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**The Morphological and Phonological Structures
of Spokane Lexemes**

by

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B.A., University of Montana, 1989
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Abstract

The primary purpose of this study is to specify the structural characteristics of the phonological representations of Spokane lexemes which are relevant for the rules of the morphology and the rules of the phonology. In order to reveal the complexity of the issue of structure, it is necessary to examine three sets of data: non-compound forms, compound forms, and structurally reanalyzed forms. These data provide evidence that the phonological representation of each lexeme includes specifications for both form and structure.

Framed within the Lexeme-Morpheme Base Morphology of Beard (1987, 1993, 1995), this study establishes that certain morphological spelling operations necessarily refer to a specific sub-string of the phonological representation which cannot be isolated phonologically. The phonological representations of Spokane lexemes are, therefore, analyzed as composite structures. As such, the phonological representations of non-compounds possess (at least potentially) complex morphological structure which includes the notions *Root* and *Stem*, while those of compounds possess additional specifications for structure based on the fact that each comprises two distinct Stems. Conversely, the structurally reanalyzed forms provide evidence that historically complex structure has been reduced to simplex form. Structurally reanalyzed forms possess morphological structures which are identical to that of the non-compound but which are distinct from that of their historically related forms.

This study also establishes that the structural characteristics of a lexeme's phonological representation remain salient for the phonology. It is demonstrated that the domains of the phonological representation to which the phonology attends are isomorphic with the domains of the phonological representation which emerge from the Morphological Spelling component (at least at the lowest level of structure). I utilize the facts of primary stress assignment, as well as the facts of retraction and nasal shift, to provide evidence for such phonological structures and, further, to specify the parameters of primary stress assignment in Spokane.

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List of Abbreviations

Act	Actual	Iter	Iterative
Agentive	Agentive	Loc	Locative
Aug	Augmentative	Mid	Middle
Aut	Autonomous	Nom	Nominalizer
C	Consonant	OC	Out-of-Control
Caus	Causative	Prt	Particular
Class	Classifier	Pass	Passive
Col	Collective	Pl	Plural
Conn	Connective	Recip	Reciprocal
Cont	Continuative	Redir	Redirective
Ctrl	Control	Refl	Reflexive
Der	Derivational	Rel	Relational
Dev	Developmental	Rep	Repetitive
Dim	Diminutive	Sg	Singular
Dist	Distributive	Stat	Stative
Hab	Habitual	Suc	Success
Imp	Imperative	Tr	Transitive
Inch	Inchoative	TrDer	Transitive Derivational
Indir	Indirective	Unr	Unrealized
Instr	Instrumental	V	Vowel

1plIntrS first plural intransitive subject

1sgIntrS first singular intransitive subject

1sgPoss first singular possessive

1sgTrO first singular transitive object

1sgTrS first singular transitive subject

2plIntrS second plural intransitive subject

2sgGO second singular genitive object

2sgIntrS second singular intransitive subject

2sgPoss second singular possessive

2sgTrO second singular transitive object

2sgTrS second singular transitive subject

3Poss third possessive

3TrS third transitive subject

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Chapter 1

Introduction

1.0 Focus of the investigation

This study was originally conceived as an investigation of primary stress assignment in Spokane. In order to assess the facts of primary stress assignment, I made a detailed survey of the published and, when available, unpublished literature and completed seventy-five hours of elicitation with Pauline Flett, a speaker of the *sɪx^wúm'ne?* dialect of the Spokane language (Black 1995a).¹ My methodology was primarily morpheme-based and entailed creating numerous word lists based on the presence of a particular morpheme in the words. In this way I was able to track each occurrence of a morpheme in context, that is to say as it appeared with various Roots and affixes. Furthermore, I was able to assess the position of stress with respect to a particular morpheme or combination of morphemes. Despite the valuable insights gained through these efforts, the facts of primary stress assignment of Spokane proved to require an investigation beyond the morpheme.

Driven by the data and now properly focused, the primary purpose of this study is to specify the structural characteristics of the phonological representations of Spokane lexemes which are relevant for the rules of the morphology and the rules of the phonology. In order to reveal the complexity of the issue of structure,

¹Funding for this research was generously provided by the Jacobs Research Fund administered by the Whatcom Museum Society, Bellingham, Washington.

it is necessary to examine three sets of data: non-compound forms, compound forms, and structurally reanalyzed forms. These data provide evidence that the phonological representation of each lexeme includes specifications for both form and structure.

Framed within the Lexeme-Morpheme Base Morphology of Beard (1987, 1993, 1995), this study establishes that certain morphological spelling operations necessarily refer to a specific sub-string of the phonological representation which cannot be isolated phonologically. The phonological representations of Spokane lexemes are, therefore, analyzed as composite structures. As such, the phonological representations of non-compounds possess (at least potentially) complex morphological structure which includes the notions *Root* and *Stem*, while those of compounds possess additional specifications for structure based on the fact that each comprises two distinct Stems. Conversely, the structurally reanalyzed forms provide evidence that historically complex structure has been reduced to simplex form. Structurally reanalyzed forms possess morphological structures which are identical to that of the non-compound but which are distinct from that of their historically related forms.

This study also establishes that the structural characteristics of a lexeme's phonological representation remain salient for the phonology. It will be demonstrated that the domains of the phonological representation to which the phonology attends are isomorphic with the domains of the phonological representation which emerge from the Morphological Spelling component (at least

at the lowest level of structure). I utilize the facts of primary stress assignment, as well as the facts of retraction and nasal shift, to provide evidence for such phonological structures and, further, to specify the parameters of primary stress assignment in Spokane.

1.1 Review of the literature

Spokane is a member of the Southern Interior branch of the Salishan language family and represents one dialect within the Spokane-Kalispel-Séliš language continuum. Today the few remaining speakers of Spokane, numbering approximately forty, live primarily on the Spokane Indian Reservation located about fifty miles northwest of Spokane, Washington. Other languages of the Southern Interior branch include Colville-Okanagan, Coeur d'Alene, and Moses-Columbia.

Traditional treatments of the morphological and phonological structure of Spokane words, as for Salishan languages generally, center on the concept of the morpheme. Studies on morphological structure are typically limited to an examination of Roots and affixes, their meanings, and their linear order. Significant for present purposes is the fact that in these studies the Root morpheme is invariably identified as the crucial element in the realization of a number of reduplicative affixes. While studies on phonological structure are also typically limited to an examination of Roots and affixes, the morphophonological features of those Roots and affixes are of central concern. Of the various

morphological and phonological studies of Spokane, those which are most relevant for this investigation are the descriptive and theoretical works concerned with primary stress placement.

As in other languages of the Interior, the idiosyncratic stress properties of individual morphemes have been presumed to play a crucial role in the assignment of word stress in Spokane; that is, in addition to being attentive to the phonological form of a word, the phonological processes are also presumed to attend to morpheme boundaries which serve as the source of non-phonological, word-internal structure (which define the phonological constituents relevant for the phonology) as well as morphological properties which are lexically defined for each morpheme. Descriptive accounts of the Spokane stress system have proposed three classes of Roots and suffixes ---strong, weak, and variable--- which form a morphological stress hierarchy:

strong suffix > strong Root >

variable suffix > variable Root >

weak Root > weak suffix.²

When morphemes are combined to form words, the morphemes are assessed according to that hierarchy and primary stress is assigned to the ranking member (Carlson 1972a, Carlson 1976, Carlson 1980a, Carlson 1989, Carlson and Bates 1990, Carlson and Bates 1991, Bates 1990, and Bates and Carlson 1992a).

²Most of the literature specify a hierarchy which includes the *variable Root* class. Carlson and Bates (1991) expands the hierarchy by including the *?emút-class* of Roots which I understand as a sub-class of *variable Root*.

Compare the placement of primary stress in examples (1)-(3).³ Notice that in the forms on the left, the Root vowels bear primary stress, while in the forms on the right the vowels of the suffixes bear primary stress.⁴ These facts have been interpreted as indications that certain Root morphemes are stress-retentive while others are not.

(1a) ?ácʰxn
 √?acʰx-n-t-en⁵
 √look at-Ctr-Tr-1sgTrS⁶
I looked at him.

(1b) ?amxʷntén
 √?amxʷ-n-t-en
 √shave-Ctr-Tr-1sgTrS
I shaved it.

(2a) qsʔimʔši
 qʔ-s-√?imʔš-mi
 Unr-Nom-√move-Cont
He's going to move.

(2b) hecalpmí
 hec-√?al-p-mi
 Act-√lose-Inch-Cont
He's losing.

(3a) qéclš
 √qec-ilš
 √run-Aut
He ran.

(3b) ?axʔilš
 √?axil-ilš
 √do certain way-Aut
He's busy doing a number of things.
 (Black 1995a)

³Unless otherwise indicated, the source for the data provided in this chapter is Carlson and Flett (1989).

⁴Primary stress is indicated by the stress mark which appears in the transcription and is highlighted by the underscore which appears on the morpheme segmentation line. Note that the morpheme by morpheme breakdown which appears on the morpheme segmentation line conforms to the phonological form and morphological structure traditionally assumed for Spokane. The phonological form of these morphemes will be modified in accordance with the findings discussed in Chapter 2. The issue of morphological structure is discussed in Chapter 3.

⁵Regarding the morpheme segmentation line, Roots are preceded by square root signs, grammatical suffixes by hyphens, and lexical suffixes by equal signs. Prefixes are followed by hyphens, infixes appear in parentheses, reduplicant prefixes are followed by plus signs and reduplicant suffixes are preceded by plus signs.

⁶Regarding gloss-line abbreviations, see page vi of the preliminary pages.

Stress assignment in Spokane is further complicated by the fact that, despite the presence of a putative stress-retentive Root in a particular form, certain suffixes may necessarily ‘attract’ primary stress. Consider the examples in (4) both of which contain the Root $k^w u\text{ʔ}$. In each case stress has been assigned to the vowel of a different morpheme in the word. In (4a) primary stress falls on the vowel of the Root $k^w u\text{ʔ}$, while in (4b) it falls on the vowel of the grammatical suffix /šiš/ *Indirective*.

- | | | | |
|------|--|------|---|
| (4a) | $k^w u\text{ʔ} \acute{s} t m n$
$\sqrt{k^w u\text{ʔ}}\text{-}\acute{s} i\text{-}t\text{-}u m\text{-}e n$
$\sqrt{\text{make-Redir-Tr-2sgTrO-1sgTrS}}$
<i>I made you something.</i> | (4b) | $k^w \text{ʔ} \acute{s} i \acute{s} m n$
$\sqrt{k^w u\text{ʔ}}\text{-}\acute{s} i \acute{s}\text{-}m\text{-}n\text{-}t\text{-}e n$
$\sqrt{\text{make-Indir-Der-Ctr-Tr-1sgTrS}}$
<i>I made it for somebody.</i> |
|------|--|------|---|

Note that in the form in (4a) stress has been assigned to the Root vowel, this despite the fact that the form possesses numerous suffixes each of which contains a vowel. This suggests that the Root $k^w u\text{ʔ}$ is a stress-retentive root. The form in (4b), however, indicates that this morpheme-based system of stress assignment must also include a category of stress-attracting suffixes which occupies a more prominent position in the morphophonological hierarchy than that of stress-retentive Roots. Simply put, the examples in (4) indicate that within the morphophonological hierarchy, certain Roots (e.g., $k^w u\text{ʔ}$) dominate certain suffixes (e.g., /ši/) and are themselves dominated by other suffixes (e.g., /šiš/).

An additional consideration regarding the morphophonological hierarchy of Spokane morphemes has been the placement of primary stress in forms comprising the various combinations of suffixes. Consider the examples in (5).

The word in (5a) comprises a stress-retentive Root followed by suffixes which are not stress-attracting, as is evidenced by the fact that stress has been assigned to the Root vowel. Compare this stress pattern with that in (5b). The word in (5b) comprises a stress-shifting Root followed by the same suffixes as in (5a). In this case, primary stress has been assigned to the vowel of the leftmost suffix, this despite the fact that other vowels are available for stress placement.

- | | | | |
|------|---|------|---|
| (5a) | nxélštn
n-√ <u>xel</u> -ši-t-en
Loc-√fear-Redir-Tr-1sgTrS
<i>I'm afraid for him.</i> | (5b) | čš'šíttn
č-√šit'-š <i>ī</i> -t-en
Loc-√stand-Redir-Tr-1sgTrS
<i>I guarded something for him/her.</i> |
|------|---|------|---|

The data indicate that in addition to the patterns in which the Root vowel or the vowel of the leftmost suffix is stressed there are other options for the placement of primary stress. Consider the examples in (6). That in (6a) bears primary stress on the vowel of the rightmost in a series of three suffixes, while that in (6b) bears primary stress on the vowel of the second of three suffixes.

- (6a) nʔay'uʔtqnéʔtʰx^w
n-√ʔay'=ew't=qin=e(ʔ)tʰx^w
Loc-√sit (pl.)=scattered=head=house(Pl)
They lived up there. They were sitting at the head of the village.
- (6b) snq'aw'sqínšn
s-n-√q'eʔ=ew's=qin=šin
Nom-Loc-√squeezed=mid=head=foot
middle toe

To complicate the issue of stress placement even more, the data set also includes forms which display competing stress patterns for identical and near-identical

sequences of morphemes as illustrated by the forms in (7) and forms which may or may not display stress on the vowel of a prefix as illustrated by the forms in (8).

- | | |
|---|--|
| <p>(7a) nmíycn
 n-√<u>miy</u>=cin
 Loc-√know=mouth
 <i>He knows his stories.</i></p> | <p>(7b) nmicín
 n-√<u>miy</u>=<u>cin</u>
 Loc-√know=mouth
 <i>His stories are interpreted.</i></p> |
| <p>(8a) hi tʔiš
 hi tʔi+√<u>tʔiš</u>
 Part Dim+√sweet
 <i>It's small and sweet.</i>
 <i>(Black 1995a)</i></p> | <p>(8b) xʷóxʷtʔʷ
 <u>xʷó</u>+√xʷolqʷ
 Dim+√roll
 <i>buggy</i></p> |

As is demonstrated by the data provided above, the descriptive treatments of the Spokane stress system necessarily deal with a wide array of complex and often conflicting patterns. Recent theoretical treatments have attempted to explain the facts of primary stress assignment of Spokane in a variety of metrical accounts. Characteristic of these accounts is the assumption of morpheme compositionality for each word and the assumption that each morpheme maintains a predictable morphophonological relation with respect to other morphemes. Given that fact, these approaches attempt to capture any unexpected variations in stress placement by identifying Roots or affixes in exceptional ways.

Bates and Carlson (1989) and Carlson and Bates (1990) utilize a metrical grid framework and claim that Roots and suffixes bear the lexically-specified features [+/- stressable] and [+/- strong] which are realized within the grid. These analyses assume that all Roots are lexically accented and also rely on two stress rules: Weak Shift and Clash Avoidance. In order to account for variations, these

studies split the classification of lexical suffixes; instead of viewing them as a single class of morphemes, some are viewed as [+stressable] and [+strong] and others as only [+stressable]. Carlson and Bates (1991) modifies these earlier analyses by incorporating aspects of Czaykowska-Higgins (1993b) (the notion that cyclicity is a property of individual morphemes) and Idsardi (1991b) (the notion that morphemes can induce Foot boundaries). In order to account for variations, Carlson and Bates (1991) identifies certain Spokane Roots as members of a special *variable* sub-class of Root morphemes labeled the *?emúit-class*; as such, these Roots are presumed to stress grammatical suffixes differently from lexical suffixes. Despite such attempts, these analyses cannot fully account for the array of patterns displayed by Spokane words.

The Stonham (1990) analysis assumes a conventional cyclic application of the stress rules resulting from the structure of the lexicon, itself; that is to say, derivational affixes attach in a cyclic stratum, while inflectional affixes attach in a non-cyclic stratum after the last derivational cycle.⁷ In addition, Stonham utilizes two lexical features to distinguish among the classes of suffixes: [+/- extrametrical] and [+/- unstressed]. The feature [+/- extrametrical] is also used to distinguish among Roots. In order to account for unexpected variations, Stonham (1990) identifies the lexical features of *lexical suffixes* of the Spokane language and the Spokane-Kalispel-Séliš language continuum, respectively, on a morpheme by

⁷The Stonham (1990) account of the inflectional affixes is particularly problematic due to the fact that it is based on the earliest description available (Carlson 1972a), some of which was later significantly revised.

morpheme basis (instead of viewing them as members of a single class of morphemes). This analysis cannot fully account for the array of stress patterns displayed by Spokane words. Furthermore, it wrongly predicts the position of primary stress in numerous forms.

Idsardi (1991b)⁸ presents a boundary placement, non-cyclic account of stress in which morphemes are lexically marked for idiosyncratic Foot boundaries; that is to say, morphemes are lexically specified to start or end a metrical Foot. With respect to Spokane, a strong Root or strong suffix is associated with a Foot boundary on the left, a weak Root with a Foot boundary on the right, and a variable suffix with no lexical boundary. The language is presumed to build left-headed Feet, and word stress is assigned to the rightmost Foot. Idsardi contends that a boundary-placement approach allows stress to be "read off" the morphological representation. As Idsardi does not attend to the numerous variations exhibited by the Spokane data, he does not provide any special mechanisms to account for those variations. As such, this analysis does not attempt to handle the array of patterns displayed by Spokane words.

Smith (1991)⁹ presents a "four-degree analysis of primary stress" for Montana Séliš, a sister dialect of Spokane. Smith assumes four degrees of lexical

⁸Idsardi (1991a) and (1992) do not attend to the stress facts of Spokane at all but do discuss the facts of the related languages Shuswap (1991a) and Shuswap and Moses-Columbia (1992).

⁹Smith (1991) focuses primarily on stress assignment in Montana Séliš, dealing only peripherally with stress assignment in the sister dialect Spokane.

accent and a rule which assigns primary stress to the rightmost vowel bearing the highest degree of accent. Degree of lexical accent is determined on a morpheme by morpheme basis and is often characterized as indeterminant. As such, Smith's analysis cannot predict in any principled way the position of primary stress in the Spokane word.

Czaykowska-Higgins (1993b)¹⁰ presents a metrical account of the stress facts of Moses-Columbia and assumes "that two rules of stress assignment interact with the morphological properties of *cyclicity*, *accent* and *extrametricality*" (p. 197). In order to account for variations, Czaykowska-Higgins (1993b) argues that Roots in Moses-Columbia bear the lexical diacritic [+/- extrametricality assigning] and suffixes bear the lexical diacritic [+/- accented]. As such, this analysis relies on additional sub-classifications of Roots and suffixes; that is, the classification of Roots distinguishes among four types of Root, while the classification of suffixes distinguishes among five types of suffix. This work also attributes certain anomalous stress patterns to the fact that these forms contain lexicalized Stems. While such an analysis accounts for the surface forms of Moses-Columbia, it cannot fully account for the array of stress patterns found in Spokane.

Although the various lexical diacritics and theoretical mechanisms mentioned above can account for much of the Spokane data, they nevertheless fail to account for the placement of primary stress in numerous forms. The fact is

¹⁰Czaykowska-Higgins (1993b) focuses primarily on stress assignment in Moses-Columbia, dealing only peripherally with stress assignment in Spokane.

that the patterns displayed by the data demand an investigation beyond the morpheme. Most recently, Czaykowska-Higgins (to appear) provides a broader perspective on the structure of the Salishan word in a discussion on Moses-Columbia, a Salishan language of the Southern Interior closely related to Spokane. This important study attends to the larger domains within which morphemes are organized and provides structural templates for both the morphological and phonological structures of words in Moses-Columbia. Czaykowska-Higgins (to appear) proposes that the word consists of two coexisting structures, a three-part morphological structure as well as a three-part phonological structure. Although each such structure has additional internal structure which conforms to the earlier morpheme-based treatments, this study moves beyond the limitations of a strictly morpheme-based structure to conceptualize the domains relevant for the morphology and the phonology above the level of the morpheme. As such, it represents "a first step in the process of understanding better the morphology and phonology" of Salishan languages, generally. Following this line of inquiry, the expressed purpose of the present investigation is to specify the structural characteristics of Spokane words which are relevant for the rules of the morphology and the rules of the phonology.

1.2 Organization of the present study

Although I assume various sub-theories available in generative linguistics to present the facts of Spokane (including feature geometry and prosodic, moraic, and underspecification theories), I rely primarily on the assumptions of the Lexeme-Morpheme Base Morphology of Beard (1987, 1993, 1995). In addition, I incorporate some of the important observations provided in the lexeme-based studies of Anderson (1982, 1992) and Aronoff (1976, 1994). The dissertation is organized in the following way. Chapter 2 provides an overview of the phonology of Spokane which includes a description of the phonemic inventory and the phonetic values realized by those phonemes, a sketch of the lexically defined prosodic constituents, and a discussion of various morphophonological processes. Chapter 3 provides an overview of Lexeme-Morpheme Base Morphology, specifies the morphological structures of Spokane lexemes within such a theoretical framework and establishes that the phonological representations of non-compounds and compounds alike are composites. Chapter 4 focuses on the phonological structures of Spokane composites and establishes that the domains which prove relevant for the morphology are equally salient for the phonology; in addition, this section defines the parameters of primary stress assignment. Chapter 5 focuses on the structurally reanalyzed forms of the language and proposes that the reanalysis of morphological structure accounts for the unusual stress patterns which occur in the Spokane language. Chapter 6 summarizes my conclusions.

Chapter 2

Overview of the Phonology of Spokane

2.0 Introduction

This section specifies the phonemic inventory of Spokane and the phonetic values that are realized by these phonemes, sketches the lexically defined prosodic constituents of Spokane and, finally, provides a brief overview of various morphophonological processes productive in the Spokane language.

2.1 Phonemic inventory and phonetic values

Throughout this section, I assume a theory of feature geometry which organizes the features hierarchically (as discussed in Clements 1985, Odden 1991, Sagey 1986, Steriade 1987a, McCarthy 1988, 1994, Rose 1996, among others) and a theory of feature underspecification which identifies the underlying features of each phoneme (as discussed in Anderson and Ewen 1987, Archangeli 1984, 1988, Archangeli and Pulleyblank 1989, 1994, Christdas 1988, Clements 1987, Kiparsky 1982a, 1985, Mester and Itô 1989, Pulleyblank 1986, Steriade 1987b, among others). Despite such assumptions, I present the phonemic inventory of Spokane using the derivative notion *segment*. I leave the identification of the features underlyingly specified for these segments to future research.

2.1.1 Consonants

The inventory which appears in (1) constitutes the set of phonemic consonants of Spokane. Included are twenty-four obstruents, all of which are voiceless, and sixteen sonorants, all voiced. Notably, Spokane lacks an unrounded velar series. Historical studies indicate that this gap is the result of the shift of *k, *k', and *x to č, č', and š, respectively (Carlson 1972:6). Although the sound /k/ is included in the inventory, it must be noted that the few words which contain /k/ are loanwords.

(1) Consonants

	Bilabial	Alveolar	Palato-Alveolar	Palatal	Velar	Uvular	Pharyngeal	Laryngeal
<u>Obstruents</u>								
Stops	p p'	t t'			(k) k ^w k ^{rw}	q q ^w q' q' ^w		ʔ
Affricates		c c' ç	č č'					
Fricatives		s ʃ	š		x ^w	χ χ ^w		h
<u>Resonants</u>								
Nasals	m m'	n n'						
Approximants		l l'	ɹ ɹ'	y y'	w w'		ʕ ʕ ^w ʕ' ʕ' ^w	

Spokane utilizes both plain and ejective voiceless stops, the ejective stops occurring at the same places of articulation as the plain stops (with the obvious exception of /ʔ/). While the uvular stops may be labialized or non-labialized, the velar stops are usually labialized, the only exceptions being the /k/ loanwords. In addition to the stops, the inventory includes a pair of voiceless alveolar affricates (one plain and the other ejective), a pair of palato-alveolar affricates (again, one plain and the other ejective), as well as a lone voiceless alveolar lateral ejective affricate. All stops and affricates are usually clearly released and strongly aspirated in initial, medial and final position. The data indicate, however, that before vowels these consonants are only weakly aspirated and, further, that they may remain unreleased when followed by a homorganic resonant. The obstruent inventory also includes seven voiceless fricatives.

Within the class of obstruents, the laryngeals /h/ and /ʔ/ deserve special mention. Spokane /h/ is a relatively rare sound which usually occurs in word initial position. Within a consonant cluster, /h/ seems to weaken to approximate a voiceless [e], but on occasion it may also surface as [ʔ]. Conversely, Spokane /ʔ/ commonly occurs in initial, medial and final position. As observed in Carlson (1972a), "when /ʔ/ occurs directly after a stressed vowel, the aspirated release is heard as a voiceless vowel...."(p.10). In unstressed syllables the sequence [vowel + /ʔ/] is often realized as a glottalized vowel. In the event that a stop or affricate precedes a [/ʔ/ + vowel] sequence, a voiceless vowel surfaces before the /ʔ/. These voiceless *echo* vowels which follow or precede the /ʔ/ usually surface with

the same quality as the vowel adjacent to /ʔ/, but they may also show the rounding influence of an adjacent labial obstruent. It should also be noted that /h/ and /ʔ/ only surface adjacent to a vowel and frequently metathesize around that vowel.

Previous analyses, including Carlson (1989) and Bates and Carlson (1992a), have proposed a 'spreading' laryngeal feature [+ constricted glottis]; both *Diminutive* and *Repetitive* reduplication show accompanying laryngealization (spread of [+ constricted glottis] rightward) of resonants in the word. The data in Black (1995a) support this claim.

There are sixteen resonants in the consonant inventory. These include nasals and approximants, all occurring in both plain and glottalized forms. All resonants are voiced; in addition, glottalized resonants have a constricted quality. In final position, resonants have a clear aspirated release. Before an obstruent or word finally, the lateral approximant /l/ usually devoices and sounds very much like the obstruent /t/. The central approximants /ɹ/ and /ɹ̥/ are relatively uncommon sounds in the language and only occur as the C₂ of a Root. In keeping with the tradition set for Spokane orthography, the symbols r and r' will be used to represent these phonemes throughout the dissertation. Regarding the pharyngeal central approximants, Carlson (1972a) remarks that "they are only marginally present in the language" (p.7) and their distribution limited to the C₁ or C₂ position within a Root. The data in Black (1995a) confirm this observation.

In the event that a consonant is followed by a non-pharyngeal resonant and a full vowel does not follow, the resonant may serve as syllabic nucleus or as coda

of a syllable headed by schwa. If such a resonant appears word initially preceding another consonant, it may also serve as syllabic nucleus or as onset of a syllable headed by schwa. Such pairs of surface forms occur in free variation.

The phonetic values of nasals, glides and pharyngeals deserve additional comment. Given a particular conditioning environment, nasals may surface as [i] (or [iʔ] in the case of glottalized nasals), as [y] or not at all. The phonemes /y/, /yʔ/, /w/ and /wʔ/ often surface as [i], [iʔ], [u] and [uʔ], respectively, depending on the position of primary stress, the effects of unstressed vowel deletion and the demands of syllabification. Likewise, the data in Carlson and Flett (1989) and Black (1995a) suggest that pharyngeals /ʕ/ and /ʕʔ/ may surface as [ʔa], while /ʕʷ/ and /ʕʷʔ/ may surface as [ʔɔ] (and possibly [ʔaw] or [ʔow]) for the same reasons.¹

As with laryngeals, the pharyngeals (at least /ʕ/) may metathesize around an adjacent vowel. The data also support the existence of a ‘floating’ pharyngeal feature associated with certain Roots which spreads rightward to all surface vowels (as discussed in Carlson 1972a, Mattina 1979c, Doak 1989, and Bessell 1990).

2.1.2 Vowels

Although previous analyses of Spokane have assumed a five-vowel inventory (one which excludes schwa), the data indicate that the six-vowel inventory proposed in (2) is necessary in order to account for the parallels which

¹For discussion of these processes, see section 2.3 of this chapter.

exist between the surface values of epenthetic schwa and the vowel(s) present in weak Roots, as well as to account for the position(s) occupied by schwa in weak Roots and affixes.

(2) Vowels

i		u
e	ə	o
	a	

Although the vowel inventory is limited to six phonemes, surface values for these phonemes indicate a complex interaction between vowels and consonants; that is, the phonetic quality of each phoneme is colored by accompanying consonants. The data indicate that vowels do not occur in word-initial position or in clusters.²

2.1.2.1 Full vowels

The vowel /i/, which most frequently surfaces as [i] in stressed or unstressed position, may also surface as [i̯] following a uvular or as [i̯] preceding a uvular.³

²According to Vogt (1940a), the same cannot be said for Spokane's sister dialect, Kalispel. Vogt lists occurrences of vowel-initial words (p.15) as well as vowel clusters (p.16).

³Carlson (1972a) interprets /i/ "as close to [e] or perhaps [e] with a central on-glide" (p.10) after postvelars. Likewise, S. Egesdal (p.c.) contends that the contrast between /i/ and /e/ (in Montana Séliš) is neutralized after uvulars. The data in Black (1995a) cannot support such an analysis for Spokane, as numerous Spokane words surface with /i/ clearly articulated as [i̯] in this environment.

[i]	cíl	<i>It's five.</i>	(Carlson 1972a)
[^ə i]	q'ířn	<i>I sweet-talked him/her.</i>	(Black 1995a)
[i ^ə]	cíqn	<i>I dug it.</i>	(Black 1995a)

Although this phoneme is not subject to retraction (which is triggered by the presence of a uvular consonant to the right of the relevant vowel), it is subject to pharyngealization (which is triggered by the presence of a Root pharyngeal consonant which follows or a floating pharyngeal feature associated with particular Roots).⁴ As a consequence of pharyngealization, /i/ surfaces as [a]. The following form, based on the Root *sən*, serves as an example in which the /i/ of the affix /ilš/ is pharyngealized (and realized as [a]) due to the floating pharyngeal feature which accompanies the Root:

[a]	qssntwáls	<i>He will get gentle.</i>	(Carlson and Flett 1989)
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The vowel /e/ frequently surfaces in free variation as [ɛ] or [æ] in stressed and unstressed positions. This phoneme may also be realized as [æ̃] when preceded by a uvular, or as [e] before /y/ or /y'/ (and a uvular does not precede the vowel).

[ɛ]	méχ'ntx ^w	<i>You shuffled the cards.</i>	(Black 1995a)
[æ]	k ^w én	<i>I took it.</i>	(Carlson 1972a)
[æ̃]	q'éy	<i>He lives.</i>	(Carlson 1972a)

⁴For discussion of such processes, see section 2.3 of this chapter.

[e] nʔéysn *I bought it.* (Black 1995a)

The phoneme /e/ is subject to the processes of retraction and pharyngealization; consequently, it commonly surfaces as [a]. The following form, based on the Root səp', serves as an example in which the vowel /e/ of the lexical suffix =ep is retracted (and realized as [a]) due to the uvular which follows it:

[a] sp'ápqn *He gets hit on the back of the head.* (Carlson 1972a)

The following form, based on the Root c'əŋ, serves as an example in which the vowel /e/ of the lexical suffix =eŋč is pharyngealized (and realized as [a]) due to the floating pharyngeal feature which accompanies the Root:

[a] čłc'nmánčmstn *I tied the cinch.* (Carlson and Flett 1989)

The vowel /u/ is usually realized as [u] in stressed and unstressed position, but may also surface a bit lower as [ụ].⁵

[u] snxʷúl *It's blood.* (Carlson 1972a)

[ụ] qʷúm'ntxʷ *You grabbed it.* (Black 1995a)

⁵Carlson (1972a) contends that /u/ may surface as [o] when preceded by a uvular and provides the following example:

[o] mxʷúf *It's a cradle board.* (Carlson 1972a)

As I cannot verify the quality of the underlying vowel in this form (that is, underlyingly the vowel may be full or schwa) and as I have been unable to locate other such forms, I cannot confirm such a claim.

The phoneme /u/ also shows the effects of retraction and pharyngealization, surfacing as [ɔ] in the relevant environment. The following form, based on the Root ?upn, serves as an example in which the vowel /u/ of the Root shows the effects of long distance retraction; it is retracted (and realized as [ɔ]) due to the uvular which follows it:

[ɔ] ?opnčstásq't *ten days* (*Carlson and Flett 1989*)

The following form, based on the Root pət, serves as an example in which the vowel /u/ of the lexical suffix =ule?x^w is pharyngealized (and realized as [ɔ]) due to the floating pharyngeal feature which accompanies the Root:

[ɔ] snptóle?x^w *noodles, macaroni, dumplings* (*Carlson and Flett 1989*)

The phoneme /o/ surfaces as [ɔ] consistently and can be found adjacent to pre-uvulars, uvulars and pharyngeals. As mentioned above, many surface occurrences of [ɔ] are a consequence of the retraction or pharyngealization of the phoneme /u/.⁶ Nevertheless, some realizations of [ɔ] do occur in a neutral environment, indicating the synchronic need to recognize /o/ as a distinct phoneme.

⁶Many surface occurrences of [ɔ] are also a consequence of the rounding and retraction or pharyngealization of the phoneme /ə/. Likewise, many surface occurrences of [a] are a consequence of the retraction or pharyngealization of the phoneme /ə/. A detailed discussion of schwa follows directly.

