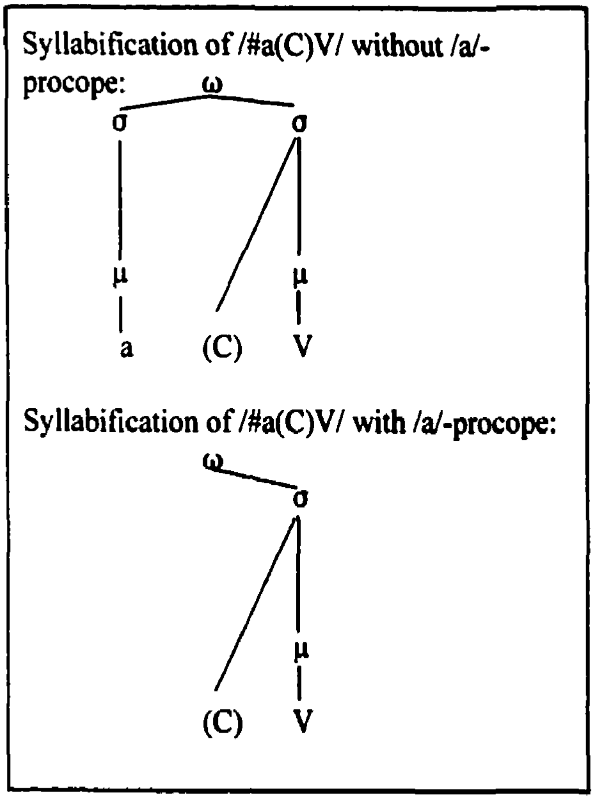


Figure 3.48. Syncope between homorganic consonants

The figure above depicts the optional deletion of /a/ and /i/ between homorganic consonants. The syllable structure is not depicted in the figure above, as the moraic status of the consonants, as well as the choice of syllable to which they attach, is dependant on the surrounding environments. Depicting all of the possible permutations of syllable attachment and moraic status for these consonants would require many diagrams and would obscure the simplicity of the process.

827 Procope (discussed in section 3.1.4.)

/a/ → Ø / # _



Syllabification of /#a(C)V/ without /a/-procope:

Syllabification of /#a(C)V/ with /a/-procope:

Figure 3.49. /a/-procope

The figure above depicts the optional word-initial deletion of /a/. This is achieved by failing to parse word-initial /a/ (presumably because /a/ is in a metrically weak position).

Chapter four: conclusion

The analysis in chapters 2. and 3. has provided the following outline of the phonology of Mushuau Innu.

The phonemes of Mushuau Innu are as shown in the following figures.

p	t	k	
-	t^{ω}	k^{ω}	
m	n	-	
m^{ω}	-	-	
-	ʧ	-	
-	s	-	h

Figure 4.1. Consonant phonemes

i		u
	a	

Figure 4.2. Short vowel phonemes

i:			u:
	e:		
		a:	

Figure 4.3. Long vowel phonemes

As seen in these figures, length is phonemic in vowels, but allophonic in consonants, and voicing is non-contrastive. Common processes affecting these phonemes are: coalescence, which creates surface fricatives from underlying sequences of /h/ and an oral stop (see section 2.1.5.4.); spreading of the feature [LABIAL], which affects /i/, /a/ and /a:/ (see sections 2.2.1.1 and 2.2.2.3.), as well as the consonant /m/ (see section 2.1.2.1.); raising of /a/ to /e/ before /i/ (see section 2.2.2.3.), which is seen in related dialects; and the deaffrication of word-final /ʧ/ to [t] and word-initial /ʧ/ to [s] (see section 2.1.4.1.), which is also seen in related dialects. Mushuau Innu also has a unique allophonic relationship between [i], [y] and [n] (discussed in section 3.3.), which appears to be absent from related dialects.

The processes described for Mushuau Innu are largely optional, with no environmental conditioning. This is particularly true of the phonetic implementation rules listed in section 2.3., which are highly variable.

Mushuau Innu has (C)V(:)(C) syllable template. A word-final [-continuant] appendix allows for word-final clusters consisting of a [+continuant] segment followed by a [-continuant] segment (the Mushuau Innu syllable template is discussed in section 3.1.1.).