- [ɔ] spóct⁷ scab, sore (*Carlson and Flett 1989*)
 [ɔ] hóysk^wi Stop (plural) it! (*Carlson and Flett 1989*)

The phoneme /a/ surfaces as [a] but may also show coloring from the surrounding consonants. As I find such variations perceptually difficult to ascertain, I follow Carlson (1972a) which identifies this phoneme as "basically low and central [a], but there is some variation to a more front allophone after [ʈ] and to a more back variant before postvelars" (p.12). Many occurrences of [a] result from morphophonemic changes affecting the surface values of the phonemes /i/ and /e/. Although the data indicate that [a] usually surfaces adjacent to a pharyngeal, followed by a uvular or in the environment of a floating pharyngeal feature, there are a few cases in which [a] surfaces in a neutral environment; hence the synchronic need to posit the phoneme /a/.

- [a] hi nás *It's wet.* (*Carlson and Flett 1989*)

Important to note is the fact that although the phones [a] and [ɔ] function as phonemes, they most frequently serve as allophonic variants of /e/ and /u/. As

⁷In these examples, the surface realization [ɔ] is probably not analyzable as a consequence of the presence of a floating pharyngeal feature. The presence of a floating pharyngeal feature in a Spokane Root generally correlates with the presence of a mobile pharyngeal consonant in the Okanagan cognate Root. As the Okanagan cognates for these forms are both specified as lacking a pharyngeal consonant underlyingly in Mattina (1987a), positing a floating pharyngeal feature in the Spokane Root is not readily justifiable.

mentioned above, when /e/ and /u/ are followed by a uvular, they invariably show the effects of retraction, surfacing as [a] and [ɔ], respectively.⁸ As these sounds serve as the basic allophones of /a/ and /o/, the distinctions between /e/ and /a/ as well as between /o/ and /u/ are, therefore, effectively neutralized in such contexts. In addition, the process of pharyngealization, triggered by the presence of a pharyngeal consonant or a floating pharyngeal feature, effectively lowers and backs the phonemes /i/ and /e/ to [a] and lowers the phoneme /u/ to [ɔ], serving to neutralize the distinctions between /i/, /e/ and /a/ as well as between /o/ and /u/.

2.1.2.2 Schwa

The vowel schwa serves as an underlying vowel as well as the epenthetic vowel⁹ in Spokane. Although previous analyses of Spokane do not include schwa in the underlying vowel inventory,¹⁰ the available data indicate that it is necessary to do so. In order to account for the parallels between the surface values of epenthetic schwa and the vowel(s) present in weak Roots, it must be

⁸While vowels in the Prefixal domain are subject to local retraction, they are beyond the purview of long distance retraction. For discussion, see section 2.3 of this chapter.

⁹Conditions for epenthesis are discussed in section 2.3 of this chapter.

¹⁰Carlson and Thompson (1982) mentions that weak Roots in Spokane "generally go back to Proto-Salish Roots with schwa," but makes no claim as to the synchronic status of schwa.

acknowledged that schwa is the relevant phoneme in such Roots. In addition, since the position occupied by schwa within weak Roots is unpredictable, schwa must be analyzed as present underlyingly. Such an analysis is consistent with the system posited for Proto-Salish in Thompson (1979b) in which "roots were either 'strong', with tense vowels; or 'weak' with *ə" (p.721).

The facts of primary stress assignment indicate that there are two types of Root in Spokane: strong and weak.¹¹ Previous accounts, including Bates and Carlson (1989) and Carlson and Bates (1990) (among others), have proposed that the underlying phonological representations for weak Roots do not differ from those of strong Roots. Both weak and strong Roots are presumed to contain at least one full vowel underlyingly. These analyses locate the difference between these types of Root solely with respect to morphological properties.¹² As such,

¹¹See Chapter 4 for a detailed discussion of primary stress assignment in Spokane. Suffice it to say for now that the most reliable way to determine the strong or weak status of a Root is to check whether or not the Root vowel bears primary stress when the Root is followed by particular affixes (e.g., subject and object person marking). In the event that the Root vowel does bear primary stress in such a context, then it is identified as a strong Root; otherwise, it is identified as a weak Root. Whenever a Root is identified as strong or weak, it can be assumed that it was evaluated using such a diagnostic.

¹²Specifically with respect to the two works cited, while both weak and strong Roots bear the lexical diacritic [+ stressable], strong Roots also bear the lexical diacritic [+ strong]. The fact that weak Roots lack a lexical diacritic [+ strong] is, then, presumed to account for the difference between Roots by inducing putative *Weak Shift*, whereby stress is shifted off the weak Root vowel rightward to the nearest vowel.

these accounts miss an important generalization; that is, in the event that the vowel of a weak Root bears primary stress, the quality of that vowel almost invariably matches the quality of an epenthetic vowel which has been inserted in a comparable phonological environment for purposes of stress placement. Let us now consider the phonetic values of schwa.

I assume that schwa possesses underlying feature specifications which are limited to [-consonantal] and [+sonorant] dependent on the geometric Root node. Similar to the phonetics of full vowels, the precise phonetic realization of schwa is influenced by the consonants which surround it. In the event that schwa occurs in a neutral environment, it is assigned default features which vary depending on the status of schwa as unstressed or stressed. Unstressed schwa positioned in a neutral environment surfaces as [ə],¹³ while stressed schwa positioned in a neutral environment surfaces as [i]. Not surprisingly, however, the surface values of schwa in a non-neutral environment are more complex.

Carlson (1972a:14) summarizes the phonetic values for unstressed schwa as follows: [i], lower high front centralized in the neighborhood of palatal consonants; [u], centralized high back and rounded in the neighborhood of rounded front

¹³Despite the fact that the surface position of unstressed schwa is purported to be generally predictable, the facts remain enigmatic. In addition, its identity as a reduced or exrescent vowel given a particular environment has yet to be sorted out.

velars; [ɔ], central low rounded in the neighborhood of rounded postvelars; [ʌ], low back unrounded in the neighborhood of plain postvelars; and, [ə], mid central unrounded elsewhere. The data in Black (1995a) indicate that unstressed schwa may also surface as [ɛ] or [æ] in the presence of a laryngeal as well as [a] in the same environment when subjected to retraction or pharyngealization. In other environments, unstressed schwa remains unaffected by the processes of retraction and pharyngealization.

Schwa differs from full vowels in that it is not valued by the constraints of stress assignment in the same way.¹⁴ In the event that a form lacks an underlying full vowel, primary stress will necessarily appear in a position occupied by schwa. In these circumstances, the phonological constraints of Spokane require schwa to be realized as a full vowel; as such, it is also subject to the morphophonemic processes of retraction and pharyngealization.

As with unstressed schwa, the precise phonetic realization of stressed schwa is also influenced by the consonants which surround it. With very few exceptions, the conditioning environments can be identified for surface realizations of epenthetic schwa.¹⁵ In stressed position, its surface realizations in the environment of post-velars are as follows:

¹⁴This may be a consequence of the nuclear and non-nuclear moraic status of full vowels and schwa, respectively, as discussed in Shaw (1992).

¹⁵Unless otherwise indicated, the source for the examples provided to illustrate the surface values of schwa is Carlson and Flett (1989).

[a] when immediately preceded by an unrounded pharyngeal¹⁶ as in **p'aʕáp** *It burned*.¹⁷

[æ̃] when immediately preceded by an unrounded uvular¹⁸ as in **tqém** *He touched it*;

[ɔ] when immediately preceded by a rounded pharyngeal¹⁹ as in **lʕóm** *He put them together*; and,

[ũ] when immediately preceded by a rounded uvular as in **čn lq'úm** *I broke up something (like rocks)*.²⁰

Important to note is the fact that although the retraction associated with uvulars does spread leftward (as illustrated in the discussion of full vowels), it does

¹⁶Since pharyngeals only occur as Root segments, the data set lacks an example in which an unrounded pharyngeal immediately follows a stressed epenthetic schwa.

¹⁷This example is unusual to the extent that in such cases the weak Root vowel is usually deleted in such forms. Regardless, the phonetic value of stressed schwa is predicted to be [a].

¹⁸The data set lacks an example in which an unrounded uvular follows a stressed epenthetic schwa. This is not unexpected since uvulars which result from morphological spelling operations are always accompanied by a full vowel, thereby eliminating the need for schwa epenthesis.

¹⁹As mentioned in footnote 16, since pharyngeals only occur as Root segments, the data set lacks even one example in which a rounded pharyngeal immediately follows a stressed epenthetic schwa.

²⁰The data set lacks an example in which a rounded uvular follows a stressed epenthetic schwa. As mentioned in footnote 18, this is not unexpected since uvulars which result from morphological spelling operations are always accompanied by a full vowel, thereby eliminating the need for schwa epenthesis.

not spread rightward to an adjacent epenthetic schwa; however, some type of assimilation does take place as illustrated by the fact that schwa preceded by an unrounded uvular surfaces as [æ̃] instead of some version of [i]. Regarding the processes of rounding and pharyngealization, each spreads rightward beyond the Root to an adjacent epenthetic schwa.

In environments lacking a post-velar, an epenthetic schwa in stressed position surfaces as follows:

[æ] when immediately preceded or followed by /ʔ/ or /h/ and no rounded consonant occurs adjacent to the schwa as in *κʔém* *He looked for something*;

[u] when immediately preceded by a rounded consonant as in *ck^wúm* *He pulled*;²¹

[a] when targeted by a floating pharyngeal feature as in *čn pʔám* *I poured a gravy like substance*; and,

[i] elsewhere as in *čn †pʔím* *I marked something*.²²

Significantly, the stressed values for epenthetic schwa almost invariably match the stressed values of weak Root vowels. The stressed vowel of a weak Root has the following surface realizations in the environment of a post-velar:

²¹As the data set lacks the appropriate examples, I have yet to determine whether or not epenthetic schwa surfaces as [u] when immediately followed by a rounded consonant.

²²The data set includes one exception: the form recorded in Carlson and Flett (1989) as *k^wném* *He grabbed something*. Forms with *k^wen* are also exceptional to the extent that they display both strong and weak stress behaviors.

[æ̃] when immediately preceded by an unrounded or rounded uvular (and not followed by a post-velar) as in **q'éy'** *It's striped* and **hecχ^wtx^wét** *It's cut in pieces of different size;*²³

[ɔ] when immediately followed by a rounded uvular as in **hec'óq^w** *It is sewn together;*

[ɔ] when immediately followed²⁴ by a rounded pharyngeal as in **heccóŋ^w** *It's fringed;*²⁵

[a] when immediately preceded or followed by an unrounded pharyngeal as in **tmsŋác** *wild creature, untamed horse* and **hi yáŋ'** *It's gathered;*

[a] when followed by an unrounded post-velar as in **hi χ'áq'** *The weather is hot* and **hecɸ'áy'q** *It's ripe;* and,

[a] when an unrounded consonant appears between schwa and the rounded post-velar which follows as in **cálχ^w** *It's clustered.*

These data indicate that, although the retraction associated with uvulars

²³The data set includes one exception: the form recorded in Carlson and Flett (1989) as **hecq^wúm** *It's a pile.*

²⁴The data set contains only one weak Root whose vowel is preceded by a rounded pharyngeal, e.g., **hecŋ^wóχ^w** *It's strung up.* In this case, the vowel is also followed by a rounded uvular consonant; consequently, it is not possible to assess how a preceding rounded pharyngeal affects the surface quality of the vowel. Based on the surface values of weak Root vowels immediately preceded by other rounded consonants, however, my prediction is that rounding does not spread rightward within the Root.

²⁵The data set includes two possible exceptions to this generalization: the form recorded in Carlson and Flett (1989) as **χ'áŋ^wč** *muddy;* and the form recorded in Carlson and Bates (1990) as **cláχ^wχ^w** *It suddenly bunched up.*

does not spread rightward to the adjacent vowel within the weak Root, it does spread leftward within the Root. Nevertheless, some type of assimilation does take place as is illustrated by the fact that a weak Root vowel preceded by an unrounded uvular surfaces as [æ̃] instead of some version of [i]. Recall that this was also noted for epenthetic schwa. Regarding the process of rounding, while rounding does spread leftward within the Root to the adjacent weak Root vowel, it does not spread rightward within the Root. Recall that the facts of epenthetic schwa indicate that rounding does spread rightward beyond the Root. Interestingly, pharyngealization triggered by a Root pharyngeal consonant spreads both leftward and rightward within a weak Root and rightward beyond the Root to an adjacent schwa.

In environments lacking a post-velar, a weak Root vowel in stressed position surfaces as follows:

[æ] when adjacent to /ʔ/ or /h/ and no rounded consonant immediately follows the Root vowel as in *čn čʔéʔ I got close* and *cššʔéʔ It's just about time for him to get here*;

[æ] when immediately followed by /r/ (and presumably /r'/) as in *črčér It's all cut up already*,²⁶

²⁶The data set does not contain even one Root which begins with /r/; as such, it is not possible to state the surface value of schwa in such an environment. In the event that stressed epenthetic schwa is immediately preceded by Root final /r/, however, schwa surfaces as [i]: *črím He cut with scissors*.

[u] when followed by a rounded consonant as in ʔemúk^{w} *It is skinned*;²⁷

[a] when targeted by a floating pharyngeal feature as in $\text{hi ssán}'$ *A little thing is gentle*;²⁸ and,

[i] elsewhere as in ʔíl *He's still*.²⁹

Having specified the surface values of epenthetic schwa and the vowels of weak Roots, we can conclude that the similarities observed are not coincidental. The only notable distinction between epenthetic schwa and the vowels of weak Roots is the fact that while rounding will not spread rightward within the Root, it will spread rightward beyond the Root as well as leftward within the Root to an adjacent schwa. Otherwise, the surface values are identical. Such uniformity is more than mere coincidence and indicates that weak Roots do, in fact, contain schwa vowel(s).

Despite the parallels observed above, these facts do not serve to establish the status of Root schwa as underlying. In fact, since schwa is the epenthetic vowel, it is tempting to analyze Root schwa as a consequence of epenthesis. A plausible explanation for the distinction between strong and weak Roots is, then,

²⁷The data set includes two exceptions to this generalization: the forms recorded in Carlson and Bates (1990) as $\text{mllík}^{\text{w}k^{\text{w}}}$ *It turned into solid lumps* and as $\text{čehhék}^{\text{w}k^{\text{w}}}$ *It suddenly became uncovered*.

²⁸The source for this form is Black (1995a). It may also be translated as *Something is a little gentle*.

²⁹The data set includes two exceptions: the Roots čəs and čəy which surface as $[\text{čés}]$ *It's bad* and $[\text{čéy}]$ *It's dark*, respectively.

that strong Roots contain full vowel(s) underlyingly, while weak Roots lack vowel(s) (full or schwa) underlyingly. Such an explanation has been proposed for Moses-Columbia, another Salishan language of the Southern Interior closely related to Spokane (Czaykowska-Higgins 1993b). In such an analysis, the presence and position of schwa is argued to be predictable and a consequence of epenthesis.

Although such an account adequately explains the facts of Moses-Columbia, such a proposal cannot account for the Spokane facts, primarily because the site of such Root schwa epenthesis is not predictable in Spokane. The co-existence of monosyllabic weak Roots of the shape CCəC (e.g., $\text{c}^{\text{p}}\text{p}^{\text{w}}\text{ə}\text{x}^{\text{w}}$, $\text{č}^{\text{l}}\text{l}\text{ə}\text{x}^{\text{w}}$ and $\text{ʔm}\text{ə}\text{k}^{\text{w}}$) and CəCC (e.g., $\text{x}^{\text{t}}\text{ə}\text{x}^{\text{t}}$, $\text{p}^{\text{w}}\text{ə}\text{f}^{\text{č}}$ and $\text{p}^{\text{w}}\text{ə}\text{c}^{\text{w}}\text{q}^{\text{w}}$) as well as bisyllabic weak Roots of the shape CəCəC (e.g., $\text{č}^{\text{ə}}\text{n}\text{ə}\text{p}^{\text{w}}$, $\text{č}^{\text{ə}}\text{h}\text{ə}\text{k}^{\text{w}}$ and $\text{m}\text{ə}\text{l}\text{ə}\text{k}^{\text{w}}$) illustrates the problems associated with such an analysis. Given the varied locations of Root schwa and a lack of uniform conditioning environments, its position within such Roots can only be accounted for by acknowledging its presence underlyingly.

2.1.2.3 Schwa-class vowels

In addition to the position variability of Root schwa, the facts related to certain affixes also provide support for the presence of underlying schwa. A limited number of Spokane suffixes contain vowels which are valued by the parameters of stress assignment as schwas, yet do not fit the profile of phonetic values presented above. The vowels of such suffixes have an almost invariant

phonological form when stressed, the only exception being those affected by pharyngealization. Such vowels cannot be analyzed as epenthetic since their surface positions are unpredictable. The suffixes under consideration are listed below and presented with their stressed surface values.

[ém] Passive³⁰

[én] 1 singular transitive subject

[éx^w] 2 singular transitive subject

[és] 3 singular/plural transitive subject

[ép] 2 plural transitive subject

[sí] 2 singular transitive object (nt stems)

[úm] 2 singular/plural transitive object (st stems)

[ɬúl] putative transitive control marker

[ší] Redirective

[mí] Nonperfective

While the surface values of [sí], [ší] and [mí] are consistent with the phonetics of stressed schwa discussed in section 2.1.2.2 and may, in fact, correspond to underlying schwa, the surface values of the other suffixes can not be accounted for by assuming that each contains schwa (that is, the phoneme underspecified as [-consonantal] and [+sonorant]) and that their surface values simply result from coloring by neighboring consonants. The fact is that viewing the data from this

³⁰This suffix is also employed for forms which refer to a first person plural subject and a third person object.

limited perspective has not provided an adequate explanation of the facts, indicating the need to explore additional dimensions of the language. Fitzgerald (1995)³¹ suggests that

Although the synchronic analysis of a language is often presented with little or no reference to the language's history, there are cases in which knowledge about the development of the language can provide valuable insight into its synchronic processes. (p.1)

Acknowledging this fact, I suspect that the underlying phonological features of the vowels of such suffixes, as well as the explanation for the surface values of those vowels, can best be ascertained in an historical study of those suffixes. In lieu of such a study, I assume for present purposes that the vowels of these suffixes comprise a class of schwa-like vowels to the extent that the stress system treats them as such; however, they differ from schwa and full vowels since they possess specifications for phonological feature(s) in addition to [-consonantal] and [+sonorant], but which are distinct from those accorded to any full vowel. Furthermore, I utilize the symbol /ə/ to indicate that the underlying vowel of such suffixes is a schwa-class vowel as represented below. I leave the determination of the actual features of such vowels to future research.

/əm/ Passive³²

/ən/ 1 singular transitive subject

³¹Fitzgerald (1995) provides a valuable historical treatment of Coeur d'Alene vowel harmony.

³²As mentioned above, this suffix is also employed for forms which refer to a first person plural subject and a third person object.

- /əx^w/ 2 singular transitive subject
- /əs/ 3 singular/plural transitive subject
- /əp/ 2 plural transitive subject
- /sə/ 2 singular transitive object (nt stems)
- /əm/ 2 singular/plural transitive object (st stems)
- /təl/ putative transitive control marker
- /šə/ Redirective
- /mə/ Nonperfective

2.2 Prosodic constituents

Throughout this section I assume a theory of prosodic phonology which recognizes the position of Mora within the prosodic hierarchy (as discussed in Hayes 1989, Hyman 1985, Ito 1988, McCarthy and Prince 1986, 1990, Zec 1988a, 1988b, among others). Such a hierarchy is presumed to include the following units: Prosodic Word, Foot, Syllable (σ), and Mora (μ).

I follow Bates and Carlson (1992a) and identify the inventory of Spokane Mora types as in (3):

- (3) a. $\begin{array}{c} \mu \\ | \\ C \end{array}$ b. $\begin{array}{c} \mu \\ | \\ V \end{array}$ c. $\begin{array}{c} \mu \\ / \quad \backslash \\ C \quad V \end{array}$

They explain that

The mora structures in (a) and (b) come from the lexicon under Bagemihl's [1991] analysis. The (b) types can be altered into the (c) types by the onset rule, which removes a mora from a prevocalic consonant; this is a product of universal core syllabification. A language-particular property of Spokane ensures that no rules operate to remove a mora from a post-nuclear consonant; i.e., sonority may not fall within the mora. (p.6)

The facts related to *Diminutive* and *Out-of-Control* reduplication provide independent evidence for the Mora structure represented in (3c). These types of Mora can be organized into lexical Syllable types as presented in (4):

(4) a. Monomoraic

$$\begin{array}{c} \sigma \\ | \\ \mu \end{array}$$

b. Bimoraic

$$\begin{array}{c} \sigma \\ / \backslash \\ \mu \quad \mu \end{array}$$

Bates and Carlson assert that Spokane lexical Syllables have a maximum of two Moras each and that additional "bimoraic combinations are ruled out by independent principles, universal and language-specific" (p.7). They assume that such Syllables are built lexically and, further, that the Moras of such Syllables are linked to geometric Root nodes which correspond to CV and CVC/CC segmental sequences, respectively. As the Mora, not the Syllable, is presumed to be the prosodic unit which serves to license non-prosodic phonological units for Spokane, unsyllabified segments remain throughout a derivation (Hyman 1985, Zec 1988a, 1988b, Hayes 1989, Bagemihl 1991).

The data indicate that while Spokane words of the minor lexical categories and bound affixes may be monomoraic, Spokane words of the major lexical categories minimally comprise a bimoraic Syllable or Foot. At the core of each

word's phonological representation is a morphophonological Root whose form consists minimally of a canonical CVC sequence. As such, this bimoraic Foot constitutes the minimal Prosodic Word in Spokane. Despite the fact that the Spokane system places minimal structural requirements on the Prosodic Word, it does not seem to place any maximal structural requirements on the Prosodic Word.

At the phonetic level, syllabification remains enigmatic to a large degree. Typically, Spokane surface forms are not easily analyzed into traditional Syllable types. It is not uncommon to encounter words with long strings of obstruent consonants as in (5). The word in (5a) comprises two Syllables (as indicated by the space); the cluster of seven obstruents is phonetically realized as the complex onset of the first Syllable and contains no audible trace of reduced or excrescent schwa to facilitate articulation of that phonological string.

(5a) [sx^wčšʔsqá ɣæʔ] sx^wčšʔsqáɣeʔ *shepherd* (Black 1995a)

The word in (5b) comprises three Syllables (as indicated by the spaces). In this case the six initial consonants are not realized as a complex onset; instead, the first four consonants are broken up by schwa (their status as reduced or excrescent is uncertain) and realized in two distinct Syllables. In addition, another schwa (presumably excrescent) occurs between the [t] and the [w] of the final Syllable.

(5b) [xʰʌx xʰʌx tuwíʔš] xʰxʰxtwíʔš *They became fast.* (Black 1995a)

Regarding the word in (5c), my best assessment of its phonetic realization is one which recognizes three Syllables: the first lacking any vocalic element, the second containing a schwa between the [p'] phones as well as between [p'] and [x^w] (their status as reduced or excrescent is uncertain), and the third Syllable containing a schwa between [p'] and [x^w] (its status as reduced or excrescent is also uncertain) as well as a full vowel [u].

(5c) [čsł p'əp'ɔx^w p'ɔx^wút] čsłp'p'x^wp'x^wút *She's not aging gracefully.*
(Black 1995a)

2.3 Morphophonology

After morphological processes occur to create complex words, complex phonological processes may also occur. These include primary stress assignment, vowel epenthesis, ablaut and deletion, consonant vocalizations and cluster simplification, vowel assimilation, as well as reduplication and infixation.

The process of stress assignment relies on a complex set of constraints to assign primary stress within a Spokane word. Intimately related to stress assignment is the process of vowel epenthesis whereby the neutral vowel schwa is inserted for the purpose of bearing primary stress. As the facts of stress assignment and related epenthesis are covered fully in Chapter 4, I refer the reader to that chapter and omit a discussion of those processes here.

2.3.1 Vowel epenthesis, ablaut and deletion

Schwa epenthesis is also invoked to meet the needs of laryngeal consonants. The phonotactics of the language require that a laryngeal consonant share the Place features of an adjacent vowel (which often produces a glottalized vowel). Consequently, if a laryngeal is not adjacent to a vowel in underlying representation, schwa is epenthesized. Consider the form in (6). The stress facts indicate that the underlying phonological representation for the Root contains only one schwa positioned between /m/ and /k^w/. Nevertheless, schwa is epenthesized³³ to meet the articulatory needs of the laryngeal consonant; as a result, the vowel [æ] surfaces between /ʔ/ and /m/.

- (6) ʔemúk^w
 √ʔmæk^w
 √skinned
It is skinned. (Carlson and Flett 1989)

The data indicate that Spokane makes limited use of the process of ablauting whereby certain aspectual distinctions correlate with a change in the quality of the stressed vowel. Examples of ablaut are rare and extremely difficult to elicit, suggesting that ablaut is no longer a productive process in Spokane. The forms in (7) serve as an illustration. In (7a) stressed epenthetic schwa surfaces as [i], as expected in this neutral environment. In (7b), however, [u] surfaces in the same position.

³³Evidently, this type of epenthesis happens quite late, as is evidenced by the fact that vowels epenthesized for this reason never participate in stress assignment.

- (7a) čm'íp
 √čəm'-p
 √dark-Inch
It got dark. (Black 1995a)
- (7b) čm'úp
 √čəm'-p
 √dark-Inch
It suddenly got dark. (Black 1995a)

By far the most common morphophonological process exhibited by the data is that of unstressed vowel deletion. After primary stress has been assigned within a word, unstressed vowels which are not protected by adjacent laryngeals or pharyngeals are usually deleted (Carlson 1976). Consider the examples in (8). Observe that in each case only one vowel surfaces, that which bears primary stress. Deletion occurs regardless of an unstressed vowel's underlying status as full or schwa.

- (8a) šlmíntx^w
 √šəl-min-n-t-əx^w
 √chop-Rel-Ctr-Tr-2sgTrS
You used the axe to chop it. (Carlson 1972a)
- (8b) wččnún
 √wič+č-nu-n-t-ən
 √see+OC-Suc-Ctr-Tr-1sgTrS
I saw it by accident. (Carlson and Flett 1989)

Despite the productivity of the process of unstressed vowel deletion, it is not always the case that a Spokane word surfaces with only a single vowel. One type of conditioning environment associated with surface realizations of unstressed

vowels involves the presence of a neighboring laryngeal or pharyngeal consonant³⁴ and is illustrated by the examples in (9) and (10). In (9a-b) both the stressed vowel and the vowel adjacent to the glottal stop surface, while in (10a-b) the stressed vowel as well as the vowel adjacent to the pharyngeal surface. Regarding (10a), a vowel also surfaces adjacent to the laryngeal [h].

- (9a) ʕtʔacʔmíst
 ʕt-√ʔacʔ-míst
 Loc-√look at-Refl
He's looking out for #1. (Black 1995a)
- (9b) x'eʔntén
 √x'əʔ-n-t-ən
 √look for-Ctr-Tr-1sgTrS
I looked for it. (Black 1995a)
- (10a) hecʔaymtnwéʔx^wi³⁵
 hec-√ʔaymt-m-n-t-we(?)x^w-mə
 Act-√angry-TrDer-Ctr-Tr-Recip(Pl)-NonPer
They are angry at each other. (Black 1995a)
- (10b) q^waʔpmí
 √q^wəʔ-p-mə
 √slide-Inch-NonPer
It's sliding. (Carlson and Flett 1989)

³⁴The fact that a neighboring laryngeal or pharyngeal consonant protects an unstressed vowel from deletion suggests feature sharing. The feature geometry expressed in Rose (1996) claims that (in languages which utilize pharyngeals or uvular continuants) both laryngeals and pharyngeals possess a primary specification for Pharyngeal node as daughter to Place. As these consonants lack specification for Oral node, it is plausible that the phonotactics of the language require that they share the Oral Place features of an adjacent vowel.

³⁵The vowel [i] derives from [m] as a consequence of nasal shift which is discussed below.

2.3.2 Consonant vocalization and cluster simplification

Unstressed vowels also surface when certain resonants are vocalized in order to comply with the phonotactics of the language.³⁶ Carlson (1976) explains that the underlying semi-vowels /y/, /y'/, /w/, and /w'/ in Roots or affixes become [i], [i?], [u], and [u?], respectively, when they are not adjacent to vowels. Examples are provided in (11).

- (11a) sušmín
 s-√wəš-min
 Nom-√comb-Instr
 a comb (Carlson and Flett 1989)
- (11b) niʔx^wús
 n-√yeʔx^w=us
 Loc-√covered=eye
 One of his eyes is covered. (Carlson and Flett 1989)

Recall from the discussion of unstressed vowel deletion that the presence of a pharyngeal typically precludes the deletion of an adjacent vowel. Nevertheless, data from Carlson and Flett (1989) as well as Black (1995a) indicate that there are instances in which pharyngeal resonants surface as vowels. The pharyngeals /ʕ/ and /ʕ'/ may surface as [a], while /ʕ^w/ and /ʕ^w'/ may surface as [ɔ] (and possibly [aw] or [ɔw]). Such surface vowels may be accompanied by a glottal stop. The forms in (12) serve as examples. As pharyngeals possess only marginal status as phonemes, such vocalizations may be indicative of their decline.

³⁶Repetitive infixation is also the source of certain surface vowels and is discussed below.

- (12a) snʔoʔúps
 s-n-√ʔit=ups
 Nom-Loc-√one piece=rump
pants (Carlson and Flett 1989)
- (12b) scocóʔ^w
 s-cəʔ^w+√cəʔ^w
 Nom-Dist+√fringed
It's fringed. (Carlson and Flett 1989)

A process known as *nasal shift* is also responsible for the surface occurrence of unstressed vowels.³⁷ This process involves the shift of a nasal consonant to [y], or [i] if syllabic, when it is immediately followed by a coronal fricative³⁸ (Carlson 1976, Carlson and Lin 1995) and when its position within the word meets particular structural requirements. The process of nasal shift may be fed by other morphophonological processes. For example, after primary stress assignment, unstressed vowel deletion and alveolar cluster simplification (see below) have applied, the resulting environment may trigger nasal shift. Carlson and Lin (1995) assert that nasal shift most frequently occurs when the final /n/ of a Root or suffix is immediately followed by /s/.

Examples of nasal shift are provided in (13). The form in (13a) illustrates the case in which various phonological processes create a nasal/coronal-fricative

³⁷As the process of *nasal shift* is quite complex and entails additional diachronic and synchronic dimensions which are beyond the scope of this dissertation, this overview remains quite limited. For a more detailed discussion, see Carlson (1976), Kinkade (1982a), Kuipers (1982b), Thompson and Thompson (1992), and Carlson and Lin (1995).

³⁸The glottal fricative /h/ may also trigger nasal shift.

sequence, thereby feeding nasal shift and resulting in a surface [y]. Each of the forms in (13b) and (13c) illustrates a nasal shift which ultimately results in the surface value [i] due to the demands of syllabification.

- (13a) syéys
 √syen-n-t-əs
 √count-Ctr-Tr-3TrS
He counted it. (Carlson 1976)
- (13b) sʔiʔis
 s-√ʔiʔn-s
 Nom-√eat-3Poss
his/her/their food (Carlson 1972a)
- (13c) kʷúpiš
 √kʷup-m-š
 √push-Mid-Imp
Push something! (Carlson and Lin 1995)

Important to note is the fact that the trigger for nasal shift is not always identifiable as one which involves a coronal fricative. Such is the case for the unstressed variant of the *Nonperfective* affix /mə/. Consider the examples in (14). In both cases primary stress has been assigned to a full vowel, and unstressed vowel deletion has applied to eliminate all but the stressed vowel and the vowel(s) protected by the laryngeal(s). Notice that the only trace remaining of *Nonperfective* /mə/ is the consonant [y] in (14a) and the vowel [i] in (14b). In these instances, nasal shift has occurred without a coronal fricative trigger.

- (14a) čyeʔcqʔm'éyʔey
 čn hec-q'ə+√q'am=eyeʔ-mə
 1sgIntrS Act-Dim+√swallow=pretend-Nonperf
I'm fishing. (Black 1995a)

- (14b) hecč̣smncúti
 hec-√č̣es-m-n-t-sut-mə
 Act-√bad-Der-Ctr-Tr-Refl-NonPerf
He was a troublemaker. (Carlson and Flett 1989)

Interestingly, nasal shift of word final /m/ does not extend to all words whose final member is /m/. Compare the forms in (15). Observe that while the /m/ of (15a) surfaces as [i], that of (15b) surfaces as [m].³⁹

- (15a) čyeʔcʔác̣xi
 čn hec-√ʔac̣x-mə
 1sgIntrS Act-√look at-Nonperf
I am watching. (Black 1995a)

- (15b) ʔác̣xm
 √ʔac̣x-m
 √look at-Mid
He looked. (Carlson and Flett 1989)

Carlson and Lin (1995) acknowledge that nasal shift is "not fully general" and that while some sequences of nasal and coronal fricative display shift, others "show nasal deletion, others fricative hardening, still others no effect" (p.1). The data indicate that such surface variations may, in fact, be determined by the structural position of a particular nasal/coronal-fricative sequence within the word. While nasal shift typically occurs within the Prefixal domain, within the Suffixal domain and across the boundary between the Root and Suffixal domains, it does

³⁹An explanation for this may lie in the fact that /m/ has only been incorporated into prosodic structure at the moraic level, while /mə/ has been incorporated into prosodic structure at the moraic and syllabic levels, perhaps forcing the vocalization of the [m] of /mə/ after unstressed vowel deletion. Nevertheless, this cannot account for the surfacing of /mə/ as [y] in (14a).

not take place within the Root domain or across the boundary between the Prefix and Root domains.⁴⁰ Furthermore, the data indicate that if a nasal/coronal-fricative sequence is lexically specified within the Root or results as the phonological reflex of a single morphological spelling operation, the sequence will remain unaffected by nasal shift, deletion or fricative hardening.

The forms in (16) are examples of deletion of a nasal consonant in a nasal-coronal fricative sequence across the Root-Suffixal boundary.

(16a) syéłtn
 √syen-ł-t-ən
 √count-Redir-Tr-1sgTrS
I counted something for him. (Carlson and Lin 1995)

(16b) syéštñ
 √syen-ši-t-ən
 √count-Sub-Tr-1sgTrS
I added the figures for someone. (Carlson and Flett 1989)

The forms in (17) illustrate nasal/coronal-fricative sequences in which no change is incurred. In each case, the relevant sequence occurs lexically specified within the Root; consequently, the conditions for rule application (shift, deletion or hardening) are not present, no rule applies and the sequence surfaces intact.

(17a) swéńš
 s-√wens
 Nom-√dance
wardance (Carlson and Flett 1989)

⁴⁰For a detailed discussion of the morphological and phonological structures of Spokane words, see Chapters 3 and 4, respectively.

- (17b) tinš
 √tinš
 muscle
muscle (Carlson and Flett 1989)

The forms in (18) serve to illustrate phonological changes to nasals in the prefixal domain. In (18a), the /n/ of the proclitic /čn/ vocalizes to [i] since it is adjacent to /s/ within the prefixal domain. In (18b), the /n/ of /hin/ deletes adjacent to /s/ within the prefixal domain.

- (18a) čismʔém
 čn s-√mʔem
 1sgIntrS Nom-√woman
I am a woman. (Carlson and Flett 1989)

- (18b) hismʔém
 hin-s-√mʔem
 1sgPoss-Nom-√woman
She is my woman. (Carlson 1972a)

Additional examples provided in (19) show that not all nasal/coronal-fricative sequences trigger a phonological change in the prefixal domain. The /ns/ sequence in (19a) surfaces presumably because it is the phonological reflex of a single morphological operation. The /ns/ sequence in (19b) surfaces because the relevant rules do not apply across a prefixal-Root boundary.

- (19a) nsnás
 nas+√nas
 Dist+√wet
It's all wet. (Carlson and Flett 1989)
- (19b) hinsince?
 hin-√since?
 1sgPoss-√younger brother (adult)
He is my younger brother. (Carlson and Flett 1992)

Another morphophonological process productive in Spokane frequently simplifies clusters of alveolars. Here termed cluster simplification, this process seems limited to two specific morphophonological strings: /ntən/ (which occurs in transitive verbs marked only for first singular subject); and /ntəs/ (which occurs in transitive verbs marked only for third singular/plural subject). Let us first consider the /ntən/ sequence which is illustrated in (20). In the event that primary stress is not assigned to the schwa-class vowel of such a sequence, this unstressed vowel is routinely deleted resulting in the consonant cluster /ntn/. This effectively creates a string of consonants which Spokane speakers frequently simplify, presumably by first deleting the /t/ (creating the cluster /nn/), and further simplify by retaining only a single [n] at the surface level.

(20a) nʔemtéw'sn
 n-√ʔemut=ew's-n-t-ən
 Loc-√sit=middle-Ctr-Tr-1sgTrS
I sat among them. (Carlson and Flett 1989)

(20b) síx^wn
 √síx^w-n-t-ən
 √pour-Ctr-Tr-1sgTrS
I poured it. (Carlson and Flett 1989)

Although speakers frequently simplify this specific type of cluster, they nevertheless do so inconsistently. Many transitive verbs marked only for first singular subject surface with [ntn] clearly articulated. In fact, individual speakers utilize dual pronunciations for numerous words and maintain that no meaning or function change is conveyed by the difference in pronunciation, suggesting that this process is still working its way through the language (Wang 1969, Labov 1981).

The forms in (21) serve as examples.

(21a) řišntn
 √řiš-n-t-ən
 √sweet-Ctr-Tr-1sgTrS
I sweetened it. (Black 1995a)

(21b) řišn
 √řiš-n-t-ən
 √sweet-Ctr-Tr-1sgTrS
I sweetened it. (Black 1995a)

With respect to /ntn/ sequences, cluster simplification seems limited to those alveolar clusters in which the medial /t/ of the sequence is the phonological reflex of a morphological spelling operation distinct from that of the /n/ which follows it. In the event that a sequence /tn/ is the phonological reflex of a single morphological spelling operation, then simplification does not apply. Consider, for example, the form in (22) in which the sequence /tn/ is the reflex of a single spelling operation. Notice that the cluster /ntn/ surfaces as [ntn].

(22) snq'í?míntn
 s-n-√q'əy'-min-tn
 Nom-Loc-√striped-Instr-Instr
post office (Black 1995a)

As mentioned above, cluster simplification applies to the morphophonological string /ntəs/ which appears on transitive verbs marked only for third singular/plural subject. In this case, however, the process seems to apply consistently for all such forms. Consider the examples in (23). Since primary stress has not been assigned to the schwa-class vowel of this sequence, this unstressed vowel has been deleted resulting in the consonant cluster /nts/. This

effectively creates a string of consonants which Spokane speakers routinely simplify presumably by first deleting the /t/ which creates an /ns/ sequence. Recall that this derived cluster is the conditioning environment for the application of nasal shift. The result is that the nasal surfaces as [i].

(23a) $tʰik^w is$
 $\sqrt{tʰik^w-n-t-\text{əs}}$
 $\sqrt{\text{pop-Ctr-Tr-3TrS}}$
She popped it. (Black 1995a)

(23b) $qícis$
 $\sqrt{qíc-n-t-\text{əs}}$
 $\sqrt{\text{roll-Ctr-Tr-3TrS}}$
He rolled it. (Black 1995a)

Interestingly, such cluster simplification does not apply to the sequence /ntsəəs/ which appears on transitive verbs marked for second singular object and third singular/plural subject, this despite the fact the /tsə/ sequence is derived by distinct morphological spelling operations. Consider the form in (24). As in the forms above, primary stress has not been assigned to a schwa-class vowel of such a sequence and these unstressed vowels are deleted producing the sequence /ntss/; nevertheless, deletion of the medial /t/ has not occurred. Instead, one of the /s/ phonemes has been deleted and the remaining sequence /ts/ has coalesced to form the affricate [c].

(24) $ničnc$
 $\sqrt{nič-n-t-sə-\text{əs}}$
 $\sqrt{\text{cut-Ctr-Tr-2sgTrO-3TrS}}$
He cut you. (Carlson 1972a)

2.3.3 Vowel assimilation: rounding, retraction and pharyngealization⁴¹

Vowel assimilation is quite common in Spokane. As mentioned in section 2.1.2 above, the phonetic quality of each vowel, particularly schwa, is colored by accompanying consonants. The spread of the labial node feature [+round] from a rounded consonant to an adjacent schwa was discussed in section 2.1.2.2. Recall that the facts pertaining to stressed schwa indicate that while rounding does not spread rightward within the Root to an adjacent schwa, it does spread leftward within the Root to an adjacent schwa and rightward beyond the Root to an adjacent schwa.

Among the most interesting of the Spokane vowel assimilation processes are those typically identified in the literature as vowel harmony, retraction and/or pharyngealization (Carlson 1972a, Mattina 1979c, Doak 1989, Bessell 1990, 1992, 1994, and Fitzgerald 1995). The data indicate that it is necessary to categorize such assimilation in Spokane into two distinct types, here termed retraction and pharyngealization. Motivation for such a distinction rests on the fact that while retraction triggers assimilation of the vowels /e/, /u/ and /ə/, pharyngealization triggers assimilation of /i/, /e/, /u/ and /ə/.⁴²

⁴¹The facts point to a local assimilation process in which schwa surfaces as [æ̃] or [æ] when preceded by a uvular or followed by /r/, or when it is adjacent to a laryngeal. Such facts may provide support for the claim of Rose (1996) that laryngeals possess primary specification for Pharyngeal node as daughter to Place, as well as for the claim of Doak (1989) that /r/ possesses specification for Pharyngeal node. I omit any discussion of this process here.

⁴²These processes can be viewed as applying to /o/ and /a/ redundantly.

Spokane displays two sub-types of retraction: long-distance and local.

Long-distance retraction is a regressive harmony process whereby the presence of a uvular consonant causes non-prefixal /e/, /u/ and /ə/ vowels which precede it to surface as [a] or [ɔ]. The data set does not include even one form comprising a Root vowel /e/ or /u/ followed by a Root uvular. Important to note is the fact the domain of long-distance retraction is limited as follows: such retraction is a regressive process which applies leftward within the Root or leftward from the Suffixal domain to the leftmost vowel within the Root domain. This process never applies rightward within or beyond the Root domain. Furthermore, the Prefixal domain is beyond the purview of long-distance retraction.

Presumably, this process targets those vowels underspecified for the Dorsal feature [high] (or perhaps the feature Advanced Tongue Root [ATR]) and spreads the Retracted Tongue Root [RTR] feature of the uvular consonant.⁴³ Consider the surface forms of the Root *c'er* in (25). Notice that the Root vowel in (25a) surfaces as /e/, while that of (25b) surfaces as /a/ due to the presence of the uvular consonant /ɣ/ to its right. Observe that the vowel in the Prefixal domain is unaffected by retraction.

⁴³Rounded uvular consonants will also spread the labial node feature [+round] to a schwa which immediately precedes within the Root or to a schwa which immediately follows beyond the Root. Recall that the spread of [+round] is a strictly local phenomenon.

(25a) hecn'e?rénci
 hec-n-√c'e(?)r=enč-mə⁴⁴
 Act-Loc-√ache(Inch)=stomach-Nonperf
He has dysentery. (Black 1995a)

(25b) hecc'a?ráxni
 hec-č-√c'e(?)r=axn-mə
 Act-Loc-√ache(Inch)=arm-Nonperf
His arm is aching. (Black 1995a)

Long-distance retraction also affects the surface values of vowels derived from consonants as the examples in (26) illustrate. Let us first consider the non-retracted vowel sounds which appear in (26a). This form contains the vowels /u/ and /e/ underlyingly. As primary stress is assigned to the first vowel /u/, the second vowel is lost as a result of unstressed vowel deletion. This leaves the /w/ positioned between two consonants, triggering its vocalization to [u?]. At the phonetic level two vowels surface: one derived from the underlying vowel /u/ and the other from the underlying consonant /w/. Having said that, compare the quality of the vowels in (26a) to the corresponding vowels in (26b). In (26b) both vowels surface as [ɔ] as a consequence of the long-distance retraction triggered by the /q/ of the lexical suffix =aqs.

(26a) n?úlu?sm
 n-√?ul=ew's-m
 Loc-√meet=middle-Mid
It's united. (Carlson and Flett 1989)

⁴⁴The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

- (26b) snʔoloʔsáqs
 s-n-√ʔul=ew's=aqs
 Nom-Loc-√meet=middle=road
place where two roads meet (Carlson and Flett 1989)

The data indicate that a process of local retraction is also active in the Spokane language. Local retraction is a regressive harmony process whereby a uvular consonant causes prefixal /e/, /u/ or /ə/ vowel which immediately precedes it to surface as [a] or [ɔ]. As with long-distance retraction then, this process targets a vowel underspecified for the Dorsal feature [high] (or perhaps [ATR]) and spreads the [RTR] feature of the uvular consonant. Surface vowels which derive from consonants are also subject to local retraction. This process differs from long-distance retraction in three ways: it is a strictly local phenomenon; it can occur across the boundary between Prefix and Root domains; and, its application is blocked by intervening consonants (except laryngeals). The forms in (27) serve as examples of local retraction.

- (27a) q'aʔq'eʔšín
 q'eʔ+√q'eʔ=šín⁴⁵
 Dist+√pinched=foot
shoes (Carlson and Flett 1989)
- (27b) q^woq^wáw
 q^waw+√q^waw
 Dist+√crazy
They are crazy. (Carlson and Flett 1989)

⁴⁵The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

Given the forms in (27), one might assume that the [RTR] feature spreads from a uvular consonant rightward to the adjacent vowel; however, the phonetics of proclitics indicate that local retraction must be analyzed as spreading leftward from a uvular consonant to the adjacent vowel. Compare the phonetic realizations of the proclitic /qʔ/ which appear in (28). Observe that the epenthetic schwa (inserted to meet the needs of the laryngeal) surfaces with the vowel [æ] in (28a) and [a] in (28b). In order to account for this difference, one can only assume that local retraction, like long-distance retraction, is regressive.

(28a) qeʔk^wntwéʔx^w
 qʔ k^wen-n-t-we(?)x^w
 1plIntrS √grab-Ctr-Tr-Recip(Pl)
We embraced each other. (Carlson and Flett 1989)

(28b) qaʔqsčcnwéx^wi
 qʔ qʔ-s-√cic-n-t-wex^w-mə
 1plIntrS Unr-Nom-√arrive-Ctr-Tr-Recip-Nonperf
We are going to meet. (Black 1995a)

The data indicate that the processes of local and long-distance retraction do not retract underlying /i/ or [i] derived from /y/ or /ʔ/ as illustrated by the forms in (29).

(29a) cíqn
 √cic-n-t-ən
 √dig-Ctr-Tr-1sgTrS
I dug it. (Carlson and Flett 1989)

(29b) čsíč^wqn
 č-√six^w=qin
 Loc-√pour=head
I poured it on his head. (Carlson and Flett 1989)

- (29c) hecq'iq'é?i
 hec-q'ey+√q'e(?)y
 Act-Dist+√live(Pl)
They were camped. (Black 1995a)

This fact distinguishes retraction from other morphophonological processes known as pharyngealization which do retract such phones. As with retraction, it is necessary to distinguish between two types of pharyngealization: progressive and regressive. Progressive pharyngealization is a harmony process whereby a floating (that is, one lacking a geometric Root node) Pharyngeal node specified for the feature [RTR] associated with the morphological Root spreads rightward to all surface vowels (typically, the vowel bearing primary stress as discussed in Doak 1989), causing non-prefixal /i/, /e/, /ə/, and /u/ vowels to surface as [a] or [ɔ]. The forms in (30) serve as examples. Although the presence of the floating pharyngeal is not indicated in the underlying representation, the effects of progressive pharyngealization are observable in the quality of the stressed vowel of each surface form.

In (30a) and (30b) the vowels /i/ and /e/, respectively, are lowered and backed to [a]. In (30c) the vowel /u/ is lowered to [ɔ]. In (30d) a schwa-class vowel has been lowered and backed to [a]. In (30e) epenthetic schwa has also been lowered and backed to [a].

- (30a) qssntwáľš
 qʃ-s-√sən-t-wilš
 Unr-Nom-√gentle-Stat-Dev
He will get gentle. (Carlson and Flett 1989)

- (30b) $\check{c}\acute{t}'nm\acute{a}n\check{c}mstn$
 $\check{c}\acute{t}'-\sqrt{c'}\acute{a}n-m=en\check{c}-m-s-t-\acute{a}n$
 Loc- \sqrt{tie} -Mid=stomach-TrDer-Caus-Tr-1sgTrS
I tied the cinch. (Carlson and Flett 1989)
- (30c) $snpt\acute{o}le\acute{x}^w$
 $s-n-\sqrt{p}\acute{a}t=ule\acute{x}^w$
 Nom-Loc- \sqrt{boil} =ground
noodles, macaroni, dumplings (Carlson and Flett 1989)
- (30d) $np'\acute{t}nt\acute{a}n$
 $n-\sqrt{p'}\acute{a}t-n-t-\acute{a}n$
 Loc- \sqrt{gavy} -like substance-Ctr-Tr-1sgTrS
I poured a gravy-like substance. (Carlson and Flett 1989)
- (30e) $\acute{t}c\acute{a}p$
 $\sqrt{\acute{t}a}c-p$
 \sqrt{drip} -Inch
It dripped. (Carlson and Flett 1989)

Unlike retraction, progressive pharyngealization forces the assimilation of /i/, indicating that this process can override the underlying Dorsal node specification [+high] or perhaps [ATR]). While the vowels of Root and Suffixal domains are subject to progressive pharyngealization, those of the Prefixal domain are not.

The data indicate that a process of regressive pharyngealization is also productive in the Spokane language. Regressive pharyngealization can be defined as a harmony process whereby all Root vowels /i/, /e/, /ə/, and /u/ followed by a Root pharyngeal consonant surface as [a] or [ɔ]. Support for this claim is provided by the fact that the data set does not include even one form comprising a Root vowel /i/, /e/, or /u/ followed by a Root pharyngeal.

Pharyngeal consonants also trigger a type of local assimilation which spreads rightward within or beyond the Root to an adjacent vowel. Unlike the

pharyngealization described above, however, this process does not affect all vowels. While it affects the surface quality of /e/, /u/, and /ə/, it does not affect the phoneme /i/. Support for this claim is provided by the fact that the data set does not include any forms comprising a Root /e/ or /u/ preceded by a pharyngeal consonant. Regarding Root schwa, the data set contains at least one weak Root in which an initial pharyngeal consonant triggers pharyngealization of the Root schwa which immediately follows it (provided in (31)).⁴⁶

- (31) ʔacntés
 √ʔac-n-t-əs
 √tie-Ctr-Tr-3TrS
He tied it. (Carlson and Flett 1989)

Conversely, the data set includes two Roots comprising a Root-initial pharyngeal consonant which is immediately followed by /i/ clearly articulated (provided in (32)). This suggests that this local process does not spread rightward within the Root to the full vowel /i/.

- (32a) hi ʔwɪt
 hi √ʔwɪt
 Part √one piece
It's one piece. (Carlson and Flett 1989)

⁴⁶The data set also contains another weak Root in which a final pharyngeal triggers pharyngealization of the schwa which immediately follows it beyond the Root.

lʔwóm
 √ləʔw-m
 √fit together-Mid
He put something together. (Carlson and Flett 1989)

- (32b) čʔʷimʼls
 č-√ʔʷimʼ-ls
 Loc-√seasoning-?
He got a seasoning...to go with his meal. (Carlson and Flett 1989)

The data set does not contain evidence to indicate whether or not this type of local assimilation can occur across the boundary between Prefixal and Root domains.

2.3.4 Reduplication and infixation

Spokane employs a number of morphological spelling operations which crucially rely on locating a substring of the morphophonological form for the purpose of affixation. Particularly notable are those characterized as reduplication (operations which result in the bound realization of reduplicated Root material) and infixation.

There are four types of reduplication productive⁴⁷ in the Spokane language: *Diminutive*, *Distributive*, *Out-of-Control* and *Repetitive*. *Diminutive reduplication* is a morphophonological process whereby the first mora of the Root is copied and prefixed directly to the Root⁴⁸ and is accompanied by

⁴⁷The meaning of the term ‘productive’ is difficult to ascertain even for robust languages; it is even more difficult when languages are in a serious state of decline as is the case for Spokane. Suffice it to say that for present purposes the notion of productivity can only be measured with respect to the number of forms present in the data set that reflect the fact that a particular morphological spelling operation has occurred.

⁴⁸Also, it must be acknowledged that the *Diminutive* reduplicant prefixes directly to the Root, unless it co-occurs with the *Distributive* reduplicant in which case the order is Dim-Dist-Root.

glottalization of all resonants to its right.⁴⁹ It is correlated with various interpretations including smallness in size, modesty, endearment, diminished degree of quality or activity, among others. The forms in (33) and (34) illustrate the effects of this morphological operation on the bare Roots *c'ur* and *pək^w*, respectively. In each case, the initial consonant of the Root appears prefixed to the Root.

(33a) *hecč'úr* *It's salty.* (*Carlson and Flett 1989*)

(33b) *c'č'úr* *A little thing is salty.* (*Carlson and Flett 1989*)

(34a) *hecč'úk^w* *It's piled up.* (*Carlson and Flett 1989*)

(34b) *ppúk^w* *It's a little pile.* (*Carlson and Flett 1989*)

Distributive reduplication is a morphophonological process whereby the first two moras of the Root are copied and prefixed directly to the Root.⁵⁰

⁴⁹*Diminutive* reduplication is characterized a bit differently in previous (morpheme-based) studies. Carlson (1972a) initially analyzed the *Diminutive* as a C₁ infix due to certain phonological characteristics associated with what I term the reanalyzed facts; in subsequent work, it has been identified as a prefix. Bates and Carlson (1992a) identify the *Diminutive* reduplicant as a bimoraic syllable template whose initial mora is empty and whose second mora is occupied by the feature [+constricted glottis]. In addition, that study also presumes that the *Diminutive* takes as its base for copying and prefixation a strictly prosodic constituent due to certain phonological characteristics which are again associated with what I term the reanalyzed facts. For a discussion of the reanalyzed facts, see Chapter 5.

⁵⁰In earlier (morpheme-based) accounts, *Distributive* reduplication has been represented as a CVC copy of the Root which prefixes directly to the Root. Subsequent accounts use prosodic descriptions for the morpheme as in Bates and Carlson (1992a) which represents the *Distributive* as a phonologically empty bimoraic syllable which fills out its melodic content as C₁C₂ or C₁VC₂ depending on the shape of the Root.

Distributive is correlated with a range of interpretations, including distributed plural, distributed action, and intensified experience or activity, among others.

The forms in (35) and (36) serve as examples.

(35) *c'rc'úr* *They are salty.* (*Carlson and Flett 1989*)

(36) *hec'p'k'w'púk'w'* *They're piled.* (*Carlson and Flett 1989*)

Out-of-Control reduplication is morphophonological process which signals noncontrol⁵¹ and is correlated with a range of interpretations. These include, but may not be limited to, the interpretation of a predicate as: an accidental, spontaneous, or natural occurrence; emphatic noncontrol on the part of a participant; an occurrence which results from the actions of others (as opposed to the speaker); and, success in accomplishing something after much time or effort (Carlson and Thompson 1982).

As with the other types of reduplication, *Out-of-Control* reduplication

⁵¹Thompson (1979a) identifies the *control system* as central in the grammars of Salishan languages, and Spokane does not prove to be an exception to this generalization. The notion of control refers to an agent's ability to determine the direction or outcome of an event. The control status of a word may be morphophonologically marked or unmarked. Spokane, like other Salishan languages, employs numerous markings which correspond to lack of control, including *Out-of-Control* reduplication. Carlson and Thompson (1982) remark that *Out-of-control* reduplication serves to signal *emphatic noncontrol*; that is, an activity, state or process takes place spontaneously and is not controlled by an agent.

copies Root material and affixes that material to the Root.⁵² This type of reduplication has two allomorphs depending on the prosodic shape of the Root, one monomoraic and the other bimoraic. In CVC(C) Roots, the second mora is targeted for copying and for suffixation of that copy. In Roots of the shape CVCVC, CCVC, CVCVCVC, among others, the C_2VC_3 is targeted for copying, and, like its monomoraic allomorph, the second mora of the Root is targeted for suffixation of that copy. In either case, the reduplicant suffixes to a bimoraic Foot or Minimal Word.

The forms in (37)-(39) serve as examples of the monomoraic allomorph suffixing to the bare Roots laq' , $məq^w$, and $?ac'x$. In each case the *Out-of-Control* reduplicant surfaces as a copy of the C_2 of the Root which is suffixed to the second mora of the Root.

(37a) $hecláq'$ *It's buried.* (Carlson and Thompson 1982)

(37b) $láq'q'$ *It got buried.* (Carlson and Thompson 1982)

(38a) $hecmóq^w$ *It's a mound, a hill.* (Carlson and Thompson 1982)

(38b) $mq^wóq^w$ ⁵³ *Something came up.* (Carlson and Thompson 1982)

⁵²In earlier (morpheme-based) accounts, *Out-of-Control* reduplication has been traditionally described as a VC_2 copy of the Root which suffixes directly to the Root (Carlson 1989, Carlson and Flett 1989, Bates and Carlson 1989, Carlson and Bates 1990). Subsequent analyses argue that this reduplicant is a phonologically empty CVC syllable whose affixation triggers the copying of the melodic content of the rightmost syllable (Bates 1990) or the Prosodic Foot (Bates and Carlson 1992a) which is subsequently attached to a circumscribed syllable of the base.

⁵³Regarding (38b), the vowel which precedes the *Out-of-Control* reduplicant is epenthetic. This is a typical surface occurrence with respect to Roots containing only schwa. For details, see Chapter 4.

- (39a) ʔácʰ *He looked.* (Carlson and Thompson 1982)
 (39b) ʔácʰcʰ *He watched or observed.* (Carlson and Thompson 1982)

The forms in (40)-(41) serve as examples of the bimoraic syllable allomorph of *Out-of-Control* reduplication suffixing to the Roots ʕənəpʰ and ptaxʷ. In each case the reduplicant surfaces as a copy of the C₂VC₃ of the Root which is suffixed to the second mora of that Root. Notice that the form in (40) lacks suffixal material to the right of the Root, while that in (41) possesses suffixal material to the right of the Root.

- (40a) ʕínpʰ *It's banded.* (Black 1995a)
 (40b) ʕnnípʰ *It suddenly got banded.* (Carlson and Bates 1990)
- (41a) ptaxʷntxʷ *You spit it out.* (Black 1995a)
 (41b) pttaxʷxʷntxʷ *You accidentally spit it out.* (Black 1995a)

Repetitive reduplication is morphophonological process which displays characteristics of both reduplication and infixation. As suggested by its label, *Repetitive* expresses the repetition of an action or state (and may have other interpretations). It has two surface allomorphs: an infix /e/ and /e/ preceded by a copy of the first Root consonant. Both allomorphs occur with accompanying glottalization of all resonants to the right of the affix (Bates and Carlson 1989, 1992a, 1992b). It is infixal following an initial unsyllabified Root consonant. In the event that such an environment does not exist, this operation positions /e/

before the initial Root consonant⁵⁴ and the initial Root consonant is then reduplicated as onset to the /e/. Bates and Carlson (1992b:654) remark that the variability of this environment is a consequence of the fact that realization of the *Repetitive* "happens late in the derivation of Spokane words, after stress [assignment] and a regular rule of unstressed vowel deletion."

The surface effects of this morphological spelling operation are illustrated in the forms (42), each of which contains the Root šəl. Example (42a) is a form which lacks *Repetitive*, while (42b) displays *Repetitive*. Notice that the *Repetitive* has been infixes between the C₁ and C₂, the requisite environment for infixing having resulted from unstressed vowel deletion. The form in (42c) shows the surface realization of *Repetitive* when the initial Root consonant is not available.

- | | | | |
|-------|-----------|---|--------------------------|
| (42a) | šlntéxʷ | <i>You chopped it.</i> | (Bates and Carlson 1989) |
| (42b) | šeɫn'tén' | <i>I chopped it up repeatedly.</i> | (Bates and Carlson 1989) |
| (42c) | šešíl | <i>Something is chopped repeatedly.</i> | (Bates and Carlson 1989) |

Important to note is the fact that these four types of reduplication may co-occur. Although co-occurrence of the four types of reduplication in a single word is rare, the data set does contain a few forms which do display all four. The form in (43) serves as an example.

⁵⁴Despite the fact that in such cases the *Repetitive* is positioned before the initial consonant of the Root, it is, nevertheless, infixes within the constituent identified in Chapter 3 as the Morphological Root. Support for this claim is provided in Chapter 4 sections 4.1.4 and 4.2.2.

- (43) ʔʔʔeʔiʔ *He keeps having little (uncontrolled) seizures (as in epilepsy).* *(Carlson 1989)*

In addition to reduplication, Spokane relies on two types of infixation: one labeled /ʔ/ *Plural* and the other labeled /ʔ/ *Inchoative*. Although both infixal operations are characterized by the same phonological form (the phoneme /ʔ/), they, nevertheless, target distinct morphophonological entities regarding the infixation site.

The /ʔ/ *Plural* marker expresses the notion that a group acts together (e.g., ‘they work as a group’), possesses someone or something in common (e.g., ‘their grandmother’), is affected by the action(s) of another (e.g., ‘he pushed them’), or amounts to a particular quality or state of being (e.g., ‘they are heavy’). The /ʔ/ *Plural* marker is positioned directly after the stressed vowel; the fact that stress assignment must already have occurred in order for /ʔ/ to be positioned properly indicates that this marker is realized quite late in the derivation. An example of /ʔ/ *Plural* infixation is provided in (44). While the form in (44a) lacks the *Plural* marker and is, therefore, ambiguous with respect to the number of the subject, that in (44b) is overtly marked for plural subject with /ʔ/.⁵⁵

- (44a) cuʔntés *He/she/they hit him.* *(Black 1995a)*

- (44b) cuʔntéʔs *They hit him.* *(Carlson and Flett 1989)*

The other infix, the /ʔ/ *Inchoative* marker, is correlated with the notion of

⁵⁵The /ʔ/ *Plural* marker may also be interpreted as indicating a plural object.

noncontrol and indicates the occurrence of an action or state without the aid of an agent. This true infix always appears in the position directly before the Root vowel regardless of the status of that Root vowel as full or schwa.⁵⁶ That the *Inchoative* locates the infixation site only with respect to the Root vowel is the case regardless of the complexity of the word.⁵⁷ The positioning of the /ʔ/ *Inchoative* relative to the Root vowel indicates that it is realized quite early in the derivation, prior to unstressed vowel deletion. The forms in (45) and (46) serve as examples.

(45) čʔíp' *It became pinched.* (Black 1995a)

(46) čʔén' *It became tender to touch.* (Carlson 1993a)

This concludes the discussion of Spokane morphophonology and completes the overview of Spokane phonology. We now turn to the issue of word-internal morphological structure and the composite nature of Spokane lexemes.

⁵⁶/ʔ/ *Inchoative* most often occurs with strong Roots, while /p/ *Inchoative* most often occurs with weak Roots. Although weak Roots with /ʔ/ *Inchoative* are not common, the data set does include a small number of them.

⁵⁷Lacking appropriate examples, I am uncertain of the position of the /ʔ/ *Inchoative* marker in Roots with multiple underlying vowels.

Chapter 3

The Morphological Structures of Spokane Lexemes

3.0 Introduction

In order to reveal the complexity of the issue of morphological structure, it is necessary to examine three different sets of data: non-compound forms, compound forms and structurally reanalyzed forms. These data provide evidence that the phonological representations of non-compounds possess (at least potentially) complex morphological structure which includes the notions *Root* and *Stem*, while those of compounds possess additional specifications for structure based on the fact that each comprises two distinct Stems. Conversely, the structurally reanalyzed forms provide evidence that historically complex morphological structure has been reduced to simplex form. The morphological structures of the phonological representations of non-compounds and compounds are examined in this chapter. A discussion of the facts of reanalysis is delayed until Chapter 5.

The data indicate that certain morphological spelling operations necessarily refer to a specific sub-string of the phonological representation which cannot be isolated phonologically. Consequently, the facts point to two basic categories regarding the morphological structure of phonological representations: non-compound and compound. It will be demonstrated that the phonological representation of the non-compound maximally possesses an adjoined structure

which specifies the Root as the morphological Head¹ of that structure as represented in (1), while the phonological representation of the compound maximally possesses an adjoined structure with two structurally distinct Stems as represented in (2). As illustrated by the compound representations, Spokane utilizes two types of compound: Free Stem and Bound Stem compounds. The phonological representation of the Free Stem compound comprises two Free Stems adjoined within a Morphological Stem and lacks a morphological Head. The phonological representation of the Bound Stem compound comprises a Free Stem and a Bound Stem (typically labeled lexical suffix) also adjoined within a Morphological Stem and specifies Stem₁ as the morphological Head.

(1) [_{MS} Prefixes [_H Root]_H Suffixes]_{MS}

(2a) [_{MS} Prefixes [Free Stem]₁ [Free Stem]₂ Suffixes]_{MS}

(2b) [_{MS} Prefixes [_HFree Stem]_{H1} [Bound Stem]₂ Suffixes]_{MS}

In section 3.1, I provide a brief orientation to lexeme-based morphology within which the Spokane facts are interpreted. In sections 3.2 and 3.3, I provide evidence to support the claim that the phonological representations of Spokane lexemes, non-compounds and compounds alike, are composites as conceived of in Anderson (1992). Section 3.4 provides a summary of the composite nature of Spokane lexemes.

¹The term *Head* refers to a morphophonological constituent which is targeted by morphological spelling operations. It does not refer to a constituent which is presumed in many theories to determine the syntactic category of a derivationally complex word.

3.1 Morphology within a lexeme-based framework

Spokane is generally categorized as a polysynthetic language; as such, it is not uncommon to find single words functioning as full sentences. Typically, descriptive and theoretical analyses of the Spokane word, as in Salishan generally, have been presented within a morpheme-based framework; that is, one in which the fundamental unit of morphological analysis is understood to be the *morpheme*. In such a framework, free as well as bound morphemes are generally perceived as *signs* and, as such, have status as lexical items with directly related associations of form and meaning. The structure of Spokane words, then, is presumed to break down into constituent lexical and grammatical morphemes, the standard assumption being that a word can be decomposed into morphemes and composed by concatenation of those morphemes.