In order to avoid hiatus between adjacent vowels, /i/ and /u/ are often realized as the glides [y] and [w] (see section 3.1.1.); similarly, the long vowels /i:/ and /u:/ are often realized as the diphthongs [iy] and [uw] to avoid hiatus. Avoiding hiatus also motivates the syncope of /i/ between /u/ and a consonant, which occurs toward word edges (see section 3.1.4.). Finally, syncope of /i/ and /a/ is common between homorganic consonants and /a/ occasionally deletes word-initially (see section 3.1.4.).

The accentual system of Mushuau Innu (discussed in section 3.2.) can be summarized as follows: Mushuau Innu has iambic feet and right to left parsing. The head of the rightmost foot in the word receives primary stress. Word-final syllables are optionally extrametrical, and syllable weight is determined by vowel length alone (with the stipulation that word-final /m^{w}/ contributes to syllable weight). This accentual system is different from the consistent word-final accent of most Montagnais dialects

4.1. Areas of further research

In order to constrain the scope of the thesis (and on occasion due to an extensive, but finite data set) certain aspects of Mushuau Innu phonology were not pursued in the thesis. Many of these topics deserve further research. These topics include: the environmental factors influencing the partial merger of *i and *n (see section 3.3.) and the complete merger of *l and *n (discussed in appendix 1.) and whether related dialects show a similar allophonic relationship between /n/ and /i/; the reason why certain /i/ consistently surface as [y] and never as [n] (discussed in section 3.3.1.); the synchronic versus diachronic status of vowel lengthening before /h/ (discussed in section 2.1.1.4.); the structure of Mushuau Innu phrasal phonology and its affect on the accent retraction process (discussed in section 3.2.); whether the Mushuau Innu word-final appendix obeys sonority sequencing (discussed in section 3.1.1.); and the segmental versus cluster status of /pw/ (discussed in sections 3.1.2. and 3.1.1.).

Appendix 1. Possible historical account of *n/*l merger

This section offers a possible (but highly speculative) description for the historical process that resulted in *l merging with *n but failing to undergo alternation with [y] (MacKenzie (1980: 44) tells us that [n] from PA *l do not undergo n/y-alternation).

The phonological system of Mushuau Innu, before the merger of *n and *l, would have contained just these two consonantal coronal sonorants, distinguished by nasality. Both of these sounds would have been [-approximant].

As stated above, this analysis of the n/y-alternation presupposes a partial merger of *n and *i at some point in the history of Mushuau Innu. *l, with the features [-approximant], [-nasal], could then change to *n by dropping [-nasal] from its underlying representation. [+nasal] would then be filled in by the same redundancy rule that assigns [+nasal] to /i/ in onset and coda positions ([COR], [+son], [-approx] → [-voc] [+nas]).

The motivation for this change of *l to *n would be a phonological gap. After the partial merger of *i and *n there would have been the nasal consonant *m, but few corresponding coronal nasals, as many of these had merged with *i. To reduce the disparity between the common *m and the rare *n, *l would have shifted into the phonological space of *n, by simply dropping [-nasal] from its specification.

This would leave /n/ from *l only distinguished from /i/, in underlying representations, by the feature [-approximant]. As discussed above, because this [n] from *l is underlyingly specified as [-approximant], it always receives [-vocoid], [+nasal] through the redundancy rules discussed above, and so cannot surface as any segment but [n]. While this analysis is purely speculative, it would offer an explanation as to why [n] from *l do not undergo alternation.

As stated above, the merger of *i and *n was not a complete merger. The factors which conditioned it cannot be determined from the data at hand, though determining the nature of this merger would be an interesting problem for future investigation. The fact that not all *n became *i explains why some original *n do not undergo alternation with [y]. Those /n/ which do not alternate in modern Mushuau Innu can be analyzed as either original *n which did not merge with *i or as n/y which have been reinterpreted by native speakers as non-alternating /n/.

This reinterpretation may also work the other way, explaining any instances of PA *l which surface as alternating n/y instead of the expected non-alternating /n/. These aberrant *l can be explained as /n/ (from PA *l) which were reanalyzed as alternating n/y (so underlyingly /i/).

Analysis of the distribution of /n/ and /i/ in related dialects and languages may shed light on whether the relationship between these phonemes postulated for Mushuau Innu is a recent development or a continuation of a relationship that existed in the proto-language.

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