Bloomfield (1933) provides the early structuralist position which defines the morpheme as a "linguistic form which bears no partial phonetic-semantic resemblance to any other form" (p.161) and identifies the task of morphological analysis as the segmentation of a phonological string into such lexical units.

Bloomfield claims that:

Since every complex form is made up entirely of morphemes, a complete list of morphemes would account for all the phonetic forms of a language. The total stock of morphemes in a language is its *lexicon*. (p.162)

This view of the morpheme as the basic unit of morphological analysis has served as an essential assumption in American structuralism and remains central to much of the theoretical and descriptive work on morphology.

The discipline of phonology has also demonstrated a particularly strong reliance on the morpheme as the fundamental linguistic object. In phonological analyses, morpheme boundaries serve as the source of non-phonological, word-internal structure which often seems required in order to define the phonological groupings that constitute domains for the phonology. Recall the complicated rules of juncture stipulated in *Sound Pattern of English* by Chomsky and Halle (1968) to account for the phonological processes associated with the presence of boundary elements. Even the more constrained phonological theories which followed demonstrate a reliance on the morpheme: the levels central to Lexical Phonology (Kiparsky 1982a, 1982b) that correspond to the application of cyclic phonological rules; or, the cyclic morphemes posited by Melvold (1987) for Russian and Czaykowska-Higgins (1990, 1993b) for Moses-Columbia to account for the placement of stress. These are but a few indications of how valued the morpheme is within phonological theory and how important it seems to get a look inside a word.

Despite the significance of the morpheme in linguistics generally, morpheme-based morphological theory encounters numerous difficulties, as detailed in Anderson (1992), Aronoff (1976), Beard (1995), among others, which center on "the facts of morphological asymmetry ... that one affix may express zero to several grammatical functions and any one function may be expressed by zero to several affixes" (Beard 1995:43). Given such difficulties, I reject the view that the morpheme is the fundamental unit of morphological analysis and adopt the

assumptions of the *Separation Hypothesis* (as developed by Beard 1981, 1987, 1995), which contends that there is "no direct connection between the side of morphology that deals with sounds and the sides that deal with syntax and semantics" (Aronoff 1994:8). That is to say, morphophonological Stem modification is viewed as independent of morpholexical and morphosyntactic category manipulation. Since this hypothesis is more in line with lexeme-based theories than with morpheme-based theories, I choose to view the facts of Spokane from the general perspective of the Lexeme-Morpheme Base Morphology (LMBM) of Beard (1987, 1993, 1995). In addition, I incorporate some of the important observations provided in the lexeme-based studies of Anderson (1982, 1992) and Aronoff (1976, 1994).

In contrast to morpheme-based morphology, LMBM views the basic lexical elements of language as *lexemes*. Lexemes are narrowly defined as open-class signs; that is, lexemes are potential or actual "major class lexical items (nouns, verbs, adjectives) [which] consist of nonnull, mutually implied (directly articulated) phonological, grammatical, and semantic representations" (Beard 1995:15). Lexemes entail a direct mapping of sound and cognitive meaning. As such, lexemes are the only items stored in the lexicon. In LMBM, then, the domain of the sign relation is the lexeme, rather than the morpheme.

In addition to lexemes, LMBM recognizes grammatical morphemes as the basic non-lexical elements of language. Following Beard (1995), grammatical morphemes are those closed-class markers (free morphemes, clitics, and bound

affixes) which are defined "in terms of an indirect, context-sensitive, often paradigmatic means of reference" (conditioned and indirectly articulated) (Beard 1995:45). Grammatical morphemes entail an indirect mapping of sound and grammatical function; their realization is triggered by morpholexical and morphosyntactic features present in the grammatical representations of lexemes. Grammatical morphemes, then, "express only the closed classes of grammatical categories and never those of general cognition" (Beard 1995:379). Free morphemes are independent items which mark inflectional grammatical categories and require syntactic positions (e.g., articles, adpositions, and pronouns). Clitics are phrasal affixes which also mark inflectional grammatical categories.² As such, they are understood to function as morphological spelling operations which modify the phonological (*p*-) representations of lexemes at the level of phrasal category in accordance with the General Theory of Affixation (as proposed in Anderson 1992 and adapted by Beard 1995). Bound affixes may mark lexical as well as inflectional grammatical categories. They are morphological spelling operations which modify the *p*-representations of lexemes at the level of lexical category. The spelling operations associated with grammatical morphemes are purely morphophonological operations and in no way determine the grammatical (*g*-) or semantic (*r*-) representations of lexemes. All three types of grammatical morphemes (free morphemes, clitics and bound affixes) are realized by an

²Beard (1995) preserves Zwicky's distinction between Clitics (Anderson's 1992 *special clitics*) and Contractions (Anderson's 1992 *simple clitics*).

independent Morphological Spelling (MS-) component.

Although changes in the grammatical representation of a lexeme are usually (but not necessarily) correlated with a modification of the phonological form of the lexeme (addition, deletion, substitution, reordering, etc.), such a correlation does not signify that lexical and inflectional operations are synonymous with morphological spelling. LMBM views lexical and inflectional operations as separate from the morphological means of marking the grammatical features provided by those operations³; that is, the changes specified by the morpholexical operations which occur in the lexicon and the morphosyntactic operations which occur in the syntax are distinct from any morphophonological changes. If a morphophonological change is triggered, it is realized by a morphological spelling operation of the MS-component which stipulates a particular Stem (p-representation) of a lexeme and a phonological modification of that Stem; simply put, morphological spelling operations map whole Stems to whole Stems.

Following Beard (1995) and in accordance with the Separation Hypothesis, then, I assume that lexical and inflectional operations which serve to determine the grammatical representations of lexemes occur prior to and in components distinct from that of morphological spelling. Lexical (L-) derivation occurs in the lexicon to relate one lexeme to another and "accounts for the grammatical

³While Aronoff (1994) and Beard (1981, 1987, 1993, 1995) explicitly take the view that lexical and inflectional operations are distinct from morphological spelling, Anderson (1992) does not seem to share this view, at least with respect to lexical derivation. Anderson's use of the term Word Formation Rule suggests that derivation is synonymous with morphophonological marking (Anderson 1992:184).

relations of word formation" (Beard 1995:97). Such L-derivational operations refer to, or operate on, a *base* which is a complete lexeme (having syntax, semantics, and sound) or a syntactico-semantically defined set of lexemes (Aronoff 1994:40). Inflectional (I-) derivation is carried out in the syntax on the output of the lexicon to provide the lexeme with the relevant morphosyntactic features (e.g., case, person, number, gender, aspect); this type of derivation "accounts for the grammatical relations of inflection" (Beard 1995:97). After lexical and syntactic rules have applied but before the application of phonological rules, the spelling mechanism of the MS-component then operates on the output of these L- and I-derivations (*Integrated Spelling Hypothesis*), spells out "the phonological modifications of the Stem which express the various categories of *g* in any given lexical representation, *l*, or copies free grammatical morphemes into appropriate structural positions provided by syntax" (Beard 1995:48). As suggested by Beard, the MS-component may actually be a sub-component of the phonology proper.

Although L- and I-derivational operations alter the basic *g*-representation of a lexeme in distinct components of the grammar, the grammatical features provided by such operations are presumed to "merge into one complex feature inventory so far as the MS-component is concerned" (Beard 1995:53). While the spelling mechanism accesses the *p*-, *g*-, and *r*-representations of lexemes (as well as the representations of syntactic projections), it only operates on the *p*-representation. Beard explains that

When the spelling operations begin to apply, the first operation can only modify the phonological base... for that is the only phonological representation available. The MS-operations, therefore, have no alternative... but to begin at the confluence of *g*, *p*, and *r* features. It then builds outward from the base, responding to each feature or set of features that serve as conditions on operations. Operating from the base outward, the mechanism will arrive at the inflectional features of the terminal node last, after all lexical features have been expressed. (Beard 1995:53-54)

The possibility of an ordered set of features and the linear realization of bound affixes is presumed to be a universal parameter which is set by individual languages (Anderson 1992). The actual linear placement of bound affixes is accomplished via the specifications for phonological changes encoded in the morphological spelling operations. These spelling operations identify a position in the input Stem where a specific change is to be realized. Anderson (1992:210) defines the parameters for the placement of affixes as follows:

- a. The affix is located in the scope of some constituent which constitutes its domain. This may be either a morphological constituent (the word-structural head vs. the entire word) or a prosodic one (prosodic word).
- b. The affix is located by reference to the {first vs. last vs. main stressed} element of a given type within the constituent in which it appears.
- c. The affix {precedes vs. follows} the reference point.

The Spokane data provide ample evidence that both the word-structural Head as well as the entire word (below termed Stem) are relevant to Spokane's morphological spelling operations. In addition, it will be seen in Chapter 4 that

certain spelling operations rely on particular phonological features, pinpointing, for example, the vowel that bears primary stress or the vowel of the Head constituent. Finally, all such operations specify whether the affix precedes or follows the relevant reference point.

Typically, bound morphemes are identified as morphophonological reflexes of L- or I-derivational features. As nothing in this analysis relies on the correlation of a morpheme with L- or I-derivation, I see no need to provide and justify classifications for bound morphemes which may be subject to revision at a later date. Nevertheless, when such labels are used herein, I have informally utilized the criteria specified in Anderson (1992) as a guide to aid in distinguishing between the two.⁴ Expanding on the work of Wasow (1977), Anderson lays out six criteria which distinguish lexical processes from syntactic processes: structure preservation, syncategorematicity, locality, reference to grammatical vs. thematic relations, relative order, and exceptionality. Furthermore, he specifically categorizes the properties of inflection as configurational, agreement, phrasal, and inherent.

Beard (1995:68-69) reminds us that despite the fact that LMBM includes a spelling mechanism which "is capable of processing each step of a complex derivation," it does not mean that this mechanism necessarily does so each time

⁴Beard (1995) provides three diagnostics for discriminating bound morphemes which mark lexical categories from those which mark inflectional categories: the Free Analog and Peripheral Affixation tests as well as the Arbitrariness Criterion. I am at present unable to take advantage of these diagnostics.

such a form is utilized. Citing a speaker's dependency upon large amounts of permanent, long term memory, Beard asserts that it is probable that a complex form is only "partially assembled" by lexical, inflectional and spelling operations each time the form is spoken or encountered. He concludes, then, that "Specifically realized tokens of this model may receive partially assembled stems directly from the lexicon."

As the aim of this chapter is to identify the structures of Spokane lexemes that constitute domains for the morphological spelling operations, the analysis provided herein is limited to the side of Spokane morphology that deals only with the p-representations of lexemes; that is to say, the lexical operations of the lexicon and the inflectional operations of syntax will not be examined here. I leave the study of these sides of Spokane morphology to future research.⁵ Furthermore, this study will not concern itself with the complete specifications of the morphological spelling operations (for example, which (set of) features trigger(s) which phonological changes), but will focus simply on the structural characteristics of the p-representation to which a particular morphological spelling operation refers and whether the affix precedes or follows that reference point. Finally, I must alert the reader to the fact that the structure of the p-representation is not presumed to map to a corresponding structure in the g-representation or the r-representation of the lexeme.

⁵N. Mattina (1996) provides an analysis of Colville-Okanagan (a Salishan language of the Southern-Interior closely related to Spokane) which attends to the operations of L- and I- derivation.

3.2 The morphological structure of non-compound lexemes

Having stated the general assumptions of LMBM, I will now establish the composite nature of non-compound lexemes by identifying the morphological constituents which are essential to Spokane morphology and which represent a constrained morphological structure within the p-representation of the Spokane lexeme.

Evidence from morphology provides support for an analysis of the p-representation of a non-compound lexeme which includes a flat constituent structure in which affixes are adjoined to the Root as Head constituent as represented in (3). If a particular form lacks prefixes and/or suffixes, then the relevant morphological domain edges necessarily coincide.

(3) $[_{MS} \text{ Prefixes } [_{H} \text{ Root }]_{H} \text{ Suffixes }]_{MS}$

I follow Aronoff (1994) in defining the notions Root and Stem as morphophonological entities which designate the p-representations of lexemes and further distinguish the two by defining Root with respect to a lexeme and Stem with respect to a morphological spelling operation. Aronoff (1994) explains:

One might say that *root* thus abstracts away from all morphology. The most important thing about roots, in the sense for which I wish to reserve them, is that they be morphologically unanalyzable. A root is what is left when all morphological structure has been wrung out of a form. (p.40)

The Root and the Stem are both p-representations, but one, the Stem, is the morphophonological reflex of L- and I-derivation and the other, the Root, is not. The Root is an unadorned Stem and as basic as the p-representation of a lexeme

can get. Important to note is the fact that the Stem is the domain of both lexical and inflectional morphemes; that is to say, lexical and inflectional morphemes do not occupy distinct structural domains.

3.2.1 The Morphological Root domain in Spokane

Anderson (1992) cautions that the motivation for positing non-phonological, internal structure cannot be "the mere fact that some Word Formation Rule has applied in creating the word, but rather the fact that the structure in question is referred to by a rule of the morphology..." (p.298).⁶ The question then becomes: Is the Root a legitimate constituent within the p-representation of a Spokane lexeme? And the answer seems to be yes. Salishanists have long recognized the significance of the Morphological Root for Salishan languages and have gathered substantial evidence to illustrate this point.

Although the p-representation of a Spokane lexeme obligatorily comprises a Root member which is purported to be optionally accompanied by affixes,⁷ this fact is not enough to justify its status as a constituent; however, there exists considerable documentation which provides support for its inclusion within the morphological structure. The Root is a salient morphological constituent in Spokane, as is demonstrated by the fact that numerous morphological spelling

⁶Given my assumption that L- and I-derivation are separate from morphological spelling, I interpret Anderson's remark as one which refers to morphological spelling.

⁷Although there are examples of Roots surfacing without affixation, most Spokane words comprise a Root with accompanying affixation.

operations make reference to it. These include, but are not limited to, four types of reduplication, morphological spelling operations which result in the bound realization of reduplicated Root material. As will be seen directly, reduplication crucially depends on locating the Morphological Root for copying and affixational purposes. First we will consider evidence which establishes the existence of the left edge of the Root, and then that of the right edge.

3.2.1.1 Evidence for the left edge of the Morphological Root

As discussed in Chapter 2, *Diminutive* reduplication is a productive morphological spelling operation whereby the first mora of the Morphological Root is copied and prefixed to the Root and is accompanied by glottalization of all resonants to its right. It is correlated with various interpretations including smallness in size, modesty, endearment, diminished degree of quality or activity, among others. The forms in (4b) and (5b) illustrate the effects of this operation on the bare Roots *saq'* and *x^waw*, respectively. In each case, the initial consonant of the Root appears prefixed to the left edge of the Root.

- (4a) *hec saq'* *It's cracked. It's a gully.* (Carlson and Flett 1989)
 (4b) *hec ssáq'* *It's a little bit cracked. It's a small gully.* (Black 1995a)
- (5a) *hi x^wáw* *He's peppy.* (Carlson and Flett 1989)
 (5b) *hi x^wx^wáw'* *Small one is peppy.* (Black 1995a)

Unfortunately, these Roots cannot serve as reliable indicators that the phonological identity of the *Diminutive* depends on locating the Morphological

Root and subsequently copying and affixing that copy to the left edge of that Root. This is due to the fact that these examples lack prefixal material; that is to say, given these forms, this morphological spelling operation may be attending to the left edge of the entire Stem or perhaps to a purely phonological constituent. The examples which follow do, however, provide evidence which confirms that the structure referred to by *Diminutive* reduplication is the Root constituent.

Consider the words in (6) and (7); in each case the Root begins with a CC cluster. Observe that for the reduplicated forms in (6b) and (7b), the *Diminutive* surfaces as a copy of the initial consonant of the Root CC cluster; that is, the morphological spelling operation identifies the left edge of the Root as the initial consonant of the cluster.

- | | | | |
|------|-----------------------|--------------------------------|---------------------------|
| (6a) | ptáx ^w m | <i>He spit.</i> | (Carlson and Flett 1989) |
| (6b) | pptáx ^w m' | <i>spit, diminutive</i> | (Bates and Carlson 1992a) |
| (7a) | tyěš | <i>She crawled.</i> | (Black 1995a) |
| (7b) | tty'ěš | <i>creep/crawl, diminutive</i> | (Bates and Carlson 1992a) |

Now consider the forms in (8) and (9). Notice that, despite the fact that these words begin with a CC cluster, it is the second consonant of the cluster which has been copied and affixed. This indicates that the spelling operation identifies the left edge of the Root as the second consonant of that cluster; the initial consonant is, therefore, analyzed as prefixal material. As the phonological shapes of the

words in (8)-(9) are comparable to those in (6)-(7),⁸ the different locations for reduplication cannot have been determined on purely phonological grounds.

These facts indicate that *Diminutive* reduplication clearly relies on the presence of morphological structure, and they provide evidence for the existence of the left edge of that structure, specifically that of the Morphological Root.

- | | | | |
|------|--------------------------|-------------------------------------|--------------------------|
| (8a) | spúm | <i>pubic hair</i> | (Carlson and Flett 1989) |
| (8b) | sppúm | <i>a little pubic hair</i> | (Black 1995a) |
| (9a) | ct'e?k ^w šitn | <i>I brought it ashore for you.</i> | (Black 1995a) |
| (9b) | ct'ʔ'ék ^w | <i>A small thing came ashore.</i> | (Black 1995a) |

Next we consider additional evidence to illustrate that certain morphological spelling operations are attentive to the left edge of the Root constituent. As discussed in Chapter 2, the data indicate that *Distributive* reduplication is also a productive morphological spelling operation whereby the first two moras of the Morphological Root are copied and prefixed directly to the Root. *Distributive* reduplication is correlated with a range of interpretations which includes distributed plural, distributed action, and intensified experience or activity, among others. The words in (10)-(11) illustrate the phonological changes associated with this type of reduplication.

⁸Unfortunately, the data set does not include even one non-compound with an obstruent-glide cluster where the obstruent is a prefix; consequently, I cannot provide a form which exactly parallels that in (7).

with concomitant reduplication of the initial Root consonant (with accompanying glottalization).⁹ Recall from the discussion of *Repetitive* in Chapter 2 that the variability of this environment is a consequence of the fact that realization of the *Repetitive* "happens late in the derivation of Spokane words, after stress assignment and a regular rule of unstressed vowel deletion" (Bates and Carlson 1992b:654).

The surface effects of this operation are illustrated below. Example (18a) is a form which lacks *Repetitive*, while (18b) is the same form with *Repetitive*. Notice that the the *Repetitive* has been infix between the C_1 and C_2 , the requisite environment for infixing having resulted from unstressed vowel deletion.

- (18a) šłntéxʷ *You chopped it.* (Bates and Carlson 1989)
 (18b) šełn'tén' *I chopped it up repeatedly.* (Bates and Carlson 1989)

To illustrate how essential it is for the spelling operation to locate the consonant at the left edge of the Root, it is important to include examples which display a consonant cluster at that edge. Consider the forms in (19). The form in (19a) shows the Root šəl augmented by *Diminutive* reduplication, as is evidenced by the fact that a copy of C_1 of the Root appears prefixed to the Root (with accompanying glottalization). The form in (19b) shows the same Root augmented by *Repetitive* reduplication; in this case, lacking an unsyllabified Root consonant,

⁹Evidence from phonology indicates that this morpheme is always positioned as an infix before or after the first consonant of the Morphological Root. For details, see Chapter 4 sections 4.1.4 and 4.2.2.

the spelling operation positions /e/ before the first consonant of the Root (with accompanying glottalization) and reduplicates the initial consonant of that Root. Importantly, when *Diminutive* and *Repetitive* co-occur as in (19c), the environment created by the Diminutive (a lone consonant after unstressed vowel deletion has applied) is not viewed as the optimal infixation site for the *Repetitive* since it does not correspond to the left edge of the Root.¹⁰ Consequently, the spelling operation positions /e/ before the first consonant of the Root; the operation, then, reduplicates the initial consonant of that Root to fill the onset of the syllable headed by /e/ and most likely to maintain the prosodic shape of the Root as one which is consonant-initial. The form then surfaces with two copies of the Root-initial consonant followed by /e/ and the Root itself.

- | | | |
|-------|--------|--|
| (19a) | ššīf | <i>A small thing is chopped.</i> (Bates and Carlson 1992a) |
| (19b) | šešīf | <i>Something is chopped repeatedly.</i> (Bates and Carlson 1989) |
| (19c) | ššešīf | <i>One small object is chopped repeatedly.</i> (Carlson 1989) |

In order to ensure that this morphological spelling operation is attending to the Morphological Root and not some other morphological or phonological entity, we must consider additional forms which comprise initial consonant clusters. The examples in (20) are such forms; the underlying Root introduces each example and the /e/ of Repetitive appears underlined in each surface form. In examples

¹⁰That *Diminutive* is realized before *Repetitive* must be the case since the morphological spelling operation responsible for *Diminutive* applies prior to unstressed vowel deletion, while the morphological spelling operation responsible for *Repetitive* applies after unstressed vowel deletion.

(20b) and (20c), the Repetitive surfaces as [a] due to the presence of a pharyngeal and a uvular consonant, respectively. Observe that for (20a) and (20b) the spelling operation identifies the C_2 of the p-representation as the initial consonant of the Root, and in (20c) it identifies the C_3 as the initial consonant of the Root. This indicates that this morphological spelling operation can not be attending to the Morphological Stem. As with the *Diminutive* and *Distributive* reduplications, these data also demonstrate that these different targets for *Repetitive* reduplication cannot be identified on purely phonological grounds. The facts of *Repetitive* reduplication then provide evidence for the presence of morphological structure, specifically for the existence of the left edge of the Morphological Root.

(20a) $\sqrt{m\text{ə}lk^w}$
 sm'eɾk^wéyeʔ *shadow* (Bates and Carlson 1992a)

(20b) $\sqrt{l\text{ə}\gamma^w}$
 nɾaɾóɾ^weʔ *wore a loose dress without a belt* (Bates and Carlson 1992a)

(20c) $\sqrt{p\text{t}\alpha\chi^w}$
 snpataχ^wm'n' *spittoon* (Bates and Carlson 1992a)

The evidence provided by *Diminutive*, *Distributive* and *Repetitive* reduplications should suffice to establish the existence of the left edge of the Morphological Root constituent. I now move on to *Out-of-Control* reduplication which demonstrates that morphological spelling operations are also attentive to the right edge of the Morphological Root.

3.2.1.2 Evidence for the right edge of the Morphological Root

Although numerous morphological spelling operations seem to refer to the right edge of the Morphological Root, it is, nevertheless, difficult to argue definitively that all of those operations necessarily rely on such a constituent for placement of affixes. There is one operation, however, which crucially depends on locating the right edge of the Morphological Root and, therefore, adequately illustrates that the right edge of the Morphological Root is salient. The operation is one which signals noncontrol and is labeled *Out-of-Control* reduplication. As discussed in Chapter 2, this type of reduplication is correlated with a range of interpretations. These include, but may not be limited to, the interpretation of a predicate as: an accidental, spontaneous, or natural occurrence; emphatic noncontrol on the part of a participant; an occurrence which results from the actions of others (as opposed to the speaker); and, success in accomplishing something after much time or effort (Carlson and Thompson 1982).

Out-of-Control reduplication locates the Morphological Root and then, depending on the prosodic shape of that Root spells one of two allomorphs, one monomoraic and the other bimoraic. In CVC(C) Roots, the second mora is targeted for copying and for suffixation of that copy. In Roots of the shape CVCVC, CCVC, CVCVCVC, among others, the C_2VC_3 is targeted for copying and, like its monomoraic allomorph, the second mora of the Root is targeted for suffixation of the copy. To facilitate this discussion of *Out-of-Control* reduplication, I have placed above each set of examples the underlying

representation for each Root.

The forms in (21)-(23) serve as examples of the monomoraic allomorph. In each case the *Out-of-Control* reduplicant surfaces as a copy of the C_2 of the Root which is suffixed to the second mora of the Root.¹¹ Particularly noticeable is the surface form of (23b). Observe that, in order to comply with the phonological changes which specify the position of affixation as following the second mora of the Root, the reduplicant is positioned after the second and before the third moraic consonant of the Root.¹²

- | | | |
|-------|----------------------------------|--|
| (21) | √laq' | |
| (21a) | hecláq' | <i>It's buried.</i> (Carlson and Thompson 1982) |
| (21b) | láq'q' | <i>It got buried.</i> (Carlson and Thompson 1982) |
| (22) | √məq ^w | |
| (22a) | hecómoq ^w | <i>It's a mound, a hill.</i> (Carlson and Thompson 1982) |
| (22b) | máq ^w óq ^w | <i>Something came up.</i> (Carlson and Thompson 1982) |
| (23) | √ʔac'x | |
| (23a) | ʔác'x | <i>He looked.</i> (Carlson and Thompson 1982) |
| (23b) | ʔác'c'x | <i>He watched or observed.</i> (Carlson and Thompson 1982) |

The examples in (24)-(26) illustrate the bimoraic syllable allomorph of *Out-of-Control* reduplication. In each case the reduplicant surfaces as a copy of the C_2VC_3 of the Root which is suffixed to the second mora of that Root. Notice that

¹¹Regarding (22b), the vowel which precedes the *Out-of-Control* reduplicant is epenthetic. This is a typical pattern displayed by Roots containing only schwa. For details, see Chapter 4.

¹²Despite the appearance of an infix, the *Out-of-Control* reduplicant is always suffixed to the right edge of the Morphological Root, as demonstrated by the phonological patterns surveyed in Chapter 4.

(24) and (25) lack suffixal material to the right of the Root, while (26) possesses suffixal material to the right of the Root.

- (24) √ʔociqʔ
 (24a) ʔócqeʔ *He went out. (Carlson and Flett 1989)*
 (24b) čsʔocč'iq'q' *Someone turned somersaults. (Carlson and Bates 1990)*
- (25) √čənəp'
 (25a) č'inp' *It's banded. (Black 1995a)*
 (25b) č'nníp'p' *It suddenly got banded. (Carlson and Bates 1990)*
- (26) √ptaɣ^w
 (26a) ptaɣ^wntx^w *You spit it out. (Black 1995a)*
 (26b) ptaɣ^wɣ^wntx^w *You accidentally spit it out. (Black 1995a)*

The forms in (21)-(26) do not themselves provide evidence for the right edge of the Morphological Root, since it can be argued for these forms that *Out-of-Control* reduplication locates its target with respect to the left edge of the Root constituent; that is, it may be the case that this morphological spelling operation locates the left edge of the Morphological Root and then, for copying and affixational purposes, counts two moras or two syllables from left to right.

What is needed, then, are examples of Roots with suffixal material which mimic the Root shapes that are associated with the bimoraic allmorph, yet do not themselves trigger copying and affixation of that allmorph. The examples in (27)-(29) are such examples. In each case (except (29a)) a CVC Root is followed by a -VCC suffix. Despite the presence of this suffix and the similarity in shape between this set of examples and those in (24)-(26), the morphological spelling mechanism views these as CVC Roots and, after locating the Root, targets the C₂ for reduplication and affixation, as is evidenced by (27b), (28b) and (29b).

Consequently, the target for copying and attachment of *Out-of-Control* reduplication cannot be identified on purely phonological grounds. These facts then provide evidence for the presence of morphological structure, specifically for the existence of the right edge of the Morphological Root.

- | | | | |
|-------|--------------------|----------------------------------|---------------------------------|
| (27) | √ʎaq ¹³ | | |
| (27a) | ʎq'ílš | <i>He lay down.</i> | <i>(Carlson and Flett 1989)</i> |
| (27b) | ʎq'q'ílš | <i>He fell forward.</i> | <i>(Carlson and Flett 1989)</i> |
| (28) | √ləč | | |
| (28a) | nlč'éw's | <i>It was tied.</i> | <i>(Black 1995a)</i> |
| (28b) | nlč'č'éw's | <i>It accidentally got tied.</i> | <i>(Carlson and Flett 1989)</i> |
| (29) | √tem | | |
| (29a) | čtémn | <i>I suspected him.</i> | <i>(Carlson and Flett 1989)</i> |
| (29b) | čtmmútm | <i>He's accusable.</i> | <i>(Carlson and Flett 1989)</i> |

3.2.1.3 Summary: the Morphological Root

We have examined four different morphological spelling operations, each of which crucially depends on locating the left or right edge of the Morphological Root as Head constituent, as opposed to locating the left or right edge of the entire Stem. Recall that if the phonological string were the only material available to these spelling operations, then it would not be possible to predict the substring targeted for reduplication or the affixation site. Any attempt, then, to identify the Morphological Root on purely phonological grounds meets with failure. The fact that these morphological spelling operations necessarily depend on a specific sub-

¹³The quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

string of the form which cannot be isolated phonologically thus supplies an argument for positing non-phonological, internal structure labeled $[_H\text{Root}]_H$. At the very least, then, all non-compounds (of major lexical categories) comprise the minimal morphological structure associated with the Morphological Root.

As such, the structure of the p-representations of non-compounds, each of which comprises a Morphological Root as its Head constituent, is similar to the Georgian, Icelandic and Russian words formed by adjunction discussed in Anderson (1992). Anderson identifies these words as 'composites' and claims that "a limited presence of structure-building operations" (p.304) is necessary in order to account for them. I modify his position to the extent that such operations do not build structure; rather they attend to and preserve the pre-existing structure which is part of the p-representation of every Spokane lexeme. Having said that, we can then acknowledge that the morphological spelling operations of Spokane recognize and preserve the structural integrity of the Head constituent of a p-representation and adjoin affixal material to that Head resulting in the complex structure $[_X \dots [_X \dots] \dots]$. Although Anderson views the presence of such internal structure as exceptional, the fact remains that for Spokane such structure is typical. The data indicate that the output of the morphological spelling operations of Spokane routinely comprises an adjoined structure with the Morphological Root as the Head of that structure as represented in (30).

(30) $[_{MS} \text{Prefixes } [_H \text{Root}]_H \text{Suffixes}]_{MS}$

As suggested by the representation in (30), affixal material is always adjoined to

the Head constituent within the Stem domain of a non-compound;¹⁴ that is, morphological spelling operations are defined in such a way as preserve the structural integrity of the Head constituent. This is the case regardless of the source of the grammatical feature as lexical or inflectional which is marked by a particular affix. That this must be so is supported by the fact that the Head constituent remains salient in the event that Head-referencing operations such as reduplication are triggered subsequent to other spelling operations which affix phonological material to that Head.

This concludes the arguments for positing the adjoined structure provided in (30). We now turn to a brief discussion of the characteristics of the Morphological Stem.

3.2.2 The Morphological Stem domain in Spokane

The p-representation labeled *Stem* can be viewed as a Morphological Root which may be extended on either side by affixation. A Root, then, is also understood to function as a Stem but carries with it the special structural properties mentioned above. Aronoff (1994) identifies the *Stem* as a morphophonological entity which serves as "the phonological domain of a realization rule; that sound form to which a given affix is attached or upon which a given nonaffixal realization rule operates" (p.39). A Stem is the p-

¹⁴To my knowledge, Spokane morphology displays only three exceptions to this generalization: the infixes /ʔ/ *Inchoative*, the *Repetitive*, and the /ʔ/ *Plural*.

representation of a lexeme which serves as the input to a spelling operation; likewise, it is the p-representation which results from such a spelling operation. As the p-representation of a lexeme, a Stem is understood to reside, potentially or actually, in the lexicon.

In order to meet the demands of syntax, a Morphological Stem may be required to bear "the particular morphosyntactic features realized by inflectional morphology [and to bear] the phonological markers (affixes and such) by means of which these features may be recognized" (Aronoff 1994:11). Simply put, such a Stem is the p-representation of a lexeme in a particular syntactic context where it receives morphosyntactic features (e.g., case, person, aspect) which are often realized as bound affixes. Cross-linguistically, the morphemes correlated with I-derivation, the morphophonological realization of morphosyntactic features, are typically realized 'outside' the morphemes correlated with L-derivation, and Spokane does not seem to contradict this assertion; however, the presence of a Head constituent, the Morphological Root, does make the placement of inflectional material 'inside' lexical material feasible.

Despite any distinctions between morphological spelling operations which are triggered by the presence of lexical grammatical features and those triggered by the presence of inflectional grammatical features, the bound realization of both types of affixation exists to the left or the right of the Root within the Stem

domain.¹⁵ Since the identity of a particular affix with respect to the source of the feature as lexical or inflectional which it marks is irrelevant to this discussion of morphological structure, I have not provided any such labels for the morphemes. Instead I simply identify them by the terms traditionally used.

Recall the forms in (17) above. A breakdown of the morphological domains for each of those p-representations is presented in (31). Both forms display affixal material in the Prefixal and Suffixal domains of the Morphological Stem. In (31a) the /č/ *Locative* marker occupies the Prefixal domain, and the /n/ *Control* and /t/ *Transitive* markers followed by the /wex^w/ *Reciprocal* marker occupy the Suffixal domain. The form in (31b) displays the same p-representation with one important addition; the *Distributive* reduplicant follows the /č/ *Locative* marker in the Prefixal domain.

(31a) čx^wcnwéx^w

[_{MS} č [_H x^wəc]_H ntwex^w]_{MS}

č-√x^wəc-n-t-wex^w

Loc-√passed by-Ctr-Tr-Recip

They passed each other. (Black 1995a)

(31b) čx^wc^wx^wcnwéx^w

[_{MS} čx^wəc [_H x^wəc]_H ntwex^w]_{MS}

č-x^wəc+√x^wəc-n-t-wex^w

Loc-Dist+√passed by-Ctr-Tr-Recip

A group of people passed another group of people. (Black 1995a)

¹⁵As stated in the preceding footnote, the only exceptions to this generalization are: the infixes /ʔ/ *Inchoative*, the *Repetitive*, and the /ʔ/ *Plural*.

As you can see, both words share the same Root and much of the same Stem material; however, their relationship is one of derivation. In form (31a) the Root $[_{MS}[_{H}x^w\acute{e}c]_H]_{MS}$ of the lexeme PASS BY serves as the base Stem (or p-representation) for the formation of the derived Stem $[_{MS}\check{c}[_{H}x^w\acute{e}c]_Hntwex^w]_{MS}$ of the lexeme PASS EACH OTHER.¹⁶ As you can see, this Root has been augmented with affixes in both the Prefixal and Suffixal domains and constitutes the inner core of the Stem. The Stem $[_{MS}\check{c}[_{H}x^w\acute{e}c]_Hntwex^w]_{MS}$, then, serves as the base Stem for the formation of the derived Stem $[_{MS}\check{c}x^w\acute{e}c[_{H}x^w\acute{e}c]_Hntwex^w]_{MS}$ of the lexeme GROUP OF PEOPLE PASS EACH OTHER which appears in (31b). As such, this Stem has also been augmented as is evidenced by the presence of the copy of the Root in the Prefixal domain.

Additional examples can be found in (32)-(37) below. The form in (32) is marked by the /hec/ *Actual* which when realized on an /st/ *Transitive* Stem expresses *Transitive Customary* aspect; this Stem also displays the subject marking for first person singular. The form in (33) also expresses the customary aspect; however, in this case it is the *Genitive Customary*¹⁷ which requires the realization of /hec/ on an /st/ *Passive* Stem. The *Genitive Customary* expresses grammatical subject with affixation from the Possessive paradigm (as is evidenced by the presence of /hin/ first person singular possessive) and grammatical object

¹⁶Here I follow the convention of employing capital letters to refer to a lexeme.

¹⁷I label this form *Genitive Customary* following A. Mattina (1993) on Okanagan, this despite the fact that the English translation does not convey the customary.

with a proclitic from the set of Absolutive person referents. Observe that the proclitic exists within the Prefixal domain of the Morphological Stem in accordance with its status as a phrasal affix.

(32) hecʔúk^wstn

[_{MS} hec [_H ʔuk^w]_H stən]_{MS}

hec-√ʔuk^w-s-t-ən

Act-√bring-Caus-Tr-1sgTrS

I always bring him. (Carlson and Flett 1989)

(33) k^wyeck^wúlstm

[_{MS} k^whinhec [_H k^wul]_H stəm]_{MS}

k^w hin-hec-√k^wul-s-t-əm

2sgGO 1sgPoss-Act-√send-Caus-Tr-Pass

I'm sending you. (Carlson and Flett 1989)

The Stems of (34) and (35) have been marked to express the *Absolutive Imperfective* and *Absolutive Inceptive* aspects, respectively. While the expression of either aspect requires morphological spell-out of the suffixal material /mə/, each specifies different prefixal material. The imperfective correlates with /hec/, and the inceptive with /qʔs/. Each of these Absolutive aspectual categories marks grammatical subject with proclitics from the set of Absolutive person referents. While third person referents are unmarked, all others are signaled by a proclitic. Example (35) exhibits the proclitic /qʔ/ first person plural which, as the representation indicates, exists within the Prefixal domain of the Morphological Stem.

(34) hecsllpmí

[_{MS} hec [_H səl]_H lpmə]_{MS}

hec-√səl+l-p-mə

Act-√error+OC-Inch-NonPer

He made an error. (Carlson and Flett 1989)(35) qaqsčcnwéx^wi[_{MS} q?qʰs [_H čic]_H ntwex^wmə]_{MS}q? qʰ-s-√čic-n-t-wex^w-mə

1plIntrS Unr-Nom-√arrive-Ctr-Tr-Recip-NonPerf

We are going to meet. (Carlson p.c.)

The forms in (36) and (37) display one of several markers which express the *Imperative*. In (36), the intransitive predicate x^wuy has been marked for the imperative singular with the suffixal material /š/ and in (37) for the imperative plural with the suffixal material /wy/.

(36) x^wúyš[_{MS}[_H x^wuy]_H š]_{MS}√x^wuy-š

√go-ImpSg

Go (singular)! (Carlson and Flett 1989)(37) x^wúywi[_{MS}[_H x^wuy]_H wy]_{MS}√x^wuy-wy

√go-ImpPl

Go (plural)! (Carlson and Flett 1989)

3.2.3 Summary: the morphological structure of non-compounds

The complexity of the morphological constituent structure of the p-representations of non-compound lexemes in Spokane is limited to a flat constituent structure as represented in (38):

(38) $[_{MS} \text{Prefixes } [_{H} \text{Root }]_{H} \text{Suffixes }]_{MS}$

The left and right edges of the Morphological Root as Head constituent have been justified with evidence provided by the reduplication facts. As such, morphological spelling operations are presumed to adjoin affixal material with respect to pre-existing morphological structure of a Head constituent, the Morphological Root, while preserving the structural integrity of that Head.

This minimal structure may seem quite meager when compared to the complex constituent structure posited in morpheme-based studies. Nevertheless, the significance of any structure should not be judged by its lack of complexity but rather by the fact that the structure posited is adequate for descriptive and explanatory purposes and that it is not excessive; that is to say, the structure generated is only that structure which is referred to by morphological spelling operations.

3.3 The morphological structures of compound lexemes

Compounding is a type of L-derivation which involves the combining of lexical *bases*¹⁸ and is generally presumed to operate at the level of grammatical relations; particular Stems are selected for compounding based on the category Noun, Verb, and Adjective associated with their bases. As such, compounding "does not necessarily involve bound morphological realization" (Aronoff 1994:16). Anderson (1992:294) reminds us that the lexeme which results from compounding "belongs to some lexical category (not necessarily that of any of its parts)" and occupies the same syntactic position in phrase structure as non-compound members of the same category.

Compounding engenders additional morphological structure for the p-representation of a Spokane lexeme to the extent that two distinct Stems are structurally incorporated into a larger entity. The presence of such structure is indicated by the fact that it is referred to by morphological spelling operation(s). The consequences of compounding are, therefore, non-trivial with respect to the (potential) structural complexity of the p-representation of the Spokane lexeme. As such, compounds are also analyzed as composites as conceived of in Anderson (1992).

Significantly, Spokane displays two types of compounds: Free Stem compounds and Bound Stem compounds. The p-representations of both types of

¹⁸Recall that a lexeme comprises the properties of sound form, syntax and semantics. The term *base* as defined by Aronoff (1994:40) refers to this "complete lexeme or syntactico-semantically defined set of lexemes" (Aronoff 1994:40).

compounds maximally comprise two structurally distinct Stems within a flat structure as represented in (39). A Free Stem compound is that which incorporates two independently occurring Stems into an adjoined structure and lacks a morphological Head as represented in (39a). This type of compound is discussed in Section 3.3.1. A Bound Stem compound is that which incorporates a Free Stem as Stem₁ and a Bound Stem (typically labeled lexical suffix) as Stem₂ into an adjoined structure and specifies Stem₁ as the morphological Head as represented in (39b). This type of compound is discussed in Section 3.3.2. If a particular compound lacks prefixes and/or suffixes, then the relevant morphological domain edges necessarily coincide.

(39a) [_{MS} Prefixes [Free Stem]₁ [Free Stem]₂ Suffixes]_{MS}

(39b) [_{MS} Prefixes [_HFree Stem]_{H1} [Bound Stem]₂ Suffixes]_{MS}

3.3.1 Free Stem compounds

This view of Free Stem compounds includes a description of the facts (Section 3.3.1.1), a diachronic view of Free Stem compound formation (Section 3.3.1.2), as well as a synchronic analysis of this compounding process (Section 3.3.1.3).

3.3.1.1 Description of the facts

Carlson (1990) provides a valuable description of Spokane compounds. He assumes word-internal morphological structure for such forms based on the lexical

categories of the combining elements¹⁹ and identifies two major classes of compounds: verb plus noun combinations which function as verbs ($[V-N]_V$); and, modifier plus noun combinations which function as nouns ($[M-N]_N$). He also observes that particular markers must appear between the two constituents. These markers include an /s/, traditionally labeled *Nominal*, which is presumed to identify the second member of a compound as a Noun, or a /t/, traditionally labeled *Connective*, which is presumed to link the two members.²⁰ The data set of Free Stem compounds under consideration is relatively small comprising approximately one hundred members. Despite this paucity of examples, Carlson (1990:69) notes that "Salish informants today can readily generate new compounds, suggesting that compounding was a productive process when the language was viable."

By far, the most frequently occurring type of compound is $[V-N]_V$ representing more than sixty percent of the data set. Consider the forms in (40)

¹⁹Although the debate over the universality of the categories 'noun' and 'verb' (Birch 1993, Davis and Matthewson 1995, Demirdache and Matthewson 1994, Jelinek 1993, Jelinek and Demers 1994, Kinkade 1983b, Kuipers 1968, N. Mattina 1994, van Eijk and Hess 1986) continues, N. Mattina (1994) offers numerous tests which provide evidence for such categorial distinctions, at least for the Okanagan language of the Southern Interior branch of Salishan.

²⁰The data set contains one exception to this generalization: $?eslx^wicle?x^wstn$ *alfalfa* (Carlson and Flett 1989).

and (41).²¹ Both forms are representative of the [V-N]_v compounds which possess the putative /t/ *Connective* between the Free Stem members. Forms (42) and (43), on the other hand, serve as examples of compounds which lack /t/ but possess the putative /s/ *Nominal*. Lacking any obvious L- or I-derivation subsequent to compounding,²² these forms function as intransitive predicates. The most important characteristic of a Free Stem compound is that each member of the compound can occur independent of another Stem.²³

- (40) ?alpɫnq^wéwtɫ
 [[?alp]_v † [nq^wewtɫ]_N]_v
 [[lose] † [whiskey]]
 √?əl-p-ɫ-n-√q^wew=tn
 √lose-Inch-Conn-Loc√drunk=Instr
He lost whiskey. (Carlson and Flett 1989)

- (41) plɫnɫámqe?
 [[pul]_v † [nɫámqe?]_N]_v
 [[kill] † [bear]]
 √pul-ɫ-n-√ɫám=qe?
 √kill-Conn-Loc√?=?
He killed a bear. He beat his wife. (Carlson 1990)

²¹Each example includes two bracketed representations, one which indicates the syntactic category of each member of the compound and another which provides the English gloss for each compound member. The syntactic bracketing does not necessarily correspond with the bracketing for the morphological constituents which will be provided later in Section 3.3.1.3.

²²Free Stem compounds may undergo L- and I-derivation subsequent to compounding. These facts will be included in the analysis provided in Section 3.3.1.3.

²³Regarding example (41), compounds with *puls* as the first member occur without a final /s/. I have no explanation for this. Ewa Czaykowska-Higgins (p.c.) informs me that there are cases in Moses-Columbia where s → ∅ / _ †.

- (42) $k^w isqélix^w$
 $[[k^wen]_V [sqelix^w]_N]_V$
 $[[grab] [man]]$
 $\sqrt{k^wen-s}\sqrt{qel}=mix^w$ ²⁴
 $\sqrt{grab-Nom}\sqrt{body}=person$
He grabbed at a person. (Carlson and Flett 1989)

- (43) $čnk^w istéwcn$
 $čn [[k^wen]_V [stewcn]_N]_V$
 $[[try] [groceries]]$
 $čn \sqrt{k^wen-s}\sqrt{tew}=cn$
 $1sgIntrS \sqrt{try-Nom}\sqrt{transact\ business}=food$
I went after groceries. (Carlson and Flett 1989)

A careful survey of the data reveals that it may be necessary to admit three additional category combinations to the class of verbal compounds: an adjective-verb sequence $[Ad-V]_V$; an adjective-adjective sequence $[Ad-Ad]_V$; and, a verb-verb sequence $[V-V]_V$. The category of the first member of the form in (44) appears to be an adjectival Stem, as does that in (45).

²⁴The quality of this Root vowel has yet to be determined. Forms with k^wen display speaker variability with respect to the stress facts. The data set contains competing stress forms; that is, when the Root is followed by suffixes which contain schwa(-class vowels) or which are vowelless, stress may be found on the Root vowel (suggesting the presence of a full vowel in the Root) or on a schwa(-class vowel) in the Suffixal domain (suggesting the presence of schwa in the Root). It may be the case that two distinct Roots are involved, one with a full vowel (k^wen) and one with schwa ($k^wən$).

- (44) $\text{ʔayp}^{\text{w}}\text{ist}$
 [[ʔayp]_{AD} † [x^wist]_V]_V
 [[hurry] † [walk]]
 √ʔay-p-†-√x^wist
 √hurry-Inch-Conn~√walk
He hurried so he could leave. He walked fast. (Carlson 1990)
- (45) $\text{čs}^{\text{t}}\text{p}^{\text{p}^{\text{w}}}\text{p}^{\text{p}^{\text{w}}}\text{út}$
 [[čəs]_{AD} † [p^pp^wp^wút]_{AD}]_V
 [[bad] † [little bit old]]
 √čəs-†-p^p+p^w+√p^wút
 √bad-Conn-Dim+Dist+√old
She is not aging gracefully. (Black 1995a)

Regarding verbal compounds, it may be the case that certain [V-N]_V or [Ad-N]_V compounds whose second member begins with /s/ *Nominal* may be better categorized as [V-V]_V or [Ad-V]_V to the extent that the second member of such verbal compounds may actually be a verbal element. Such nominalized verbal stems are common in Spokane and function in both main and subordinate clauses. Examples of such verbal compounds are provided in (46) and (47).

- (46) $\text{čnk}^{\text{w}}\text{is}^{\text{?}}\text{ác}^{\text{c}}\text{č}^{\text{x}}$
 čn [[k^wen]_V [s[?]ác^cč^x]_V]_V
 [[try] [look at]]
 čn √k^wen-s-√ʔác^c(č^x)
 1sgIntrS √try-Nom-√look at(+OC)
I went to look on. (Carlson and Flett 1989)
- (47) $\text{xss}^{\text{?}}\text{ác}^{\text{c}}\text{č}^{\text{x}}$
 [[xəs]_{Ad} [s[?]ác^cč^x]_V]_V
 [[good] [look at]]
 √xəs-s-√ʔác^c(č^x)
 √good-Nom-√look at(+OC)
She's good to look at. (Carlson and Flett 1989)

Carlson (1990) also acknowledges that, although the vast majority of [V-N] compounds function as verbs, such compounds "often serve as nominals rather than verbals" (p.71).²⁵ This suggests that a verb-noun sequence must be included in the class of nominal compounds. Examples (48)-(50) illustrate this claim. Each compound comprises a verbal Stem followed by a nominal Stem, each of which can be found elsewhere functioning independently; despite this [V-N] combination, however, these compounds receive a nominal²⁶ interpretation.

- (48) $x^wlsʔiʔn$
 $[[x^wel]_V [sʔiʔn]_N]_N$
 $[[\text{leave}] [\text{food}]]$
- $\sqrt{x^wel-s-\sqrt{ʔiʔn}}$
 $\sqrt{\text{leave-Nom-}\sqrt{\text{eat}}}$
memorial feast, goodbye meal (Carlson and Flett 1989)

- (49) $lapsʔx^wép$
 $[[lap]_V [sʔx^wép]_N]_N$
 $[[\text{emerge}] [\text{hole in the bottom}]]$
- $\sqrt{lap-s-\sqrt{ʔx^w=ep}}$
 $\sqrt{\text{emerge-Nom-}\sqrt{\text{opened=bottom}}}$
hemorrhoids (Carlson and Flett 1989)

²⁵Carlson (1990) remarks in a footnote that M. Dale Kinkade has suggested that among the nominal compounds, some may be analyzed as VN or MN.

²⁶Carlson (1990) reports that the form provided in (48) may also be used as verbal [V-N]_V compound and interpreted as *He abandoned food*.

- (50) nʔepʔcʔinʔč
 [[nʔepʔ]_V † [cʔinʔč]_N]_N
 [[wipe inside] † [gun]]
- n-√ʔepʔ-†-√cʔʔ=inʔč
 Loc-√wipe-Conn-√ʔʔ=weapon
guncloth (Carlson 1990)

This brings us to the typical configuration associated with the nominal compound: the [M-N]_N category. In such compounds, the first member may be a nominal or an adjectival element. The forms in (51)-(53) serve as examples of nominal compounds comprising an initial nominal member, and those in (54)-(55) an initial adjectival member.

- (51) sqlix^wscʔomʔ
 [[sqelix^w]_N [scʔomʔ]_N]_N
 [[man] [bone]]
- s√qel=mix^w-s-√cʔomʔ
 Nom-√body-person-Nom-√boney
skeleton (Carlson and Flett 1989)

- (52) stʔansčnélx^w
 [[stʔan]_N [sčnelx^w]_N]_N
 [[antelope] [hide]]
- s-√tʔan-s-√čn=elx^w
 Nom-√ʔʔ-Nom-√ʔʔ=hide
antelope hide (Carlson 1990)

- (53) ʔaplscʔaʔk^wá†q
 [[ʔapl]_N [scʔaʔk^wá†q]_N]_N
 [[apple] [blossom]]
- √ʔapl-s-√cʔe(ʔ)k^w=á†q
 √apple-Nom-shine(Inch)=fruit
apple blossom (Carlson 1990)

- (54) $nx^w e?sk^w \acute{e}st$
 [[$nx^w e?$]_{Ad} [$sk^w est$]_N]_N
 [[in many] [name]]

 $n-\sqrt{x^w e?}-s-\sqrt{k^w es}-t$
 Loc- \sqrt{many} -Nom- \sqrt{name} -Stat
He has or is known by many names. (Carlson and Flett 1989)
- (55) $k^w tismy \acute{e}w$
 [[$k^w tun$]_{Ad} [$smyew$]_N]_N
 [[big] [mountain lion]]

 $\sqrt{k^w tun}-s-\sqrt{myew}$
 \sqrt{big} -Nom- $\sqrt{mountain lion}$
mountain lion, cougar (Carlson and Flett 1989)

The interpretive principles which apply to compounds remain unclear. While [AD-V]_V and [Ad-Ad]_V compounds are analyzable as semantically right-headed and [V-N]_V compounds as semantically left-headed, the semantic headedness of [V-V]_V compounds seems to vary. The situation is similar for nominal compounds. While [N-N]_N and [Ad-N]_N are generally interpreted as semantically right-headed, the semantic headedness of [V-N]_N compounds shows considerable variability.

3.3.1.2 Diachronic view of Free Stem compounding

Speculating as to the origins of compounding, one possibility is that a rule of compound formation may have resulted from the reanalysis of biclausal sentences as monoclausal. Evidence for such a claim comes from synchronic descriptions of the Interior languages Okanagan, Lillooet and Thompson.

Kroeber (1991), having surveyed an enormous inventory of descriptive works on the languages of the Salishan family generally, notes that the Southern Interior language Okanagan as well as the Northern Interior languages Lillooet and Thompson all utilize a proclitic, particle or determiner of the form /ʔ/ to introduce certain types of complement clauses.²⁷ Although this marker of subordination is not synchronically available for Spokane, the fact that it is in current usage for these other languages suggests the possibility that it goes back to Proto-Interior Salish.²⁸ The possibility, then, that the Spokane compound marker /ʔ/ represents a relic of the /ʔ/ clausal subordinator is quite feasible.

A similar claim can be made for some of the compounds which lack /ʔ/; that is, a rule of compound formation may have resulted from the reanalysis of biclausal sentences, whose second clauses were nominalized predicates, as monoclausal. Two aspects of syntax are relevant here: first, the fact that the languages of the Southern Interior utilize nominalized predicates in certain types of complement clauses;²⁹ and second, that the languages of the Southern Interior "are less likely to mark subordinate clauses by means of an introductory particle or proclitic than are the other [Salishan] languages" (Kroeber 1991:146).

²⁷Regarding the relevant clause types, refer to Kroeber (1991) pages 143 and 149 for Okanagan, pages 115 and 118 for Lillooet, and page 117 for Thompson.

²⁸Synchronically, the grammar of Spokane does mark certain subordinate clauses with markers which are diachronically related to the proclitic /ʔ/. Subordinate clauses may be marked with the morphemes /ʔuʔ/ or /ʔiʔé/. These morphemes are also used to mark noun phrases.

²⁹Nominalized predicates are also employed in main clauses in the Southern Interior languages.

The form of sentences which comprise a main clause and a nominalized subordinate clause closely resembles the form of many compounds. In fact Kroeber (1991:159), remarking on such a compound, states:

Another aspectual construction found at least in Okanagan, Kalispel, and Coeur d'Alene transparently originated as a complement construction with nominalized complement. In these languages, the sequence *wəy' 'finished' ... + s-Nom(inal) has become a sort of prefix instead of a syntactic construction of verb plus complement clause.³⁰

Importantly, this same construction can be found in Spokane and is analyzed herein as a compound form in which wəy' functions not as a prefix but as the first compound member.

These facts suggest the possibility that such syntactic structures have been reanalyzed as lexical structures and that the rules responsible for them have been analogically extended from syntax to the lexicon. Nevertheless, relying on the reanalysis of biclausal sentences as monoclausal as the model for the formulation of a rule of compounding cannot account for the numerous compounds which do not reflect such a pattern. Others seem to reflect the argument relations specified in subcategorization frames, others the appearance of noun phrases, and still others the incorporation of an adjunct phrase. Examples which illustrate the variability of structures involved are provided in (56)-(58) (repeated from (40),

³⁰Kroeber (1991:159-160) provides an interesting explanation as to why such forms became subject to reinterpretation. He also ambiguously identifies *wəy' s- as a prefix or compound element. Spokane wəy' is not a prefix, but a Root which is frequently selected for compounding.

(51) and (55) above). In fact, the data set, albeit small, exhibits a wide variety of compound types which, if a reanalysis account is presumed, suggests that numerous rules responsible for syntactic structures may have been extended analogically to the lexicon.

- (56) ?alp+nq^wéwtⁿ
 [[?alp]_v † [nq^wewtⁿ]_N]_v
 [[lose] † [whiskey]]

√?əl-p-†-n-√q^wew=tn
 √lose-Inch-Conn-Loc√drunk=Instr
He lost whiskey. (Carlson and Flett 1989)

- (57) sqlix^wsc'óm'
 [[sqelix^w]_N [sc'óm']_N]_N
 [[man] [bone]]

s√qel=mix^w-s-√c'óm'
 Nom-√body-person-Nom-√boney
skeleton (Carlson and Flett 1989)

- (58) k^wtismyéw
 [[k^wtun]_{Ad} [smyew]_N]_N
 [[big] [mountain lion]]

√k^wtun-s-√myew
 √big-Nom-√mountain lion
mountain lion, cougar (Carlson and Flett 1989)

Alternatively, Beard (1995) proposes the *Unitary Grammatical Function Hypothesis* which states that a universal set of primitive grammatical functions is available to both the lexicon and the syntactic component; consequently, L-derivational rules and I-derivational rules are presumed to operate on the same set of base-generated functions which are later marked by an integrated MS-

component. Beard accounts for the fact that the same set of grammatical functions are accessible to the lexicon and syntactic component by proposing an adaptation of Botha's (1980, 1981) *Base Rule Theory* in which a general grammatical component, simply termed the base, "accounts for all the grammatical relations of language common to syntax, inflection, and the lexicon" (Beard 1995:328).

Such *functional L-derivations* of the lexicon (as labeled by Beard) may result in non-compound forms (for example, *driver*) or compound forms (for example, *truck driver*) and may add a range of meaning to the base lexeme. Beard contends that

The meaningful elements added by functional derivations are grammatical relations: Subject, Object, Means, Locus, and so on which are also the fundamental functions of the Case categories Nominative, Accusative, Instrumental, and Locative. (Beard 1995:306)

The linear sequencing of the lexical items which make up compounds is then presumed to be determined by independent principles along the lines of "linear precedence rules whose parameters are determined by the Head Spelling Default and the language-specific ordering of head-modifiers" (Beard 1995:349). Beard extends this hypothesis to include the idea that if the same set of grammatical functions are available to both the lexicon and the syntax and if the grammatical morphemes of both are provided by a single integrated spelling component, then it would not be unusual to find the same morpheme marking the same function for both levels. Beard (1995:312) asserts that in such cases the MS-component

may "ignore the distinction between L- and I-derivation and mark only the function in question." Such an explanation speaks nicely to the occurrence of the /t/ marker of compounds which in Spokane diachronically may have served to mark lexical as well as syntactic structures and in other languages of the Southern Interior synchronically still marks lexical as well as syntactic structures. The /t/ marker of Spokane can be viewed synchronically as a present-day lexical marker as well as a relic of a syntactic marker.

Regardless of the final explanation for the origins of compound structures, the synchronic source for Free Stem compounds can only be (a set of) operations which occur in the lexicon, at least within the lexeme-based model described herein. Since L-derivation can only take place in the lexicon, the option of deriving compounds in the syntactic component is not available. Free Stem compounding can be described as L-derivation formulated with respect to grammatical relations. In one possible analysis, those relations (and their grammatical structures) have been analogically extended from syntax to the lexicon. In the other, those relations have always been available to both the lexicon and syntactic component via a separate base component.

3.3.1.3 Synchronic analysis of Free Stem compounding

In order to accommodate the presence of compounds in Spokane, I presume that the grammar of the language includes certain lexical operations which combine lexemes for the purpose of creating new lexemes. With respect to

Spokane, such an operation may represent an analogical extension of existing syntactic rules to that of the lexicon; that is, syntactic constructions may have been lexicalized resulting in the creation of new lexical items, that of compound lexemes. Conversely, such an operation may represent the manipulation of base structures in the lexicon, structures which are also available for manipulation in the syntax. Regardless, it is not surprising that such operations have the familiar look of phrase structure rules, as for example $[[]_N []_N]_N$, but with properties different from those of syntax. The structure of Free Stem compounds is a flat structure as represented in (59). Observe that the Stem₁ and Stem₂ are structurally distinct constituents and are adjoined within the Morphological Stem.

(59) $[_{MS} \text{Prefixes } [Free \text{ Stem}]_1 [Free \text{ Stem}]_2 \text{ Suffixes }]_{MS}$

Like other L-derivations, Free Stem compounding is lexeme formation; it is effected by a class of operations which occur in the lexicon to relate one lexeme to another in terms of some change(s) in the grammatical representation of the lexeme. This type of lexical operation can be viewed as one which refers to two *bases*³¹ and operates primarily (but not solely) at the level of grammatical relations "to specify the internal constituency of lexical categories and optionally their heads" (Anderson 1992:299). The Stems of the bases used in compounding typically lack affixation which is uncontroversially identified as inflectional (at least

³¹Recall that a base is a complete lexeme (having syntax, semantics and sound) or a syntactico-semantically defined set of lexemes.

to the extent that such affixation is syntactically engaged). This conforms to the assumptions of strict modularity whereby syntactic information is not available to the lexicon.³² Subsequent to compounding, this newly formed lexeme may be subjected to L- and I-derivation, the output of which enters the MS-component.

As mentioned above in section 3.1, the focus of morphological spelling operations is the lexeme, or base, which is "the confluence of the *g*, *p*, and *r* features." The MS-component, then, is presumed to perform spelling operations from this base outward. Although Beard (1995) does not discuss the implications of this theoretical point for compounds, it is reasonable to extend his remarks to the spell-out of compounds. Not surprisingly, compounds incur additional complexity for the MS-component to the extent that the spelling mechanism of the MS-component must simultaneously attend to two inner lexemes, that is two distinct confluences of features, before attending to the features of the compound lexeme. It seems reasonable to assume that, at some point prior to the application of the spelling operations pertaining to the compound lexeme, these inner lexemes are submitted to the phonological component and their p-representations actually modified in accordance with the rules of the phonology.³³ This is in line with the claim of Anderson (1992:293) that

³²This is not completely true since it is possible for high-frequency, regularly inflected forms to be listed in the lexicon. For a discussion of this issue, see Stemberger and MacWhinney (1988).

³³Perhaps this is a consequence of the language system itself to the extent that once the morphological spelling mechanism has reached the Morphological Stem limit of a p-representation, that Stem immediately enters the phonology proper.

There is every reason to believe that the stems combined, as lexical items, will already have undergone rules at various levels; but a newly formed compound might itself then be subject to phonological adjustments....

As such, I stipulate that each inner Stem of the p-representation of a compound lexeme is phonologically complete to the extent that it displays full vowel(s), a preliminary determination of primary stress (which is signaled herein by an underscore), and perhaps other phonological effects; each also lacks internal structure. Significantly, the prefixal and suffixal material relevant to the grammatical features of the compound lexeme reflect the fact that the p-representation of the compound lexeme as a whole has yet to enter the phonological component. In the interest of maintaining strict modularity, the MS-component is, then, probably best understood as a sub-component of the phonology proper, as suggested by Beard (1995).

As with other types of derivation, then, compounding is viewed as separate from the morphological means of marking it; that is, the changes specified by derivation are distinct from any phonological changes which may be triggered by the features provided by such derivation. If phonological changes are specified, they are, therefore, effected by morphological spelling operations. This brings us back to the theoretical position of Anderson (1992) which requires that the motivation for positing non-phonological word-internal structure can not be the mere fact that a derivational operation has applied to create a word, but rather

the fact that the structure in question is referred to by a morphological spelling operation. The relevant question to put to the data is then: Is there any evidence to establish that the Stem members of a Free Stem compound are legitimate constituents within the p-representation of a Spokane lexeme? And the answer seems to be yes.

The structure created by Free Stem compound formation is referred to by a morphological spelling operation which modifies the structured Stems by positioning a /t/ between them.³⁴ Anderson (1992) reminds us that many languages have operations that perform such changes. I propose the representation in (60) as the morphological spelling operation available in the grammar of Spokane which makes reference to the structure of Free Stem compounds:³⁵

$$(60) \quad [[X]_N [Y]_N]_N \rightarrow [[X]_N t [Y]_N]_N$$

Representational differences among the various operations differ only with respect to the lexical category subscripts.

Recalling the examples presented in (40)-(55), an objection to the

³⁴At present, the structural status of /t/ as an adjoined element remains unclear. Since Free Stem compounds lack a Head constituent (see discussion below), neither Stem seems more appropriate for adjunction. For now, I simply locate /t/ between the two Stems and make no further claims regarding its structural relationships to Stem₁ and Stem₂.

³⁵The realization rule in (60) is modeled after a Word Formation Rule proposed in Anderson (1992:297) for German.

representation in (60) might be the unexceptional presence of /t/. In response to such an objection, let me first say that the complementarity of the two sounds /s/ and /t/ cannot be accounted for by positing a choice between phonemes within the rule itself (e.g., { /s/ or /t/ }), as the basis for phoneme choice would be indeterminable. Furthermore, it is unlikely that the surface form of a Free Stem compound depends on the presence or absence of the /s/ *Nominal* marker as suggested by Carlson (1990), since an initial /s/ in the second member may or may not be identifiable as /s/ *Nominal*. The data in Carlson and Flett (1989) include at least two examples in which the /s/ of the second member is not necessarily analyzable, even diachronically, as the /s/ *Nominal* marker. In (61a) the /s/ may be analyzed (at least diachronically) as the first sound of the *Diminutive* reduplicant and in (61b) as the first sound of the *Distributive* reduplicant.³⁶

(61a) nʔekʷsésmʔš *goldenrod* < [[nʔekʷ] [sésmʔš]]

(61b) kʷʔsxʷsixʷltmis *He adopted a child.* < [[kʷuʔ] [sxʷsixʷlt] mntəs]

A more plausible explanation for the presence or absence of /t/ lies in the general patterning of sounds in Spokane. The data indicate that Spokane tends to avoid sequences in which certain segments precede a coronal fricative in derived environments. As a result, it is unusual to see, for example, the sequences /nʔ/, /ns/, or /ʔs/.³⁷ Viewed in this way, the distribution of /t/ and /s/ is simply a

³⁶Both E. Czaykowska-Higgins (p.c.) and A. Mattina (p.c.) suggest that this may be an antigemination effect (that is, ss → s); this may be so, but see (47) above.

³⁷However, the reverse sequences [ʔn], [sn], and [sʔ] are commonly attested even in derived environments.

consequence of the phonotactics of the language. The /t/, positioned between the Stems, is necessarily lost in the event that the second member of the compound begins with /s/. On my view, then, it poses no problem to include /t/ in representations which define such morphological spelling operations, as the absence of this sound in this structural position can be predicted phonologically.

Free Stem compounds may undergo L- and I-derivation subsequent to compounding. As with non-compounds, the morphological spelling operations triggered by L- and I-derivational features preserve the structural integrity of the compound Stems, spelling out the bound affixes in the Prefixal and Suffixal domains of the Morphological Stem.³⁸ Regarding the issue of a morphological Head, it seems to be the case that Free Stem compounds lack a Head constituent. While the spelling operation which realizes the /t/ marker does attend to and preserve the structural integrity of the two Stems, it does not provide any evidence that either Stem is specified as the Head. What is required are forms which indicate that one (or more) type(s) of reduplication (discussed in section 3.2.1 above) reference such a Head. Unlike the data set of non-compounds, that of Free Stem compounds does not include one example in which a morphological Head is clearly referenced by such spelling operations.

This is not to suggest that Free Stem compounds do not display the morphophonological effects of reduplication; approximately eight words bear such marking. Consider the forms provided below. Observe that the forms in (62)

³⁸With the exception of the infix /ʔ/ *Plural*.

display reduplicants on the Stem₂ of each compound. In (62a) the phonological effects of *Diminutive* and *Distributive* are present on the Stem₂; in (62b) that of *Out-of-Control* reduplication is present on the Stem₂. Interestingly, the exact same Stem₂ which appears in (62b) (reduplicant and all) has also been incorporated into the structure of three other Free Stem compounds (accounting then for four of the eight compounds which display reduplication).

(62a) ẽs†p'p'x^wp'x^wút *She is not aging gracefully.* (Black 1995a)

(62b) čnk^wis?ác'c'x *I went to look on.* (Carlson and Flett 1989)

Now consider the fact that the forms in (63) display the marks of reduplication on the Stem₁ of the compound. In (63a) the phonological effects of *Distributive* reduplication are present on the Stem₁, while in (63b) that of *Out-of-Control* reduplication is present on the Stem₁.

(63a) s^wx^wlx^wlsč'em'éye? *field mouse* (Carlson and Flett 1989)

(63b) yaŋsqélix^w *He's afraid of people.* (Carlson and Flett 1989)

I hypothesize that the reason for the positional variability of the reduplicants rests on the fact that the p-representations of the Stems associated with the lexemes selected for compounding already included the reduplicants prior to compounding. Any attempt on my part to elicit these eight forms without the reduplicants has met with failure. In addition, any request to add reduplicants to Free Stem compounds which lack them has been met with confusion on the part of the speaker. Consequently, I leave the constituents found within the Free Stem

compound unmarked for Headedness.

Returning now to the data set, I present morphological representations for a representative sample of the compounds discussed above. In view of the fact that phonological rules are presumed to have applied to the Stem of each inner lexeme prior to the application of the spelling operations pertaining to the features of the compound lexeme, these morphological representations are presented so that Stem₁ and Stem₂ reflect that assumption.³⁹

The forms in (64) and (65) are verbal compounds which show the presence and absence of the /t/ compounding marker, respectively. Recall that the absence of /t/ is predictable due to the occurrence of /s/ as the initial sound in the second member. There is no evidence to suggest that these compound lexemes were subjected to L- or I-derivation at the lexical category level subsequent to compounding. Regarding (65), however, the presence of the proclitic /čn/ positioned within the Prefixal domain of the Morphological Stem indicates that syntactic features at the phrase level triggered morphological spelling.

- (64) ?alp‡nq^wéwt_n
 [[?alp]_V ‡ [nq^wewt_n]_N]_V
 [[lose] ‡ [whiskey]]

 [MS [?alip]₁ ‡ [nq^wewt_n]₂]_{MS}

 √?ə‡-p-‡-n-√q^wew=tn
 √lose-Inch-Conn-Loc√drunk=Instr
He lost whiskey. (Carlson and Flett 1989)

³⁹The presence of syntactic category labels for the various levels of affixation in the representations which follow is not intended to suggest that the category membership of each base is preserved.

- (65) čnk^wisʔác'c'x
 čn [[k^wen]_v [sʔac'c'x]_v]_v
 [[try] [look at]]
 [MS čn [k^wen]₁ † [sʔac'c'x]₂]_{MS}
 čn √k^wen-s-√ʔac'(+c')_x
 1sgIntrS √try-Nom-√look at(+OC)
I went to look on. (Carlson and Flett 1989)

The forms in (66) and (67) are nominal compounds which possess a verbal (left) member. Example (66) displays the /t/ marker, while (67) does not due to the occurrence of /s/ as the initial sound of the second member. While both compound lexemes may have been subjected to subsequent derivation, neither form displays any grammatical morphemes which might express such derivation.

- (66) nʔep'tc'ʔin'č
 [[nʔep']_v † [c'ʔin'č]_N]
 [[wipe inside] † [gun]]
 [MS [nʔep']₁ † [c'ʔin'č]₂]_{MS}
 n-√ʔep'-t-√c'ʔ=in'č
 Loc-√wipe-Conn-√ʔ=weapon
guncloth (Carlson 1990)
- (67) laps^wé_p
 [[lap]_v [s^wep]_N]_N
 [[emerge] [hole in the bottom]]
 [MS [lap]₁ † [s^wep]₂]_{MS}
 √lap-s-√s^wep=ep
 √emerge-Nom-√opened=bottom
hemorrhoids (Carlson and Flett 1989)

The forms in (68) and (69) are nominal compounds, neither of which displays the /t/ marker, as is expected due to the presence of /s/ as the initial consonant of the second member. Again there is no evidence to suggest that that these compound lexemes were subjected to derivation subsequent to compounding.

- (68) stʃansčnélx^w
 [[stʃan]_N [sčnelx^w]_N]_N
 [[antelope] [hide]]
 [MS[stʃan]₁ † [sčnelx^w]₂]_{MS}
 s-√tʃan-s-√čn=elx^w
 Nom-√?-Nom-√?=hide
antelope hide (Carlson 1990)

- (69) tamsk^wést
 [[tam]_{Ad} [sk^west]_N]_N
 [[not] [name]]
 [MS[tam]₁ † [sk^west]₂]_{MS}
 √tam-s-√k^wes-t
 √not-Nom-√name-Stat
He has no name. (Carlson and Flett 1989)

The fact that the compounds presented above may not have been subjected to derivational operations subsequent to compounding does not indicate that L- and I-derivational operations cannot apply to compound lexemes. Certain examples in Carlson (1990) clearly illustrate that compound lexemes are routinely subjected to derivation. This is transparently obvious to the extent that the p-representation of a compound lexeme displays the morphophonological reflexes, bound grammatical morphemes, triggered by the presence of certain grammatical

features provided by derivation. L-derivations may alter the grammatical representation of lexemes to include a category change, to convert it from an intransitive verb to a transitive verb, as well as other modifications; such grammatical features are often realized as bound affixes by the morphological spelling mechanism. Likewise, I-derivations provide the morphosyntactic features which are also often realized as bound affixes.

Together the forms in (70) and (71) serve to illustrate that L-derivation may apply to a compound triggering the realization of bound affixes, in this case the /s/ *Nominal* marker prefixed to the p-representation within the Morphological Stem of the compound lexeme. The example in (70) is a simple verbal compound. The form in (71) employs the same verbal compound; however, this form is lexically a noun due to L-derivation subsequent to compounding. When the lexeme entered the MS-component, the grammatical category feature provided by L-derivation triggered the realization of the /s/ *Nominal* marker.

- (70) t'apsqélix^w
 [[t'əp]_v [sqelix^w]_N]_v
 [[shoot] [person]]
- [_{MS}[t'əp]₁ † [sqelix^w]₂]_{MS}
- √t'əp-s-√qel=mix^w
 √shoot-Nom-√body=person
He shot a man. (Carlson and Flett 1989)

- (71) s'tapsqélix^w
 [s [[t'əp]_v [sqelix^w]_N]_v]_N
 [[shoot] [person]]
- [_{MS} s [t'ap]₁ † [sqelix^w]₂]_{MS}
- s-√t'əp-s-√qel=mix^w
 Nom-√shoot-Nom-√body=person
Indian tradition of shooting a gun at midnight on Christmas Eve
(Carlson and Flett 1989)

The forms in (72) and (73) more clearly illustrate the fact that, as with non-compounds, the derivation of compounds relates one lexeme to another. Regarding (72), observe that the only phonological change to which the p-representation of the compound lexeme has been subjected is the addition of the /t/ marker. The form in (73) indicates that this compound lexeme was selected for L-derivation, effectively altering the grammatical representation to create a new transitive (and still compound) lexeme. The grammatical representation of this lexeme was then subjected to I-derivation, by which it acquired various morphosyntactic features. This compound lexeme then entered the MS-component where the morphophonological reflexes of various grammatical features acquired in derivation were realized as the bound suffixes.

- (72) n'tk^w†x'áqne?
 [[n'tuk^w]_v † [x'áqne?]_N]_v
 [[be laid inside] † [pocket]]
- [_{MS} [n'tuk^w]₁ † [x'áqne?]₂]_{MS}
- n-√t'uk^w-†-√x'áq=ene?
 Loc-√be laid-Conn-√?=ear
It's laid in one's pocket. (Carlson 1990)

- (73) $nt'k^w \dagger \chi'áqne?mis$
 [[[nt'uk^w]_v † [χ'áqne?]_N]_v mntəs]_v
 [[be laid inside] † [pocket]]
- $[_{MS}[nt'uk^w]_1 \dagger [\chi'áqne?]_2 mntəs]_{MS}$
- $n\sim\sqrt{t'uk^w}\text{-}\dagger\sim\sqrt{\chi'áq}=\text{ene?}\text{-m-n-t-əs}$
 Loc-√be laid-Conn-√?=ear-TransDer-Ctr-Tr-3TrS
He put it in his (or someone else's) pocket. (Carlson 1990)

The forms in (74)-(76) serve as additional examples. In (74) and (75), the p-representations of the compound lexemes have been altered morphophonologically to correlate with a transitive verb as well as with the relevant morphosyntactic features. In (76), the p-representation has been altered to correlate with an intransitive verb marked for *Nonperfective*. Note the absence of the /t/ marker in these examples, a consequence of the occurrence of /s/ as the initial consonant of the second member.

- (74) $\chi'e\ wi?sp'i\chi'ntx^w$
 $\chi'e\ [[[wəy']_v [sp'ə\chi']_v]_v ntəx^w]_v$
 [[finish] [bare]]
- $\chi'e\ [_{MS}[wi'y']_1 \dagger [sp'i\chi']_2 ntəx^w]_{MS}$
- $\chi'e\ \sqrt{wəy'}\text{-s}\sim\sqrt{p'ə\chi'}\text{-n-t-əx}^w$
 ready √finish-Nom-√bare-Ctr-Tr-2sgTrS
You already finished disassembling it. (Carlson 1990)

- (75) $k^w\text{f}sq^w\text{sé?mis}$
 [[[k^wu^f]_v [sq^wse?]_N]_v ntəs]_v
 [[make] [boy]]
- $[_{MS}[k^w\text{u}^f]_1 \dagger [sq^w\text{sé?}]_2 mntəs]_{MS}$
- $\sqrt{k^w\text{u}^f}\text{-s}\sim\sqrt{sq^w\text{se?}}\text{-m-n-t-əs}$
 √make-Nom-√?-Trans-Der-Ctr-Tr-3TrS
He adopted a boy. (Carlson 1990)

- (76) hesč'e?rsp?úsi
 [hec [[č'e?r]_V [sp?us]_N], mə]_V
 [[ache] [heart]]
- [_{MS} hec [č'e?r]₁ † [sp?us]₂ mə]_{MS}
- hec-č-√c'e(?)r-s-√p?us-mə⁴⁰
 Act-Loc-√ache(Inch)-Nom-√heart-Nonperf
His heart is aching. (Carlson and Flett 1989)

A final example serves to illustrate the fact that Free Stem compound formation is a recursive process to the extent that compound lexemes themselves may be subjected to the compounding process. Anderson (1992) and Bybee (1985), among others, contend that compounds are lexical items. More specifically, Bybee (1985:106) states that,

Even though compounding may be productive in the sense that new compounds are freely created, the results of the compounding process are lexicalized.

As lexemes, these Free Stem compounds are stored in the lexicon. Once listed in the lexicon, a compound lexeme is then a potential candidate for Free Stem compounding. Consider the form in (77). This Free Stem compound comprises two Stems, the second of which is itself analyzable as the compound which bears the /s/ *Nominal* marker, [_{MS}[pul]₁ † [c'ulix^w]₂]_{MS}.

⁴⁰The quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

- (77) $k^w ispl\acute{t}c'?\acute{u}lix^w$
 [[k^wen]_v [$spul\acute{t}c'?\acute{u}lix^w$]_v]_v
 [[try] [kill deer]]
- $[_{MS} [k^w en]_i \acute{t} [spul\acute{t}c'?\acute{u}lix^w]_i]_{MS}$
- $\sqrt{k^wen-s-\sqrt{pul-\acute{t}-\sqrt{c'?=ulix^w}}$
 $\sqrt{try-Nom-\sqrt{kill-Conn-\sqrt{?-ground}}$
He went to go kill a deer. He went deer-killing. (Carlson 1990)

Important to mention is the fact that this second member is not represented as having any internal structure. This is consistent with the assumption that, at some point prior to the application of the spelling operations pertaining to the features of the compound lexeme, these inner lexemes are submitted to the phonological component and their p-representations modified in accordance with the rules of the phonology.

3.3.2 Bound Stem compounds

Next we consider the class of forms here identified as Bound Stem compounds. This discussion includes a description of the facts (Section 3.3.2.1), a diachronic view of the development of Bound Stems (Section 3.3.2.2) and a synchronic analysis of the compounding process (Section 3.3.2.3).

3.3.2.1 Description of the facts

Bound Stem compounding is a type of lexeme formation in which a lexeme which possesses a Free Stem and a lexeme which possesses a Bound Stem are

combined to form a compound lexeme. Bound Stems are those which cannot occur independently of Free Stems; as such, these Bound Stems are usually analyzed as affixes and bear the traditional label *lexical affixes* in the literature. The data set under consideration includes approximately 1500 forms.⁴¹

Included in the category of lexical affixes are approximately one hundred bound forms which typically contribute nominal or locative information to a word. Carlson (1990) tells us that the semantic range of a lexical affix "may be fairly limited, as with =aʁn *arm*, or broad enough to include a range of reference, as with =ic'eʔ *skin, hide, blanket, shell* and =esšn' *knobbed object, rounded object, berry, fruit, rock, forehead*" (p.74).⁴² He also notes that there are very few prefixes in the class of lexical affixes.

Carlson (1990) explains that lexical affixes join with a Root ("or a root extended by a small set of grammatical suffixes" (p.74)) to form a complex Stem. Examples of lexical affixes in context are provided below; lexical suffixes are preceded by the symbol = , while lexical prefixes are followed by the symbol = .

Each of the forms in (78)-(80) comprises a plain Root followed by a lexical suffix; no grammatical morphemes have been affixed to this complex. In each

⁴¹This number excludes all forms which show any degree of reanalysis; consequently, of the 2150 forms which can be analyzed diachronically or synchronically as containing a lexical affix, approximately 650 forms have been excluded from this discussion of Bound Stem compounds. The 650 forms have been included in a discussion of structural reanalysis provided in Chapter 5.

⁴²Despite the fact that multiple glosses may be associated with a particular lexical affix, only one gloss has been cited on the gloss line for each such form.

case the lexical suffix provides information as to the location of the event or state.

- (78) ?emtús
 √?mut=us
 √sit=fire
He sat at the fire. (Carlson and Flett 1989)
- (79) ?emk^wéčst
 √?mək^w=éčst
 √skinned=hand
She skinned her hand. (Carlson and Flett 1989)
- (80) p'x'qín
 √p'əx'=qín
 √be bare=head
He's hatless. (Carlson and Flett 1989)

The forms in (81)-(82) are representative of the lexical prefixes presumed to be productive for Spokane. Again, no grammatical morphemes have been affixed to the Root plus lexical affix complex in these forms. Unlike the suffixes which appear in the examples above, these prefixes do not necessarily contribute nominal or locative information. Although the lexical prefixes of (81) and (82) may be analyzed as expressing nominal and locational meaning, that of (83) seems to function attributively. It may be the case, however, that (83) expresses a locative notion to the extent that a state of being (in this case, *poor little*) may be a metaphorical extension of location.

- (81) pu?alík
 pu?=√alík
 spouse=√Alex
She is Alex's wife. (Carlson 1972a)
- (82) ?epłcítx^w
 ?epł=√cítx^w
 have=√house
He has a house. (Carlson 1972a)

- (83) sm'ttw'it
 sm'=t-√tw'it
 poor little=Dim-√boy
He's a poor little boy. (Carlson 1972)

Interestingly, there are numerous examples which demonstrate that additional lexical affixes may be incorporated into a Root plus lexical affix complex. Consider the forms in (84) and (85). The form in (84a) displays a Root followed by only one lexical suffix =aɫq, while the form in (84b) displays this Root plus lexical suffix complex augmented by the lexical suffix =eɫp.

- (84a) s'tšáɫq
 s-√'iš=aɫq
 Nom-√sweet=fruit
huckleberry (Carlson and Flett 1989)

- (84b) s'tšɫqéɫp
 s-√'iš=aɫq=eɫp
 Nom-√sweet=fruit=plant
huckleberry bush (Carlson and Flett 1989)

Likewise, the forms in (85) and (86) illustrate the same point. The Root plus lexical suffix complex in (85a) underlies the formation of the form found in (85b). In this case, the Root plus lexical suffix complex has been augmented with the lexical prefix sx^w= *Agentive* as illustrated in (85b).

- (85a) q'i?sqáxe?
 √q'əy'=sqáxe?
 √mark=animal
a brand on an animal (Carlson and Flett 1989)

- (85b) sx^wq'i?sqáxe?
 sx^w=√q'əy'=sqáxe?
 Agentive=√mark=animal
one who brands (Carlson and Flett 1989)

Similarly, the Root plus lexical suffix complex in (86a) underlies the formation of the form found in (86b). In this case, the Root plus lexical suffix complex has been augmented with the lexical prefix ʔul = *Collective* as illustrated in (86b).

(86a) ʔsús
 $\sqrt{\text{ʔəs}}$ =us
 $\sqrt{\text{bad}}$ =face
He's ugly. (Black 1995a)

(86b) ʔuʔʔsús
 ʔuʔ = $\sqrt{\text{ʔəs}}$ =us
 Col = $\sqrt{\text{bad}}$ =face
group of ugly people (Black 1995a)

The data set does not contain any examples which demonstrate that lexical suffixes can be added to Stems comprising a lexical prefix.

While forms with one lexical suffix are numerous, those with two lexical suffixes are less common. Forms comprising three or more lexical suffixes are extremely rare. Nevertheless, a survey of the data reveals that lexical suffixes can occur in groups of three.⁴³ The form in (87) serves as an example of those forms which contain three lexical suffixes. While lexical suffixes may co-occur in a form, there is no evidence that lexical prefixes can cooccur. The data set does not contain even one form comprising two or more lexical prefixes, suggesting that the maximum number of lexical prefixes realized in a single word may be one.

(87) nʔay'uʔtqnéʔʔx^w
 $\text{n-}\sqrt{\text{ʔay'}}$ = ew't = qin = e(ʔ) ʔx^w
 $\text{Loc-}\sqrt{\text{sit}}$ (pl.)=*scattered*=*head*=*house*(Pl)
They were sitting at the head of the village. (Carlson and Flett 1989)

⁴³The data set includes one reanalyzed form which, diachronically speaking, can be traced to four lexical suffixes. For discussion, see Chapter 5.

Many Root plus lexical suffix complexes occur with bound grammatical prefixes and/or suffixes which appear ‘outside’ the complex. These facts suggest that Stems comprising a Root plus lexical suffix complex have been subjected to subsequent morphological spelling to produce the Stems provided in (88).

- (88a) nʔuk^wćintx^w
 n-√ʔuk^w=cin-n-t-əx^w
 Loc-√bring=food-Ctr-Tr-2sgTrS
You brought food to him. (Carlson 1990)
- (88b) čyecx^wk^wélpi
 čn hec-√x^wək^w=elp-mə
 1sgIntrS Act-√clean=floor-NonPerf
I am sweeping the floor. (Carlson and Flett 1989)
- (88c) hecxménčstn
 hec-√xm=enč-s-t-ən
 Act-√like=stomach-Caus-Tr-1sgTrS
I liked it. (Carlson and Flett 1989)

The data available for Root plus lexical prefix complexes are less clearcut. As the data on lexical prefixes is extremely limited, it is only possible to make some preliminary observations as to their status within the grammar. The data available suggest that such Stems are not commonly selected for derivation beyond that which is marked by the lexical prefix. Consider the forms in (89)-(91). Since related forms appear with the suffix and without the prefix (as in the (a) examples) but not the reverse, it is likely that the Stems which appear in the (a) examples have been subjected to subsequent morphological spelling to produce the Stems with lexical prefixes which appear in the (b) examples. In (89b) and (90b), the prefix marks an Agentive nominal; in (91b) the prefix marks the spousal

relationship between the taker and the one taken.

- (89a) t^wq^wum
 $\sqrt{t^w\acute{a}q^w-m}$
 $\sqrt{sew-Mid}$
She sewed something. (Carlson and Flett 1989)
- (89b) $sx^wt^wq^wum$
 $sx^w=\sqrt{t^w\acute{a}q^w-m}$
 Agentive= $\sqrt{sew-Mid}$
one who sews / tailor (Carlson and Flett 1989)
- (90a) $w^wefm^wscut^{44}$
 $\sqrt{w^w(e)l^w-m^w-s-t-sut^{45}}$
 $\sqrt{foolish(Rep)-Mid-Caus-Tr-Refl}$
He did something foolish. (Carlson and Flett 1989)
- (90b) $sx^ww^wefm^wscut$
 $sx^w=\sqrt{w^w(e)l^w-m^w-s-t-sut}$
 Agentive= $\sqrt{foolish(Rep)-Mid-Caus-Tr-Refl}$
adulterer (Carlson and Flett 1989)
- (91a) k^wnem
 $\sqrt{k^w\acute{a}n-m}$
 $\sqrt{take-Mid}$
He took something. (Carlson and Flett 1989)
- (91b) $pu?k^wnem$
 $pu?=\sqrt{k^w\acute{a}n-m}$
 spouse= $\sqrt{take-Mid}$
He or she took a spouse. (Carlson and Flett 1989)

Lexical affixes also display an interesting pattern with respect to Head-

⁴⁴The glottalization which appears on the resonants in (90a-b) is a consequence of *Repetitive* reduplication.

⁴⁵The underlying quality of this Root vowel has yet to be determined. It is equally plausible that it is /i/ or /ə/.

referencing operations. While the data set is replete with Root plus lexical affix complexes which display the morphophonological effects of reduplication, the pattern displayed by those forms indicates that lexical affixes are never selected as the Head. Consider the forms comprising a Root plus lexical suffix complex provided in (92)-(94). In each pair the (a) examples are plain forms and the (b) examples are reduplicated forms based on the same Stem as the corresponding (a) forms. The form in (92b) displays the *Diminutive*, that in (93b) the *Distributive*, and that in (94b) the *Out-of-Control* reduplicant. Observe that in each case the putative Root has been selected as the Head.

- (92a) ck^win'č
 √cək^w=in'č
 √pull=weapon
a bow (Carlson and Flett 1989)
- (92b) cck^win'č
 c+√cək^w=in'č
 Dim+√pull=weapon
a short bow (Carlson and Flett 1989)
- (93a) sc'u?šín
 s-√c'u?=šín
 Nom-√?=foot
foot (Carlson and Flett 1989)
- (93b) sc'u?c'u?šín
 s-c'u?+√c'u?=šín
 Nom-Dist+√?=foot
feet (Carlson and Flett 1989)

- (94a) nt'k^wá+q^wɪt⁴⁶
 n-√t'ək^w=a+q^wɪt
 Loc-√set down=throat
It lies in the mouth. (Carlson and Flett 1989)
- (94b) nt'k^wk^wá+q^wɪt
 n-√t'ək^w+k^w=a+q^wɪt
 Loc-√set down+ OC=throat
It accidentally fell in the mouth. (Carlson and Flett 1989)

Now consider the forms comprising a Root plus lexical prefix complex provided in (95)-(96). Since the data set does not include the plain forms, only the reduplicated forms are provided. The form in (95) displays the *Distributive* and that in (96) the *Out-of-Control* reduplicant. Observe that in each case the putative Root has been selected as the Head.

- (95) mn'ɬɬilis
 mn'=ɬil+√ɬil-n-t-əs
 between legs=Dist+√sprinkle-Ctr-Tr-3TrS
He sprinkled blood between her legs. (Carlson 1990)
- (96) snk^w+k^wúɪɪ
 s-nk^wɬ=√k^wuɪ+ɪ
 Nom-together with=√make+OC
marriage partner (Carlson and Flett 1989)

⁴⁶I am uncertain as to the source of the glottalization which appears on the /l/ in (94a-b).

3.3.2.2 Diachronic view of Bound Stem compounding

The works of Egedal (1981), Mattina (1987b) and Carlson (1990) together have established that, in many cases, lexical affixes can be historically traced to independent nouns as well as to lexical items of other categories.⁴⁷ Egedal (1981), using data from Coast and Interior Salishan languages from a variety of sources, locates the origin of Salishan lexical suffixes in noun-incorporation (i.e., noun-verb compounding). He argues his case by demonstrating how closely the Salishan facts conform to the 'universals' of noun incorporation proposed by Mardirussian (1975) and by establishing the similarities between the relics of Muskogean noun incorporation (as discussed in Haas 1978) and the facts of Salishan lexical suffixes. He concludes by expressing the need for "more evidence to substantiate the etymological link" between lexical suffixes and independent nouns. This work then serves as a springboard for subsequent studies on the source of lexical affixes. Mattina (1987b) advances the research program by providing evidence that, in the languages of the Salishan family generally, lexical affixes are indeed historically related to independent nouns. He documents the synchronic link between 37 lexical suffixes and their respective independent nouns; furthermore, he identifies 15 lexical prefixes and establishes nominal correspondences for half of them. Carlson (1990), working exclusively with Spokane data, takes this task further by establishing that the source of lexical

⁴⁷ Although documentation and analysis of forms which contain lexical affixes is abundant for Salishan languages generally, research as to the history and present status of lexical affixes is still in the early stages.

affixes extends beyond independent nouns to include both nominal and non-nominal independent lexical items.

Regarding the development of lexical suffixes, Carlson (1990) views forms which contain such affixes as "paralleling the structure of compounds" and contends that there are two types of Root and lexical affix combinations in Spokane: VN and MN combinations. He proposes that their course of development proceeded in a variety of ways.⁴⁸ Some such affixes lost their initial consonant(s). Such is the case for many lexical suffixes, a few of which are provided in (97):

(97a) =eneʔ 'ear, surface' from the noun t'éneʔ 'ear';

(97b) =elixʷ 'person' from the noun sqélixʷ 'Indian, man'; and,

(97c) =ulixʷ 'ground, dirt, earth' from the noun stúlixʷ 'ground, dirt, earth'.

Another course in the development of lexical suffixes resulted from the fact that the /t/ compound marker had been reanalyzed as the initial segment of the second member of a compound. The examples in (98) serve to illustrate this point:

(98a) =t̥tumš 'person' related forms not yet attested in Spokane;

(98b) =t̥niw't 'side' related forms not yet attested in Spokane; and,

(98c) =t̥čey' 'urine' related to the form t̥čey' 'urinate'.

⁴⁸The examples which follow can be found in Carlson (1990) and/or Carlson and Flett (1989).

The fact that forms related to the lexical suffixes in (98a-b) have yet to be attested is not surprising given the fact that the data currently available for Spokane was not collected with this research program in mind.

Other lexical suffixes demonstrate a third course of development in which the positioning of a vowel before the putative /s/ *Nominal* marker of the second member of a compound or before the putative /t/ compound marker (after reanalysis as initial segment of the second member) occurred. Such suffixes also indicate that the vowel originally present in that member was lost. Examples are provided in (99) and (100):

(99a) =eslk^w 'wood' related to the Root luk^w 'stick of wood';

(99b) =esšn' 'small round objects' related to the word sšen's 'stone';

(100a) =ełc'e? 'inside of body, animal' possibly related to the Root c'?' (meaning undetermined) which is found in the form c'úlix^w 'whitetailed deer', among others; and,

(100b) =ałq^wlt 'throat' as in the form t'k^wáłq^wltn 'necktie'.

Interestingly, the data set also indicates that allomorphs of the same lexical suffix may have developed from compounds which incorporated a non-nominalized Stem as well as a nominalized version of the same Stem. Consequently, one allomorph contains what corresponds to the putative /t/ compound marker and another contains what corresponds to the putative /s/ *Nominal* marker. Compare the example in (100b) to that in (101):

(101) =asq^wlt / asq^llt 'throat' as in the form sx^wmasq^llt⁴⁹ *greasewood*.

It is likely that these allomorphs are related to the form q^wlq^wélt 'He talked'.⁵⁰

These data nicely reflect the fact that both nominalized and non-nominalized Stems are appropriate candidates for compounding; as such, their parallel development as lexical suffixes is not surprising.

Another set of lexical suffixes also exhibits the positioning of a vowel before the second member of a compound; however, in this case there is no /t/ or /s/ present. Such suffixes also display Root vowel loss. The examples in (102) illustrate this development.

(102a) =ew^t 'boat, conveyance' related to the form stq^wwít⁵¹ 'ferry (boat)';

(102b) =atq 'fruit, berry, race, game' related to the form stáq 'valley serviceberry';
and,

(102c) =etk^w 'water' related to the form hi túk^w 'It's muggy'.

And finally some lexical suffixes developed from the second members of

⁴⁹In this particular form, the lexical suffix has lost the labialization on the uvular consonant.

⁵⁰A. Mattina (1987b) identifies two Halkomelem nouns related to this lexical suffix: sq^wéltél *front of neck* with an alternative pronunciation of sq^wéltél; and q^wélté *make breathy noise*. Based on these correspondences, it seems reasonable to posit a relationship between Spokane's lexical suffixes =atq^wlt and =asq^wlt/=asq^llt and the Spokane words based on the Stem q^wélt, despite the absence of glottalization on [q^w] of that Stem. I have yet to investigate the phonological development of this Stem and the processes responsible for the deglottalization.

⁵¹Carlson and Flett (1989) note that, in another dialect of the Spokane-Kalispel-Séliš continuum, the word for *ferry boat* is stqéw^t, which displays phonological changes that exactly match those of the lexical suffix =ew^t.

compounds without consonant loss or vowel addition. The examples in (103) serve to illustrate. Observe that the suffix in (103b) has incurred the loss of a vowel.

(103a) =cin 'mouth, lips, speech, tongue, food' related to Root cən 'hum, speak softly';

(103b) =tn *Instrumental* related to the Root tel 'placed (as for storage or safekeeping)'; and

(103c) =šin 'foot, leg' related to the Root šən 'accompany'.

Although the development of lexical prefixes does not seem as varied as that of lexical suffixes, such an assessment remains tentative since "the survey and comparison of lexical prefixes lags behind that of lexical suffixes" (Mattina 1987b). Minimally, the development of lexical prefixes in Spokane entails two things: the loss of a vowel originally present in an initial compound member; and/or, the analysis of the /t/ compound marker as the final sound of an initial compound member. The forms in (104) serve as examples:

(104a) sx^w= *Agentive* as in sx^wtq^wúm 'tailor, one who sews' and related to the Root √sux^w 'know, understand, be acquainted with'); and

(104b) nk^wt= 'together with, as one' as in snk^wt^wúf? 'marriage partner' (related to the Root √nk^wu? 'one').

Despite the fact that these putative affixes share a common historical development, that is to say they can be traced to the Stems of independently occurring lexemes, these affixes do not synchronically comprise a unified class of linguistic phenomena. The semantics and phonological patterns associated with

these forms indicate that, while most have maintained their lexical status as the p-representations of lexemes, albeit as bound forms, others have lost their status as the p-representations of lexemes and have developed into bound affixes which mark grammatical categories. As an example, consider the fact that while forms like =cin express a range of cognitive meaning (in this case *mouth, lips, speech, tongue, food, edge*) which cannot be reduced to grammatical categories, forms like sx^w= and =tn simply mark the grammatical functions *Agentive* and *Instrumental*, respectively. Furthermore, while the phonological patterns associated with forms like =cin indicate that they have maintained their status as structurally independent Stems, the phonological patterns associated with forms like =tn indicate that they do not have status as structurally independent Stems; rather they pattern with other suffixes.

On my view, the development of lexical affixes represents an analogical readjustment and redefinition of what were at an earlier stage Free Stem compounds. As mentioned above in Section 3.3.1.3, Free Stem compounds are listed in the lexicon. As such, these bases are stored with their internally-structured compound Stems, not unlike the case for idiomatic phrases. Once in the lexicon, however, these bases are subject to phonological, grammatical and semantic change. Important for our purposes is the fact that the compound Stems of these bases routinely undergo morphological reanalysis (which entails the specification of a Head constituent, as is evidenced by the presence of reduplicated material) and phonological reanalysis (whereby certain sounds are

added, deleted, or even reorganized with respect to the structured members of the compounds, as is evidenced by the varying shapes of the lexical affixes witnessed above). Such reanalysis can be viewed as a consequence of *analogical change* motivated perhaps by a propensity to update the output of L-derivational operations which produce compounds (Bynon 1977); that is, on analogy with the existing morphological structure of Spokane non-compounds (which, as you recall, is an adjoined structure with the Morphological Root as the Head of that structure), the p-representation of a lexicalized Free Stem compound may be modified so as to realign it with the prototypical p-representation which specifies a Head constituent. A consequence of this reanalysis is that the relationship between a compound Stem member and its related independent Stem becomes opaque and, further, that that compound Stem member develops a dependent relationship with respect to the other member of the compound. In addition, some of these Stems have passed through yet another stage of development in which they have lost their status as the Stems of lexemes and have been reanalyzed as bound grammatical affixes.

3.3.2.3 Synchronic analysis of Bound Stem compounding

The focus of this section will remain limited to those putative lexical suffixes which have maintained their lexical status as the Bound Stems (p-representations) of lexemes. A small number of putative lexical suffixes have lost

this lexical status and function only as bound grammatical markers. Any reference, then, to bound morphemes can be presumed to include those putative lexical suffixes which, despite their historical link to free Stems, synchronically mark grammatical functions. The data available for putative lexical prefixes suggests that many such prefixes most likely also function as bound grammatical markers and not as the Bound Stems of lexemes. However, given the paucity of Spokane examples which include lexical prefixes (approximately twenty), I have omitted most such prefixes in the synchronic analysis of the morphological structure of the p-representations of Spokane compounds.

Building on the works of Egesdal (1981), Mattina (1987b) and Carlson (1990), I propose that the best way to analyze Spokane forms comprising lexical suffix(es) (which have maintained the semantic and phonological characteristics of lexemes) is as Bound Stem compounds. The structure of such compounds is represented in (105) and varies from that of Free Stem compounds to the extent that it possesses a morphological Head.

(105) [_{MS} Prefixes [_HFree Stem]_{H1} [Bound Stem]₂ Suffixes]_{MS}

These Bound Stem compounds incorporate one lexeme which possesses a Free Stem and another which possesses a Bound Stem to form a compound lexeme.⁵² As such, these forms are structurally comparable (but not identical) to

⁵²Interestingly, Speck (1980) groups Kalispel compound and relevant lexical affix forms in the same chapter, separate from the discussion of derivational and inflectional morphology.

the class of bound combining forms often identified in the literature as pseudo-compounds, prefix-stem combinations, and 'cranberry' forms which are exemplified by the following English examples: *monosyllable* and *photosynthesis*; *conceive* and *submit*; and, *cranberry* and *huckleberry*. Following Anderson (1992), I assume that the Bound Stem compound is formed by L-derivation and possesses word-internal structure similar to that of the Free Stem compound. Unlike the Free Stem compound which is formed with respect to grammatical relations, however, the Bound Stem compound is presumed to be a consequence of *analogical creation*.

Regarding the structural characteristics of such compound lexemes present in the lexicon, Anderson (1992:318) emphasizes that

...there is no reason to doubt that internally structured compounds can also be present there, even in the cases where one (or more) of the elements contained within the structure are not independently available as lexical items.

Like Free Stem compounds, then, Bound Stem compounds are stored in the lexicon in a structurally analyzed form. Unlike Free Stem compounds, however, the bound members of Bound Stem compounds are not presumed in this analysis to have a lexical existence independent of the compound forms in which they appear. I propose that the productivity of such compounds is a consequence of *analogical creation* which serves to "renew and extend the lexical and conceptual resources" of the language (Bynon 1977).

Like other types of L-derivation, including Free Stem compounding, Bound Stem compound formation is lexeme formation. In this case, lexeme formation is effected by a class of analogical rules which operate in the lexicon to relate one

lexeme to another in terms of some change(s) in the grammatical representation of the lexeme. In this case, however, the rules serve to create Bound Stem compounds from existing lexical entries and to parse newly encountered Bound Stem compounds. As such, this type of compound is created as well as interpreted by rules of analogical compound formation; that is, new Bound Stem compounds are formed and decoded via lexical inter-substitution with existing Bound Stem compounds. Anderson (1992) tentatively offers the following procedure as one which might serve analogical creation:

On the basis of lexicalized complex forms, we can suggest that languages have rules of analogical compound formation. That is, given the compounds $[_N[_N X_1] [_N Y]]$ and $[_N[_N X_2] [_N Z]]$, such a rule provides the license for coining $[_N[_N X_2] [_N Y]]$. The semantics of such words are presumably arrived at by a sort of 'triangulation' from what we know about the meanings of the parts and the wholes that we already have. (p.297)

Equally valid may be the more traditional analogical equation described in Bynon (1977). For example, the analogical spread of *-(e)s* as plural marker in English can be represented as:

... *stone* : *stones* = *wound* : *X*, where *X* is *wounds* rather than *wound*, the form that would be expected as a result of regular sound change.... It does not, of course, imply that the lexical item *stone* itself constituted the direct model for the lexical [item] *wound*...; all of these are merely convenient representatives of their classes. (Bynon 1977:33-34)

Regardless of the exact mechanism used in analogical creation, rules of Bound

Stem compound formation can be viewed as those which refer to classes of *bases*⁵³ to create or interpret new internally complex words based on an established pattern in the language. As with Free Stem compounding, the Stems of the bases used in analogical compounding typically lack affixation which is uncontroversially identified as inflectional (at least to the extent that such affixation is syntactically engaged). This again conforms to the assumptions of strict modularity whereby syntactic information is not available to the lexicon.⁵⁴ Subsequent to compounding, this newly formed lexeme may be subjected to L- and I-derivation, the output of which enters the MS-component.

As with Free Stem compounds, it seems reasonable to assume for Bound Stem compounds that the Stems of the lexemes selected for compounding are phonologically complete to the extent that each displays full vowel(s), a preliminary determination of primary stress (which is signaled by an underscore), and perhaps other phonological effects; each also lacks internal structure. Significantly, the prefixal and suffixal material relevant to the grammatical features of the compound lexeme reflect the fact that the p-representation of the compound lexeme as a whole has yet to enter the phonological component. Again, in the interest of maintaining strict modularity, the MS-component is

⁵³Recall that a base is a complete lexeme (having syntax, semantics and sound) or a syntactico-semantically defined set of lexemes.

⁵⁴As mentioned in reference to Free Stem compounds, this is not completely true since it is possible for high-frequency, regularly inflected forms to be listed in the lexicon. For discussion, see Stemberger and MacWhinney (1988).

probably best understood as a sub-component of the phonology proper, as suggested by Beard (1995).

Bound Stem compounds may undergo L- and I-derivation subsequent to compounding. As with non-compounds and Free Stem compounds, the morphological spelling operations triggered by L- and I-derivational features preserve the structural integrity of the compound Stems, spelling out the bound affixes in the Prefixal and Suffixal domains of the Morphological Stem.⁵⁵

Regarding the issue of a morphological Head, it seems to be the case that, in addition to specifying the internal constituency of the Bound Stem compound, the Stem₁ must also be identified as the morphological Head of that structure. This is necessary in order to account for the forms in which a Head constituent is referenced by the morphological spelling operations of reduplication.

Given this perspective on the formation of Bound Stem compounds, I present structural representations for a representative sample of the Bound Stem compounds discussed above. In view of the fact that phonological rules are presumed to apply to each Stem member prior to the morphological spelling operations pertaining to the features of the compound lexeme, these morphological representations are presented so that Stem_{H1} and Stem₂ reflect the fact that certain phonological rules have already applied; notably, each comprises a full vowel which bears (preliminary) primary stress.

The forms in (106)-(108) serve as examples of Bound Stem compounds,

⁵⁵With the exception of the infixes /ʔ/ Inchoative, Repetitive, and /ʔ/ Plural.

which do not display bound affixation.

(106) q'e?šín

[_{MS}[_H q'e?]_{H1} [šín]₂]_{MS}

√q'e?=šín⁵⁶

√squeezed=foot

shoe (Carlson and Flett 1989)

(107) ?ur'ús⁵⁷

[_{MS}[_H wir]_{H1} [ús]₂]_{MS}

√wər=us

√burn=fire

He has a fire burning. (Carlson and Flett 1989)

(108) xsásq't

[_{MS}[_H xəs]_{H1} [əsq't]₂]_{MS}

√xəs=asq't

√good=day

a good day (Carlson and Flett 1989)

Bound Stem compounds may, however, undergo derivation subsequent to analogical compounding which provides grammatical features which later trigger the application of morphological spelling operations.

The examples in (109)-(111) illustrate the structure of a Bound Stem

⁵⁶The underlying quality of the Root vowel from which the Stem₁ derives has yet to be determined. It is equally plausible that the underlying vowel is schwa.

⁵⁷I am uncertain as to the source of the glottalization which appears on the /r/ in this form.

compound whose Head has been subjected to morphological spelling operations subsequent to derivation.⁵⁸ In each case the relevant reduplicant has been adjoined to the Stem₁ since it is the morphological Head. The compound in (109) displays the *Diminutive* reduplicant, that in (110) the *Distributive* reduplicant, and that in (111) the *Out-of-Control* reduplicant. Observe that while the *Diminutive* and *Distributive* reduplicants have been positioned before the Stem₁ in the Prefixal domain of the Morphological Stem, the *Out-of-Control* reduplicant has been represented as simply occupying a position between the two Stems.⁵⁹ In addition to the reduplicants, the forms in (110) and (111) display the /s/ *Nominal* marker and the /n/ *Locative* marker, respectively, in the Prefixal domain of the Morphological Stem.

(109) cck^win'č

[_{MS} c [_H cɨk^w]_{H1} [in'č]₂]_{MS}

c + √cək^w = in'č

Dim + √pull = weapon

a short bow (Carlson and Flett 1989)

⁵⁸The surface occurrence of 'Head-referencing' morphology within Bound Stem compounds does not necessarily signal that a morphological operation has applied to the Head of that compound. In many cases Stems bearing reduplicated Root material are listed in the lexicon; as such, they are potential candidates for compounding as was seen with Free Stem compounding. Nevertheless, it seems reasonable to assume that the forms in (109)-(111) derive from compound Stems which lack such markers. This claim is supported by the fact that their non-reduplicated counterparts are available as provided in examples (92)-(94) above.

⁵⁹Although I assume that the *Out-of-Control* reduplicant adjoins to right edge of Stem_{H1}, I do not provide any additional bracketing. At present, it is unclear what kind of constituent is created by adjunction in such cases; consequently, I forestall complicating the representation with additional bracketing.

(110) sc'u?c'u?šín

[_{MS} sc'u? [_H c'ṽ?]_{H1} [šín]₂]_{MS}

s-c'u?+√c'u?=šín

Nom-Dist+√?=foot

feet (Carlson and Flett 1989)(111) nt'k^wk^wáṽq^wṽt[_{MS} n [_H t'ṽk^w]_{H1} k^w [áṽq^wṽt]₂]_{MS}n-√t'əṽk^w+k^w=áṽq^wṽt

Loc-√set down+ OC=throat

It accidentally fell in the mouth. (Carlson and Flett 1989)

The following examples further illustrate the position of bound affixes. The forms in (112) and (113) include bound affixes positioned to the right of the Stem₂ in the Suffixal domain of the Morphological Stem. The form in (112) displays the /n/ *Control* marker, and that in (113) displays the /šə/ *Redirective* marker; both forms also display the /t/ *Transitive* and /əm/ *Passive* markers. The form in (113) also displays affixal material in the Prefixal domain of the Morphological Stem. This includes the proclitic /q^wu/ as well as the /n/ *Locative* marker.

(112) tqétk^wntm[_{MS}[_H tṽq]_{H1} [ɛtk^w]₂ ntəm]_{MS}√tṽq=etk^w-n-t-əm

√touch=water-Ctr-Tr-Pass

It was soaked. (Carlson and Flett 1989)

(113) q^wunʔuk^wcištm

[_{MS} q^wun [_H ʔuk^w]_{H1} [cin]₂ šətəm]_{MS}

q^wu n-√ʔuk^w=cin-šə-t-əm

1sgO Loc-√bring=food-Redir-Tr-Pass

She brought food to me. (Carlson and Flett 1989)

The form in (114) displays the bound affixes which express *Genitive Imperfective* (the /hec/ *Actual* marker and the *Possessive* marker) as well as the /n/ *Locative* marker, all positioned in the Prefixal domain of the Morphological Stem. In addition, the /m/ *Middle* marker occupies the Suffixal domain. The example in (115) displays bound affixes which express *Absolutive Imperfective* (the proclitic /čn/ and the /hec/ *Actual* marker) as well as the /n/ *Locative* marker, all positioned in the Prefixal domain. In addition, this form displays the /mə/ *Nonperfective* marker in the Suffixal domain.

(114) yecnʔemtéw'sm

[_{MS} hinhecn [_H ʔemut]_{H1} [ew's]₂ m]_{MS}

hin-hec-n-√ʔmut=ew's-m

1sgPoss-Act-Loc-√sit (sg.)=middle-Mid

I'm waiting for him. (Carlson and Flett 1989)

(115) čyecnqʔutétk^wi

[_{MS} čnhecn [_H qʔwet]_{H1} [etk^w]₂ mə]_{MS}

čn hec-n-√qʔwet=etk^w-mə

1sgIntrS Act-Loc-√stand on=water-NonPerf

I'm bathing my feet. (Carlson and Flett 1989)

As mentioned earlier, a Bound Stem compound may contain more than one putative lexical suffix. The examples in (116)-(117) serve to illustrate the fact that, like Free Stem compounding, analogical compounding is a recursive process to the extent that the Bound Stem compounds, as Free Stems, may be selected for analogical compound formation. As is the case for Free Stem compounds, a Bound Stem compound, once listed in the lexicon as a Free Stem, is a potential candidate for compounding. Consider the form in (116). This compound comprises two members, the first member of which is itself analyzable as the compound $[_{MS}[_{H}\check{s}en']_{H1} [_{cin}]_2]_{MS}$.

(116) šn'cnétk^w

$[_{MS}[_{H}\check{s}n'cin]_{H1} [_{etk^w}]_2]_{MS}$

$\sqrt{\check{s}en'} = cin = etk^w$

$\sqrt{\text{stone}} = \text{edge} = \text{water}$

rocky riverbank (Carlson and Flett 1989)

The example in (117) shows a similar history to the extent that the first member of the compound is analyzable as the Bound Stem compound $[_{MS}[_{H}?\text{ay}'ew't]_{H1} [qin]_2]_{MS}$; furthermore, the first member of this inner compound is again analyzable as the Bound Stem compound $[_{MS}[_{H}?\text{ay}']_{H1} [ew't]_2]_{MS}$.

(117) n?ay'u?qtqné?tk^w

$[_{MS} n [_{H} ?\text{ay}'w'tqin]_{H1} [e(?)tk^w]_2]_{MS}$

$n\sim\sqrt{?\text{ay}'} = ew't = qin = e(?)tk^w$

Loc- $\sqrt{\text{sit}}$ (pl.) = scattered = head = house(Pl)

They lived up there. They were sitting at the head of the village.

(Carlson and Flett 1989)

The examples in (118) and (119) illustrate that Bound Stem compounds, like other Stems stored in the lexicon, may be incorporated into a Free Stem compound as well. In the Free Stem compound of (118) the source for the Stem₂ is the Bound Stem compound [MS[H q'e?]_{H1} [šin]₂]_{MS}. In the Free Stem compound of (119) the source for the Stem₁ is the Bound Stem compound [MS čt [H taq]_{H1} [ene?]₂]_{MS}.

(118) ?alp+q'e?šín

[MS[?alip]₁ + [q'e?šín]₂]_{MS}

√?əl-p-†-√q'e?=šín

√lose-Inch-Conn-√?=foot

He lost his moccasins. (Carlson and Flett 1989)

(119) čt+qna?sqélix^w

[MS[čtqene?]₁ + [sqélix^w]₂]_{MS}

čt-√taq=ene?-s-√qel=mix^w

Loc-√touch=ear-Nom-√body=person

He got his hand on it (e.g., a louse in the hair). (Carlson and Flett 1989)

Those Bound Stem members which have a complex history of compounding are not represented as having any internal structure; only the latest in a series of compound formations is presumed to have internal structure. This is again consistent with the assumption that the Stem members of compounds, even Stems which are themselves Bound Stem compounds, will have already been subjected to certain rules of the phonology prior to the application of the spelling operations which pertain to the compound lexeme.

3.3.3 Summary: the morphological structures of compounds

The facts of Spokane compound formation indicate that compounding is effected by lexical operations; that is, they occur in the lexicon, to relate one lexeme to another in terms of some change(s) in the grammatical representation of the lexeme. In the case of Free Stem compounds, compounding is accomplished by operations which refer to two bases and operate primarily at the level of grammatical relations to combine the relevant Stems of those bases and to specify the internal constituency of the p-representation of the resulting compound lexeme. Regarding Bound Stem compounds, compounding is accomplished by rules of analogical compound formation which refer to classes of bases to create or interpret new internally complex words based on an established compound pattern and to specify the internal constituency of the p-representation of the resulting compound lexeme. Such operations engender additional structure in that two Stems are structurally adjoined. The presence of such structure in either type of compound is indicated by the fact that it is referred to by the spelling operations of the MS-component. As such, compounds are also analyzed as composites as conceived of in Anderson (1992). Significantly, while the p-representations of Free Stem compounds do not seem to include specifications for a morphological Head, those of Bound Stem compounds do include specifications for a morphological Head.

3.4 Conclusions

Throughout this chapter, I have provided evidence to support the claim that Spokane lexemes, non-compounds and compounds alike, are composites as conceived of in Anderson (1992). The p-representation of the non-compound maximally possesses a flat constituent structure which specifies the Morphological Root as Head of that structure as represented in (120). As such, morphological spelling operations are presumed to adjoin affixal material with respect to the pre-existing morphological structure of the Head constituent, while preserving the structural integrity of that Head.

(120) $[_{MS} \text{Prefixes } [_H \text{Root}]_H \text{Suffixes}]_{MS}$

The p-representation of the compound maximally possesses a flat structure which includes two structurally distinct Stems as represented in (121). The Free Stem compound comprises two Free Stems adjoined within a Morphological Stem and lacks a morphological Head as in (121a). The structure of Bound Stem compounds varies from that of Free Stem compounds to the extent that it possesses a Free Stem as Stem₁ and a Bound Stem as Stem₂, and further that it specifies the Stem₁ as the morphological Head as in (121b).

(121a) $[_{MS} \text{Prefixes } [\text{Free Stem}]_1 [\text{Free Stem}]_2 \text{Suffixes}]_{MS}$

(121b) $[_{MS} \text{Prefixes } [_H \text{Free Stem}]_{H1} [\text{Bound Stem}]_2 \text{Suffixes}]_{MS}$

This concludes the discussion of the morphological structures of Spokane lexemes. We now turn our attention to the issue of phonological structure.

Chapter 4

The Phonological Structures of Spokane Lexemes

4.0 Introduction

This chapter examines the phonological structures of Spokane lexemes and establishes that the phonological component attends to the p-representation of the lexeme which results as the output of the MS-component. As such, the structural characteristics of that p-representation remain salient for the phonology. It will be demonstrated that the domains of the p-representations to which the phonological component attends are isomorphic with the domains of the p-representations which emerge from the MS-component (at least at the lowest level of structure). Once these p-representations enter the phonology proper, however, the preexisting domains of those p-representations are organized into hierarchical structures. I argue that p-representations of Spokane non-compounds and compounds maximally possess the phonological structures represented in (1) and (2), respectively:

- (1) $[_{PW} \text{Prefixes } [_{PS}[_{PR} \text{Root }]_{PR} \text{Suffixes }]_{PS}]_{PW}$ ¹
- (2) $[_{PW} \text{Prefixes } [_{PS}[_{1} \text{Stem }]_{1} [_{2} \text{Stem }]_{2} \text{Suffixes }]_{PS}]_{PW}$

Throughout this chapter I rely on the facts of primary stress assignment and, when necessary, the facts of retraction and nasal shift, to provide evidence for the

¹This structure is adopted from Czykowska-Higgins (1995, to appear).

phonological structures identified in (1) and (2).

In Spokane, a lexeme is assigned one primary stress, the position of which is determined by a variety of factors. Although secondary stress (or any other degrees of stress) may be phonetically detectable, its phonological relevance has yet to be ascertained; hence, I leave any descriptive or theoretical discussion of secondary stress for future research. For present purposes I recognize only a distinction between stressed and unstressed vowels. Loosely defined, the term primary stress refers to an impression of prominence due to an increase in *loudness* of a syllable headed by a stressed vowel and is most likely correlated with increases in *length* and *pitch*. Spectrographic analyses of primary stress have yet to be accomplished for Spokane.

In addition to utilizing the stress facts to provide evidence for the phonological structures identified in (1) and (2), I will take advantage of this opportunity to specify the parameters of primary stress assignment in Spokane, which have yet to be precisely defined. It will be seen that, in addition to assessing the structure of the p-representation of a particular lexeme, stress assignment attends to four additional aspects: the quality of the vowels present within the Phonological Stem constituent; the presence or absence of a vowel within the domain identified as the optimal domain for stress placement; the underlying [consonantal] status of sonorants within that optimal domain; and, the leftmost edge within that optimal domain.

In section 4.1, I provide evidence based on the facts of primary stress

assignment, retraction and nasal shift to support the claim that the p-representations of non-compound lexemes maximally possess the phonological structure posited in (1) above. In section 4.2, I provide evidence also based on the facts of primary stress assignment, retraction and nasal shift to support the claim that the p-representations of compound lexemes, both Free and Bound Stem compounds, maximally possess the phonological structure posited in (2) above. Section 4.3 serves to summarize my conclusions regarding the phonological structures of Spokane lexemes and the parameters of primary stress assignment.

4.1 The phonological structure of non-compound lexemes

Recall from the analysis provided in Chapter 3 that the morphological structure of the p-representation of a non-compound lexeme is a flat constituent structure in which affixes are adjoined to the Morphological Root as the Head of that structure as illustrated in (3):

(3) $[_{MS} \text{Prefixes } [_{H} \text{Root}]_{H} \text{Suffixes}]_{MS}$

The stress facts, as well as the facts of retraction and nasal shift, demonstrate that these same domains are relevant for the phonology. The data effectively demonstrate that the domains of the morphological structure of (3) are isomorphic with the domains of the phonological structure (at least at the lowest level of structure). In addition, however, the facts indicate that a hierarchical relationship exists among the phonological domains.

I follow Czaykowska-Higgins (1995, to appear) in representing the maximal

phonological structure of the p-representations of non-compounds as in (4):

$$(4) \quad [_{PW} \text{Prefixes } [_{PS}[_{PR} \text{Root }]_{PR} \text{Suffixes }]_{PS}]_{PW}^2$$

Unlike the flat constituent structure of the Morphological Stem, the domains of the Phonological Word exist within a hierarchical relationship. The bracketing provided in the representation is intended to call attention to the complex relationships held among these domains as are evidenced by the application of various rules of the phonology. The fact that the Phonological Root (PR) is characterized with both left and right edge bracketing is meant to highlight the special phonological treatment it receives within the Phonological Stem (PS).

Likewise the Phonological Stem (PS) displays both left and right edge bracketing

²Czaykowska-Higgins (1995, to appear) provide an analysis of the morphological and phonological structures of words in Spokane's sister language Moses-Columbia. Although the phonological constituents bear the same labels in those analyses and the present analysis, it is important to acknowledge the differences regarding the content and structure within each domain. The 'content' differences may reflect the fact that the two languages have distinct grammars, while the structure posited within each domain (or lack thereof) results from theory internal assumptions. The differences are few in number but significant.

The PR domains differ in that Czaykowska-Higgins analyzes the *Out-of-Control reduplicant* of Moses-Columbia as included in the PR domain, whereas in the present analysis of Spokane, this marker is realized within the Suffixal domain of the PS. Another important difference can be found with respect to *lexical suffixes*. Czaykowska-Higgins analyzes these as lexical and morphosyntactic suffixes and places these in the Suffixal domain of the PS, whereas the present analysis views them as Bound Stem members of compounds which constitute phonological domains distinct from the Suffixal domain of the PS. The Prefixal domain of the PW is also filled out differently to the extent that the Czaykowska-Higgins' analyses of Moses-Columbia do not include a discussion of the position of proclitics as members of this phonological domain, whereas in the present analysis of Spokane it is necessary to include them. Finally, it must be acknowledged that Czaykowska-Higgins' analyses are morpheme-based and assume additional structure within each of the domains PR, PS, and PW; recall that the present analysis is lexeme-based and does not assume additional structure within each of those domains.

as does the Phonological Word (PW), since such bracketing specifies the bounds of certain phonological processes. For example, the PS represents the province of primary stress assignment and long-distance retraction; the bracketed characterization of the PS constituent serves to exclude the Prefixal domain which is beyond the purview of both processes (Carlson 1972a, 1976, 1980a, 1989, 1993, Carlson and Bates 1990, 1991, Bates and Carlson 1989). In addition, it must be emphasized that the Prefixal and Suffixal domains do not occupy trivial positions within the phonological structure of the non-compound lexeme; in fact, these domains are also given careful consideration by the rules of the phonology as will be seen below.

Certain characteristics of the phonological structure of non-compounds are not obvious in the representation. It is important to recognize that the left edge of the PS and that of the PR always coincide, as do the right edge of the PS and that of the PW. Other edge correspondences depend on the presence or absence of prefixal and suffixal material. For example, in a form which completely lacks affixes, the left and right edges of the PW, PS and PR coincide and, therefore, represent a single domain.

I begin this examination of the phonological structure of non-compounds by first considering the stress facts associated with bare Roots. I then proceed to forms which include bound affixes. Finally, I provide a summary of the facts concerning non-compound composites.

4.1.1 Bare Roots

Before examining non-compound lexemes which display bound affixes, let us first consider the facts of primary stress assignment in forms which comprise only a bare Root. There are two types of Root in Spokane: strong and weak.³ Strong Roots are those which contain at least one full vowel, while weak Roots contain only schwa.⁴

Each of the forms found in (5)-(8) possesses only one vowel. Regarding the forms in (8), the first vowel which appears in each surface form is epenthetic. This is determined by the phonotactics of the language which require the phonemes /ʔ/ and /h/ to be accompanied by a vowel, underlying or epenthetic, in order to surface.⁵ Those forms in the lefthand column are strong Roots with full vowels; conversely, those forms in the righthand column are weak Roots, each with schwa. Observe that, despite the difference in the quality of the vowels (full vs. schwa), primary stress has been assigned to the Root vowel in every case. Since each of these forms comprises only a Root, I have chosen to omit the

³Early analyses of Spokane Roots posited two categories, strong and weak, based on the position of primary stress in a particular form. In an attempt to describe additional stress facts, subsequent analyses added a third category (the variable class). This study recognizes only two types of Root.

⁴The most reliable way to determine the quality of a Root vowel is to check whether or not the Root vowel bears primary stress when the Root is followed by affixation which contains a schwa(-class vowel) (e.g., subject and object person marking). In the event that the Root vowel does bear primary stress in such a context, then it is a full vowel; otherwise, it is schwa. Unless noted otherwise, whenever a Root vowel is identified as full or schwa, it can be assumed that it was evaluated using this diagnostic.

⁵ For discussion, refer to Chapter 2.

representation of the relevant phonological structure $[_{PW}[_{PS}[_{PR}]_{PR}]_{PS}]_{PW}$.

Strong Roots

- (5a) hi púx^w
 hi √pux^w
 Prt √give off odor
It smells.

(Carlson and Flett 1989)

- (6a) čnwé?⁶
 čn √we?
 1sgIntrS √shout
I shouted.

(Carlson and Flett 1989)

- (7a) yéfx^w
 √yefx^w
 √covered
It's covered.

(Carlson and Flett 1989)

- (8a) ?emút
 √?mut
 √sit
He sat.

(Carlson and Flett 1989)

Weak Roots

- (5b) hi tóq^w
 hi √təq^w
 Prt √bare
It's bare.

(Carlson and Flett 1989)

- (6b) hi x'im
 hi √x'am
 Prt √pointed
Something sharp is sticking out.

(Carlson and Flett 1989)

- (7b) yérk^w
 √yærk^w
 √bent
It's bent. It's crooked.

(Carlson and Flett 1989)

- (8b) ?emúk^w
 √?mæk^w
 √skinned
It is skinned.

(Carlson and Flett 1989)

It is also important to note that the stressed vowels in the righthand column, despite their underlying status as schwas, surface as full vowels.

Additional data indicate that, in the event that a bare Root contains multiple full vowels or multiple schwas, the leftmost vowel among them will receive primary stress. Consider the forms in (9)-(11). Each form is based on a bare Root which contains two or more vowels. Observe that the leftmost vowel is

⁶The position of proclitics within the phonological structure of non-compounds is addressed in Section 4.1.3.

stressed despite the number of vowels present underlyingly.⁷

Strong Roots

- (9a) ʔócqeʔ
 √ʔociqʔ
 √go out
He went out.
 (Carlson and Flett 1989)

Weak Roots

- (9b) cálx^w
 √cələx^w
 √clustered
It's clustered.
 (Carlson and Flett 1989)

- (10a) k^wútʔul
 √k^wutʔul
 √eel
eel (Black 1995a)

- (10b) ẽinp'
 √ẽənəp'
 √clamped
It's clamped. (Black 1995a)

- (11a) mérwiʔ
 √merwiʔ
 √seasoning
seasoning
 (Carlson and Flett 1989)

- (11b) ẽin'x^w
 √ẽən'əx^w
 √crowd
crowding, pesty
 (Carlson and Bates 1990)

Since each of these forms contains either full vowels or schwas, these facts cannot reveal what role, if any, vowel quality plays in the placement of primary stress; that is, in a form which comprises a bare Root with full and schwa vowels and whose leftmost vowel is schwa, is primary stress assigned to the leftmost full vowel or to the leftmost vowel, full or schwa? Non-compound composite forms discussed in Section 4.1.2.2 (examples (49-51)) of this chapter, as well as reanalyzed forms discussed in Chapter 5, indicate that within the domain identified by the phonology as the optimal domain for stress placement, the leftmost

⁷These Roots may be historically related to complex forms and their synchronic status as Roots may be a consequence of reanalysis. See Chapter 5 for discussion. Regarding (9b), (10b) and (11b), evidence for the underlying status of the second schwa rests on the fact that the spelling operation *Out-of-Control* reduplication selects the bimoraic (instead of the monomoraic) allomorph for each of these Roots.

underlying full vowel within that domain is chosen to bear primary stress. Further, they indicate that, in the event that only schwa vowels are present in the relevant domain, the leftmost schwa among them receives primary stress. For now, I simply state the preliminary version of primary stress placement as follows: *stress the leftmost vowel within the relevant domain* (as evidenced by the bare Root facts). I shall modify this statement below as required by the data. We now turn to forms which display suffixal material.

4.1.2 Roots with suffixal material

The stress facts associated with non-compounds comprising a Root followed by suffixal material clearly demonstrate that the phonological structure of non-compounds includes a Root domain which is distinct from a Suffixal domain. It will be seen that the right edge of the Root marks the boundary between two phonological domains; that is, at the lowest level of phonological structure, the affixal material which is positioned to the right of the Root constituent exists in a domain distinct from the Root.

A comparison of forms comprising strong Roots with accompanying suffixal material to those comprising weak Roots with accompanying suffixal material indicates that, in addition to attending to domains, the process of primary stress assignment assesses the quality of the vowels in each domain in order to locate the optimal domain for stress placement. It will be demonstrated that the process of

stress assignment is sensitive to the presence or absence of a full vowel. The facts provided below indicate that the parameter of primary stress placement in Spokane must be modified to address this issue and, further, to specify the convention for assigning primary stress in the event that the form completely lacks a full vowel. For the purposes of this section I present forms which lack prefixal material. Since the examples discussed in this section include only those domains contained within the PS constituent, I have chosen to omit from the representations reference to the PW edges.

4.1.2.1 Consonantal suffixal material

We get a clear indication of the relevance of the Root and Suffixal domains of the phonological structure posited for non-compounds by assessing the stress facts of forms comprising Roots augmented by suffixes which underlyingly lack a vowel. Among the consonantal suffixes under consideration are /m/ *Middle*, /p/ *Inchoative*, and the monomoraic allomorph of *Out-of-Control* reduplication, as well as various *Imperative* markers.

We begin by scrutinizing the stress patterns displayed by forms comprising a Root followed by the /m/ *Middle* marker. Consider the forms in (12)-(14), each of which comprises a Root followed by /m/ *Middle*. Forms with strong Roots can be found in the lefthand column, and those with weak Roots in the righthand column. Significant for present purposes is the fact that primary stress has not been assigned to the same position in each form. Notice that in the forms on the

left, primary stress has been assigned to the Root vowel, while in the forms on the right primary stress has been assigned to an epenthetic vowel which appears to the right of the Root before the /m/ *Middle*.⁸

Strong Roots

- (12a) xáq'm
 [ps[PR xaq']PR m]PS
 √xáq'-m
 √pay-Mid
He paid. He put money down for something. (Black 1995a)

- (13a) c'íp'm
 [ps[PR c'ip']PR m]PS
 √c'íp'-m
 √pinch-Mid
She pinched something. (Black 1995a)

- (14a) méx'm
 [ps[PR mex']PR m]PS
 √mex'-m
 √mix-Mid
He shuffled (the cards). (Black 1995a)

Weak Roots

- (12b) q'ým
 [ps[PR q'əy']PR m]PS
 √q'əy'-m
 √striped-Mid
She wrote something. (Black 1995a)

- (13b) x'q'úm
 [ps[PR x'əq'w]PR m]PS
 √x'əq'w'-m
 √poke-Mid
He poked a hole in something. He used an awl. (Black 1995a)

- (14b) q'mím
 [ps[PR q'əm]PR m]PS
 √q'əm-m
 √swallow-Mid
He swallowed. (Carlson and Flett 1989)

These stress patterns indicate that for the purpose of determining the optimal position for primary stress, the grammar assesses the number of domains present and the quality of the vowel(s) present in each domain. The pattern displayed by the strong and weak Roots demonstrates that full vowels are more highly valued than schwa. The pattern displayed by the weak Roots demonstrates that in forms which lack a full vowel and possess suffixal material, the rightmost domain (even

⁸The fact that epenthesis occurs in such forms for the purpose of bearing primary stress has been previously observed in Bates and Carlson (1989) and Carlson and Bates (1991).

one which completely lacks a vowel) is more highly valued than the weak Root domain. That the epenthetic vowel exists within the Suffixal domain of the weak Root forms is a necessary assumption. If we were to assume that in such forms the epenthetic vowel occupied a position within the Root domain to the right of the final Root segment, then not only could we not explain the motivation for epenthesis, but we could not explain why epenthesis does not take place in bare weak Root forms.

Observe that while the position of the epenthetic vowel in the weak Root forms appears to the right of the Root in the Suffixal domain, it occupies a significant position in that domain. The possibilities for epenthesis within the Suffixal domain of such forms are limited to two: the position which precedes the consonantal suffix or the position which follows that suffix. Significantly, the position selected for epenthesis (that which precedes the suffix) conforms to the *leftmost* domain edge emphasized in the preliminary version of primary stress placement which states *stress the leftmost vowel within the relevant domain*.

Identical to the stress patterns exhibited by forms which display /m/ *Middle* are forms comprising a Root followed by /p/ *Inchoative*. Typically, /p/ *Inchoative* is the suffix associated with weak Roots, while infix /ʔ/ *Inchoative* is associated with strong Roots.⁹ Consequently, the forms under consideration comprise only weak

⁹Although strong Roots with /p/ *Inchoative* are not common, the data set does include a small number of them. Unfortunately, such forms also occur with additional markers and so are not suitable for this section of description. Nevertheless, the stress patterns exhibited by those forms match those of other strong Roots described throughout this document.

Roots. Consider the examples in (15)-(17). In each case primary stress has been assigned to an epenthetic vowel which appears to the right of the Root before the /p/ *Inchoative*.

- (15) t'yíp
 [PS[PR t'əy]PR P]PS
 √t'əy-p
 √fall-Inch
He fell off. (Carlson and Flett 1989)

- (16) x'íip
 [PS[PR x'əl]PR P]PS
 √x'əl-p
 √still-Inch
It stopped. It became still. (Black 1995a)

- (17) p'x'íp
 [PS[PR p'əx']PR P]PS
 √p'əx'-p
 √bare-Inch
It came apart. It came off. (Black 1995a)

This same stress pattern is also exhibited by Roots which have been augmented by *Out-of-Control* reduplication. Consider the forms in (18)-(20). Each comprises a Root followed by the C₂ monomoraic allomorph of *Out-of-Control* reduplication. Recall that this type of reduplication copies the second mora of the Root (in this case the C₂) and suffixes that copy to the second mora of the Root. Observe that the strong Root forms in the lefthand column bear primary stress on the Root vowel, while the weak Root forms in the righthand column bear primary stress on an epenthetic vowel which appears to the right of the Root and before the reduplicant.

Strong Roots

- (18a) p'éx^wx^w
 [ps[PR p'ex^w]PR x^w]ps
 √p'ex^w+x^w
 √bright+OC
It got bright all of a sudden.
 (Carlson and Thompson 1982)

- (19a) láq'q'
 [ps[PR laq']PR q']ps
 √laq'+q'
 √bury+OC
It got buried.
 (Carlson and Thompson 1982)

- (20a) čnc'íp'p'
 čn [ps[PR č'ip']PR p']ps
 čn √č'ip'+p'
 1sgIntrS √pinch+OC
I accidentally got pinched.
 (Black 1995a)

Weak Roots

- (18b) cqáq
 [ps[PR cəq]PR q]ps
 √cəq+q
 √place+OC
It stopped.
 (Carlson and Thompson 1982)

- (19b) x'íl
 [ps[PR x'əl]PR l]ps
 √x'əl+l
 √still+OC
He died.
 (Black 1995a)

- (20b) †p'íp'
 [ps[PR †əp']PR p']ps
 √†əp'+p'
 √mark+OC
It got marked unexpectedly.
 (Carlson and Thompson 1982)

In addition to forms whose *Out-of-Control* reduplicant is clearly added as a suffix, it is important to consider forms in which the reduplicant appears as an infix. In such cases it is necessary to establish whether this morphological spelling operation of the MS-component has actually infixated the reduplicant within the Root constituent or has suffixed the reduplicant to the Root by effectively redefining the boundary of the Root itself.

Recall from the discussion provided in Chapter 2 that there are Roots of the shape C₁VC₂C₃ within which the *Out-of-Control* reduplicant surfaces between the C₂ and C₃ that Root. The words in (21) and (22) serve as examples. Based on the strong Root forms which appear in the lefthand column, it is not possible to determine whether the reduplicant has been incorporated into the form as a

'true' infix within the Morphological Root domain or as a suffix, since the full vowel of the Root is predicted to bear primary stress. The weak Root forms provided in the righthand column,¹⁰ however, suggest that the reduplicant and the original C₃ of the Morphological Root exist within the Suffixal domain.

Strong Roots

(21a) ʔáć'ćʔ

[PS[PR ʔac']PR c'ʔ]PS

√ʔac'(c')ʔ

√look(+OC)

*He watched or observed.**(Carlson and Thompson 1982)***Weak Roots**

(21b) pʔíʔt

[PS[PR pəʔ]PR ʔt]PS

√pəʔ(ʔ)t

√thick(+OC)

It's dense. (Black 1992a)

(22a) kʷéllē

[PS[PR kʷel]PR lē]PS

√kʷel(l)ē

√inverted(+OC)

*It tipped over by accident.**(Carlson and Thompson 1982)*(22b) čskʷíʔt¹¹[PWčS[PS[PR kʷəʔ]PR ʔt]PS]PW¹²

č-s-√kʷəʔ(ʔ)t

Loc-Nom√red(+OC)t

*He got sweaty.**(Carlson and Flett 1989)*

In the event that the reduplicant exists within the Root domain, the schwa of the weak Root is predicted to bear primary stress. In the event that the reduplicant and, by implication, the consonant to its right exist within the Suffixal domain, primary stress is predicted to appear on an epenthetic vowel at the left

¹⁰These weak Root forms are a consequence of reanalysis. While the /t/ *Stative* marker appears on the morpheme segmentation and gloss lines for these forms (as well as others throughout this document), this is only to maintain consistency with traditional descriptions. Although the /t/ *Stative* marker has a place in the discussion of the grammar of Spokane diachronically, the facts of reanalysis indicate that it has no synchronic relevance. For discussion, see Chapter 5.

¹¹The source for this glottalization is unknown.

¹²As this form also displays prefixal material, it is represented within PW bracketing which specifies the edges of the Phonological Word. Words with prefixal material are discussed in detail in Section 4.1.3.

edge of the Suffixal domain. In fact, the forms in (21b) and (22b) display primary stress on an epenthetic vowel to the right of the Root C_2 . Taking the facts in (18)-(20) and (21)-(22) together then, it seems reasonable to assume an identical phonological structure for Roots of the shape CVC and Roots of the shape CVCC which have been augmented by *Out-of-Control* reduplication; that is, such Roots minimally comprise a Root domain followed by a Suffixal domain. These facts suggest that this morphological spelling operation of the MS-component has suffixed the reduplicant to the Morphological Root by redefining the boundary of the Root at the second mora. This is consistent with the claim that when such forms enter the phonology proper, the boundary between the Phonological Root and Suffixal domains is also defined at that second mora.

As with the other forms comprising a Root followed by consonantal suffixes, these stress patterns indicate that there are two phonological domains present in these forms, the Root and Suffixal domains, and that the quality of the vowel present in the Root domain determines which domain is selected as the optimal domain for stress placement. When strong and weak Root forms which have been augmented with consonantal suffixes are compared side by side, the stress facts associated with these forms indicate the need to elaborate on the parameter of stress assignment. Two additional factors must be included: first, that the phonological structure of forms which contain suffixal material comprises two distinct domains; and second, that the quality of the Root vowel plays a significant role in locating the domain of primary stress placement. Before

revising the parameter of primary stress assignment, however, we must review some additional facts pertaining to consonantal suffixes.

We now consider various *Imperative* markers as well as the *Imperative Plural* marker. Each of the forms in (23) and (24) displays a marker correlated with the *Intransitive Imperative*; those in (23) include the suffix /š/ in commands directed at an individual, while those in (24) include the suffix /wy/ in commands directed at two or more individuals. The forms in the lefthand column are based on strong Roots, and those in the righthand column on weak Roots. Notice that in the forms on the left, primary stress has been assigned to the Root vowel, while in the forms on the right primary stress has been assigned to an epenthetic vowel which appears to the right of the Root before the the suffixal material. The position of the epenthetic vowel in the weak Root forms corresponds to the left edge of the rightmost domain. These patterns exactly match the stress patterns of strong and weak Root forms containing the consonantal suffixes reviewed above.

Strong Roots

(23a) x^wúyš
 [PS[PR x^wuy]PR š]PS
 √x^wuy-š
 √go-ImpSg
 Go (*singular*)!
 (Carlson and Flett 1989)

(24a) x^wúywi
 [PS[PR x^wuy]PR wy]PS
 √x^wuy-wy
 √go-ImpPl
 Go (*plural*)!
 (Carlson and Flett 1989)

Weak Roots

(23b) šlíš
 [PS[PR šəl]PR š]PS
 √šəl-š
 √chop-ImpSg
 Chop (*singular*)!
 (Carlson and Flett 1989)

(24b) šlíwi
 [PS[PR šəl]PR wy]PS
 √šəl-wy
 √Chop-ImpPl
 Chop (*plural*)!
 (Carlson and Flett 1989)

The same patterns occur in forms which display the /k^w/ *Transitive Imperative* marker associated with /st/ *Transitive* Stems. Consider the words in (25)-(26). Forms with strong Roots can be found in the lefthand column, and those with weak Roots in the righthand column. Notice that in the forms on the left, primary stress has been assigned to the Root vowel, while in the forms on the right primary stress has been assigned to an epenthetic vowel which appears to the right of the Root before the /s/. The presence of additional consonantal material, that of *Imperative Plural*, at the right edge of the Suffixal domain has no effect on stress placement.

Strong Roots

(25a) púlsk^w
 [ps[PR pul]PR stk^w]PS
 √pul-s-t-k^w
 √kill-Caus-Tr-Imp
Kill (singular) him!
 (Carlson 1972a)

(26a) púlsk^wi
 [ps[PR pul]PR stk^wy]PS
 √pul-s-t-k^w-y
 √kill-Caus-Tr-Imp-Pl
Kill (plural) him!
 (Carlson 1972a)

Weak Roots

(25b) wyísk^w
 [ps[PR wəy']PR stk^w]PS
 √wəy'-s-t-k^w
 √finish-Caus-Tr-Imp
Finish (singular) it!
 (Black 1995a)

(26b) wyísk^wi
 [ps[PR wəy']PR stk^wy]PS
 √wəy'-s-t-k^w-y
 √finish-Caus-Tr-Imp-Pl
Finish (plural) it!
 (Carlson and Flett 1989)

Also exhibiting these stress patterns are forms which express another type of *Transitive Imperative*, that associated with /nt/ *Transitive* Stems. Unlike /st/ Stems, /nt/ Stems do not require bound affixation to mark the transitive imperative form of the verb. The *Imperative Plural* marker, however, is identical to that displayed by /st/ Stems. Consider the forms in (27)-(28) each of which expresses the *Transitive Imperative* form of an /nt/ Stem. Again, forms with strong Roots can

be found in the lefthand column, and those with weak Roots in the righthand column. As in previous examples, the strong Root forms bear primary stress on the Root vowel, and the weak Root forms on an epenthetic vowel which appears to the right of the Root before the /n/. The stress patterns of these /n/ *Transitive Imperatives* are identical to those of the *Intransitive* and *Transitive Imperatives* discussed above.

Strong Roots

(27a) k^wúpnt
 [ps[_{PR} k^wup]_{PR} nt]_{PS}
 √k^wúp-n-t
 √push-Ctr-Tr
Push (singular) it!
 (Black 1995a)

Weak Roots

(27b) šlǐnt
 [ps[_{PR} šəl]_{PR} nt]_{PS}
 √šəl-n-t
 √chop-Ctr-Tr
Chop (singular) it.
 (Carlson 1972a)

(28a) k^wúpnti
 [ps[_{PR} k^wup]_{PR} nty]_{PS}
 √k^wúp-n-t-y
 √push-Ctr-Tr-Pl
Push (plural) it!
 (Black 1995a)

(28b) šlǐnti
 [ps[_{PR} šəl]_{PR} nty]_{PS}
 √šəl-n-t-y
 √chop-Ctr-Tr-Pl
Chop (plural) it!
 (Carlson 1972a)

These data suggest that the presence of multiple consonantal suffixes does not influence the position of primary stress; that is, strong Root forms bear stress on a Root vowel and weak Root forms bear stress on an epenthetic vowel which is positioned at the left edge of the Suffixal domain regardless of the number of consonants in that domain. The regular positioning of the epenthetic vowel is supported by additional examples of weak Root forms provided in (29)-(30). These forms display the /p/ *Inchoative* marker as well as the *Imperative* or *Imperative Plural* markers. As with the other weak Root forms, the presence of multiple consonantal suffixes does not alter the pattern of stress placement; in

each case stress has been assigned to a vowel epenthesized at the left edge of the Suffixal domain.

(29a) $\check{c}w\acute{u}p\check{s}$
 $[_{PS}[_{PR} \check{c}\acute{a}w]_{PR} p\check{s}]_{PS}$
 $\sqrt{\check{c}\acute{a}w-p-\check{s}}$
 $\sqrt{\text{quiet-Inch-ImperSg}}$
Be quiet (singular)! (Carlson and Flett 1989)

(29b) $\check{c}w\acute{u}pwi$
 $[_{PS}[_{PR} \check{c}\acute{a}w]_{PR} pwy]_{PS}$
 $\sqrt{\check{c}\acute{a}w-p-wy}$
 $\sqrt{\text{quiet-Inch-ImperPl}}$
Be quiet (plural)! (Carlson and Flett 1989)

(30a) $\kappa'lipk^w$
 $[_{PS}[_{PR} \kappa'\acute{a}l]_{PR} pstk^w]_{PS}$
 $\sqrt{\kappa'\acute{a}l-p-s-t-k^w}$
 $\sqrt{\text{still-Inch-Caus-Tr-Imp}}$
Stop (singular) it! (Carlson 1972a)

(30b) $\kappa'lipk^wi$
 $[_{PS}[_{PR} \kappa'\acute{a}l]_{PR} stk^wy]_{PS}$
 $\sqrt{\kappa'\acute{a}l-p-s-t-k^w-y}$
 $\sqrt{\text{still-Inch-Caus-Tr-Imp-Pl}}$
Stop (plural) it! (Carlson 1972a)

Although the number of consonantal suffixes present in the Suffixal domain does not serve to influence the positioning of the epenthesized vowel, the type of consonant does factor into its positioning. Compare the forms in (30) with the one in (31). The forms in (30) are /st/ Stems comprising the weak Root $\kappa'\acute{a}l$, the /p/ *Inchoative*, and the *Imperative*, while the form in (31) is an /nt/ Stem comprising the weak Root $\text{ʔ}\acute{a}c$, the /p/ *Inchoative*, and the *Imperative Plural*. The phonological structures of these words is presumed to be identical. Each word comprises two domains: a Root domain and a Suffixal domain. Despite this

uniformity of structure, however, the placement of primary stress in (31) differs from the pattern observed thus far. In this case, stress has been assigned to an epenthetic vowel in the Suffixal domain, but that vowel is not positioned at the leftmost edge of the domain; instead it appears before the nasal /n/.

- (31) ʔacpínti
 [PS[PR ʔəc]PR pntɪ]PS
 √ʔəc-p-n-t-y
 √tie-Inch-Ctr-Tr-Pl
Tie it (pl.)! (Carlson and Flett 1989)

This suggests that, in a Suffixal domain which has been identified as the optimal domain for stress placement but which lacks a vowel, the underlying features of the consonants in that domain are assessed for the purpose of stress placement; the location of epenthesis is then guided by the presence or absence of certain underlying features. The forms in (32) and (33) serve as additional examples in which the presence of particular resonants, specifically nasals, in the Suffixal domain serves to influence the surface position of the stressed vowel.

- (32) ʔəkʷpím
 [PS[PR ʔəkʷ]PR pɪm]PS
 √ʔəkʷ-p-m
 √pierce-Inch-Mid
He speared it. (Carlson and Flett 1989)

- (33) skʷəʔtín
 [PW s [PS[PR kʷəʔ]PR ptɪn]PS]PW¹³
 s-√kʷəʔ-p-tɪn
 Nom-√appear-Inch-Instr
the east (Carlson and Flett 1989)

¹³As this form also displays prefixal material, it is represented within PW bracketing which specifies the edges of the Phonological Word. Forms with prefixal material are discussed in detail in Section 4.1.3.

Evidently, the underlying features of nasal resonants help to guide the placement of primary stress, while those of the approximant resonants /y/, /y'/, /w/ and /w'/ do not, as is demonstrated by the fact that stress has not been assigned with respect to /w/ or /y/, specifically in (26b), (29b), and (30b).¹⁴ Given the facts cited above, I suspect that while nasals and the approximants /y/, /y'/, /w/ and /w'/ bear specifications for [+sonorant], of these only the approximants possess the underlying specification [+consonantal], clearly identifying these sounds as consonants and effectively disqualifying them for consideration in primary stress assignment. On the other hand, I presume that nasals do not possess an underlying specification for [+consonantal], and that this feature is simply provided to nasals by default after stress has been assigned. Interestingly, while a nasal's underlying lack of specification for [+consonantal] helps to guide stress placement, it also prevents the nasal from bearing primary stress. Spokane does not appear to permit nasals or any other segment underlyingly unmarked for the feature [-consonantal] to bear primary stress. This is contrary to the analysis provided in Bagemihl (1991) for the Salishan language Bella Coola.

The issue of consonantal suffixes deserves one final comment regarding metathesis. Although forms comprising a weak Root, whose final consonant is a laryngeal and which is followed by consonantal suffix(es), may display a stress pattern identical to those identified above, other explanations have been proposed

¹⁴It is, as yet, uncertain whether or not the other non-nasal resonants available in the phonemic inventory of Spokane serve to influence stress placement.

to account for that pattern. It has been suggested that in such forms metathesis of the Root vowel may occur, rather than epenthesis.¹⁵ Consider the examples below. Each of the Roots in the forms in (34) contains a Root final laryngeal. Given the tendency for laryngeals to metathesize around vowels in order to meet the demands of syllabification, it is entirely possible that, for the purpose of stress placement, the laryngeal has metathesized to the left of the Root vowel. Although I have no evidence to establish definitively the source of the stressed vowels in these forms, I suspect that these stressed vowels cannot have resulted from metathesis. If metathesis were at work, then it would be necessary to stipulate that this strictly phonological process is able to reposition the Root vowel, not simply with respect to the Root final consonant, but with respect to a Morphological Root domain, to create a Root with a prosodic shape which is inconsistent with the minimal prosodic requirements set for Roots (that is, one that is minimally CVC). Having said that, I maintain that the stressed vowel which appears in such forms is a consequence of epenthesis.

(34a) tʔém
 [ps[PR təʔ]PR m]ps
 √təʔ-m
 √pound-Mid
He pounded something. (Carlson and Flett 1989)

(34b) qʷʔém
 [ps[PR qʷəʔ]PR m]ps
 √qʷəʔ-m
 √familiar with-Mid
He's familiar with it. (Carlson and Flett 1989)

¹⁵Thanks to Barry Carlson for bringing this to my attention.

The stress patterns of the data examined thus far indicate that the process of primary stress assignment assesses multiple aspects of the p-representation of a lexeme. The stress pattern of a lexeme whose p-representation consists of a bare Root indicates that the p-representation comprises a single domain and that the leftmost vowel within that domain receives primary stress. The stress pattern of a lexeme whose p-representation consists of a Root accompanied by suffixal material indicates that the p-representation comprises two domains and that stress is assigned with respect to those domains as well as to other aspects of the p-representation including: the quality of the vowels present within those domains; the presence or absence of a vowel within the domain identified as the optimal domain for stress placement; the presence or the absence of a sonorant unmarked for the feature [+consonantal] within that optimal domain; and, the leftmost edge within that optimal domain.

These stress patterns, then, provide preliminary evidence for four parameters of primary stress placement. These parameters account for the stress patterns exhibited by bare Root forms and forms with consonantal suffixes and are listed below.

*Parameters of Primary Stress Placement for Non-compound Lexemes
(First Revision)*

- a. In a form comprising a single domain, locate primary stress on the leftmost vowel.
- b. In a form comprising a Root domain which contains full vowel(s) and a Suffixal domain which lacks a vowel, locate primary stress on the leftmost full vowel within the Root domain.

c. In a form comprising a Root domain which lacks a full vowel and a Suffixal domain which lacks a vowel, locate primary stress with respect to the leftmost sonorant unmarked for the feature [+consonantal] in the Suffixal domain; epenthesize schwa before that sonorant and place primary stress on it.

d. In a form comprising a Root domain which lacks a full vowel and a Suffixal domain which lacks a sonorant unmarked for the feature [+consonantal], locate primary stress on an epenthetic schwa at the left edge of the Suffixal domain.

Additional support for these parameters can be found in the Spokane forms which display suffixal material containing schwa(-class vowels) and/or full vowel(s), as will be seen directly. Such forms will also necessitate a revision of the stress parameters identified above.

4.1.2.2 Suffixal material containing vowel(s)

The stress patterns displayed by forms which include suffixal material containing vowel(s) provide confirmation of the presence of two domains and that full vowels are more highly valued than schwa(-class vowels). These data also indicate that, in forms which lack a full vowel in the Root and Suffixal domains, the presence of schwa(-class vowels) in the Suffixal domain eliminates the need to epenthesize a vowel for the purpose of stress placement.

Let us first consider the examples in (35)-(38), each of which comprises a Root followed by suffixal material containing schwa(-class vowels). Forms based on strong Roots can be found in the lefthand column, and those based on weak

Roots in the righthand column. In the strong Root forms, primary stress has been assigned to the full vowel of the Root. As expected, the weak Root forms display a different pattern; in these cases, however, primary stress has not been assigned to an epenthetic vowel but to the schwa-class vowel already present in the Suffixal domain.

Strong Roots

- (35a) qícntx^w
 [ps[_{PR} qíc]_{PR} ntəx^w]_{PS}
 √qíc-n-t-əx^w
 √roll-Ctr-Tr-2sgTrS
You rolled it. (Black 1995a)

- (36a) pól̄mstn
 [ps[_{PR} pól̄]_{PR} mstən]_{PS}
 √pól̄-m-s-t-ən
 √scatter-Mid-Caus-Tr-1sgTrS
*I scattered it around.
 (Black 1995a)*

- (37a) k^wúp̄t̄s
 [ps[_{PR} k^wup]_{PR} t̄təs]_{PS}
 √k^wup-t̄-t-əs
 √push-Redir-Tr-3TrS
*He pushed it for him.
 (Black 1995a)*

- (38a) čép̄ntm
 [ps[_{PR} čep̄]_{PR} ntəm]_{PS}
 √čep̄-n-t-əm
 √pass gift-Ctr-Tr-Pass
*Gifts have been given to someone
 (as after a house fire).
 (Carlson and Flett 1989)*

Weak Roots

- (35b) šlntéx^w
 [ps[_{PR} šəl]_{PR} ntəx^w]_{PS}
 √šəl-n-t-əx^w
 √chop-Ctr-Tr-2sgTrS
*You chopped it.
 (Black 1995a)*

- (36b) wiʔstén
 [ps[_{PR} wəy']_{PR} stən]_{PS}
 √wəy'-s-t-ən
 √stop-Caus-Tr-1sgTrS
*I stopped him.
 (Carlson 1972a)*

- (37b) ʔemúk^wt̄tés
 [ps[_{PR} ʔmək^w]_{PR} t̄təs]_{PS}
 √ʔmək^w-t̄-t-əs
 √skinned-Redir-Tr-3TrS
*He took the rind off for him.
 (Black 1995a)*

- (38b) t̄q^wntém
 [ps[_{PR} t̄əq^w]_{PR} ntəm]_{PS}
 √t̄əq^w-n-t-əm
 √slap-Ctr-Tr-Pass
*He was slapped.
 (Carlson and Flett 1989)*

These data are consistent with the claim that, in forms comprising suffixal material (and no prefixal material), two phonological domains are present. The

stress patterns displayed by these forms correspond nicely with those which contain only consonantal suffixal material, but supply additional information about the parameters of stress placement. As with the forms considered earlier, the strong Root forms bear primary stress on the Root vowel indicating that a full vowel is more highly valued than schwa. The weak Root forms bear primary stress on a vowel which appears to the right of the Root within the Suffixal domain. As the Suffixal domain already contains a vowel, the grammar has no need to epenthesize a vowel for the purpose of stress assignment. The stress pattern displayed by these weak Root forms indicates that, in a form lacking a full vowel, primary stress is still located with respect to a sonorant unmarked for [+consonantal] in the rightmost domain. Unlike the forms in (31)-(33), this sonorant is a schwa-class vowel, and as a vowel it is specified as [-consonantal]; it can, then, bear primary stress, thereby eliminating the need for epenthesis.

Weak Root forms which display the bimoraic allomorph of *Out-of-control* reduplication exhibit this same pattern. Recall from Chapter 2 that Roots of the shape $C_1C_2VC_3$ and $C_1VC_2VC_3$ (among others) trigger the copying and affixation of the C_2VC_3 bimoraic allomorph to the second mora of the Root. These forms also raise the issue of the status of the allomorph (and the material to its right) as infix or suffix, just as $C_1VC_2C_3$ shaped Roots which display the monomoraic allomorph of this type of reduplication did. Similarly, the stress facts indicate that the bimoraic allomorph and the material to its right reside in the Suffixal domain.

Consider the forms in (39)-(40) which comprise the weak Roots $c'p'əx^w$ and $čənəp'$, respectively, and which have been augmented with the bimoraic allomorph of *Out-of-Control* reduplication.¹⁶ In each case, primary stress has been assigned to the vowel of the reduplicant.

- (39) $c'p'p'o\check{x}^w\check{x}^w$
 $[_{PS}[_{PR} c'p'ə]_{PR} p'ə\check{x}^w\check{x}^w]_{PS}$
 $\sqrt{c'p'ə(p'ə\check{x}^w)\check{x}^w}$
 $\sqrt{\text{pierced}(+OC)}$
It got pierced by accident. (Carlson and Bates 1990)
- (40) $čnníp'$
 $[_{PS}[_{PR} čənə]_{PR} nəp'p']_{PS}$
 $\sqrt{čənə(nəp')p'}$
 $\sqrt{\text{banded}(+OC)}$
It suddenly got banded. (Carlson and Bates 1990)

In the event that the reduplicant exists within the Root domain, the leftmost

¹⁶*Out-of-Control* reduplication is evidently sensitive to the derived prosodic structure of the Root; when the underlying prosodic structure of a Root is altered as a consequence of unstressed vowel deletion, the choice of allomorph of the reduplicant may also be altered. Compare the following weak Root forms based on $cələx^w$ and observe that a single Root may be associated with both allomorphs of *Out-of-Control* reduplication:

- (i) $cll\check{x}^wntén$ *I laid a bunch of round things down accidentally.*
(Carlson and Thompson 1982)
- (ii) $cll\acute{a}\check{x}^w\check{x}^w$ *It suddenly bunched up.*
(Carlson and Bates 1990)

These data indicate that the OC marker can be realized quite late by the morphological spelling mechanism, after the phonological processes of primary stress assignment and unstressed vowel deletion have occurred. Subsequent to the spell-out of OC, the form enters the phonology, yet again. These facts indicate that, in the interest of maintaining strict modularity, the MS-component is probably best understood as a sub-component of the phonology proper, as suggested by Beard (1995).

schwa within that domain is predicted to bear primary stress as demonstrated by the bare Root forms in (9)-(11) above. In the event that the reduplicant and, by implication, the consonant to its right exist within the Suffixal domain, primary stress is predicted to appear on the schwa in that domain. Significantly, the forms in (39) and (40) do not bear stress on the leftmost vowel of the form; instead primary stress has been assigned to the schwa of their respective reduplicants. These facts are consistent with the assumption that this morphological spelling operation of the MS-component has suffixed the reduplicant to the Morphological Root by redefining the boundary of the Root at the second mora. When such forms enter the phonology proper, the boundary between the Phonological Root and Suffixal domains is also defined at that second mora. These stress facts are consistent with the stress pattern already established for weak Roots; that is, since these weak Roots lack full vowels, primary stress has been assigned to a schwa to the right of the Root within the Suffixal domain.

The stress patterns of forms with multiple schwa-class vowels in the Suffixal domain provide additional support for the claims made thus far. Consider the examples in (41)-(42). Strong Root forms can be found in the lefthand column, and weak Root forms in the righthand column.

Strong Roots

- (41a) $k^w\acute{u}lstmn$
 $[ps[PR k^wul]PR stəmən]ps$
 $\sqrt{k^wul-s-t-əm-ən}$
 $\sqrt{send-Caus-Tr-2sgTrO-1sgTrS}$
I send you. (Carlson 1972a)

- (42a) $k^w\acute{u}mštmn$
 $[ps[PR k^wum]PR šətəmən]ps$
 $\sqrt{k^wum-šə-t-əm-ən}$
 $\sqrt{save-Redir-Tr-2sgTrO-1sgTrS}$
I saved it for you. (Black 1995a)

Weak Roots

- (41b) $wiʔstúmn$
 $[ps[PR wəy']PR stəmən]ps$
 $\sqrt{wəy'-s-t-əm-ən}$
 $\sqrt{stop-Caus-Tr-2sgTrO-1sgTrS}$
I stopped you.
(Carlson 1972a)

- (42b) $ʔur'sítmn$
 $[ps[PR wər]PR šətəmən]ps$
 $\sqrt{wər-šə-t-əm-ən}$
 $\sqrt{burn-Redir-Tr-2sgTrO-1sgTrS}$
I burned it for you.
(Carlson and Flett 1989)

Notice that in the strong Root forms primary stress has been assigned to the Root vowel. This is identical to the pattern observed above for strong Root forms with consonant(s) and/or a single schwa(-class vowel) in the Suffixal domain, and again indicates that a full vowel is more highly valued than schwa. The stress patterns displayed by the weak Root forms are also consistent with the patterns observed above for weak Root forms containing suffixal material with and without schwa(-class vowels). In addition, however, these weak Root forms indicate that the vowel closest to the left edge of the relevant domain is the optimal vowel for stress placement. Notice that, although primary stress is positioned in the Suffixal domain of the weak Root forms, it has been assigned to the leftmost schwa-class vowel within that domain. This pattern is the same as that illustrated by bare Roots containing multiple vowels. Recall that those facts indicated that primary stress is assigned to the leftmost vowel within the relevant domain.

We now consider forms which contain a full vowel in the Suffixal domain.

The stress patterns exhibited by such forms provide support for a claim that stress is optimally assigned to a vowel in the rightmost domain which contains a full vowel. Unlike the data reviewed previously, the words examined in this section demonstrate that even strong Root vowels are unstressed when followed by a full vowel in the Suffixal domain.

Consider the examples in (43)-(46). Forms based on strong Roots can be found in the lefthand column, while those based on weak Roots can be found in the righthand column. Each form comprises a Root followed by suffixal material which contains a full vowel. Observe that in every case stress has been assigned to the full vowel in the Suffixal domain, strong and weak Root forms alike.

Strong Roots

- (43a) $\chi'e?k^w ilš$
 [PS[PR $\chi'e?k^w$] PR ilš]PS
 $\sqrt{\chi'e(?)k^w}$ -ilš
 $\sqrt{\text{leave(Inch)-Aut}}$
medicine man
 (Black 1995a)

- (44a) $\chi^w lnúntm$
 [PS[PR $\chi^w el$] PR nuntəm]PS
 $\sqrt{\chi^w el}$ -nu-n-t-əm
 $\sqrt{\text{abandon-Suc-Ctr-Tr-Fass}}$
He was abandoned.
 (Carlson and Flett 1989)

- (45a) $\check{c}nw\check{c}ncút$
 $\check{c}n$ [PS[PR $wi\check{c}$] PR ntsut]PS
 $\check{c}n$ $\sqrt{wi\check{c}}$ -n-t-sut
 1sgIntrS $\sqrt{\text{see-Ctr-Tr-Refl}}$
I saw myself (as a reflection).
 (Carlson and Flett 1989)

- (46a) $qe?w\check{c}twéx^w$
 $q?$ [PS[PR $wi\check{c}$] PR $ntwex^w$]PS
 $q?$ $\sqrt{wi\check{c}}$ -n-t- wex^w
 1plIntrS $\sqrt{\text{see-Ctr-Tr-Recip}}$
We saw each other.
 (Carlson and Flett 1989)

Weak Roots

- (43b) $\check{c}n\chi^w t' ilš$
 $\check{c}n$ [PS[PR $\chi^w \text{ət}'$] PR ilš]PS
 $\check{c}n$ $\sqrt{\chi^w \text{ət}'}$ -ilš
 1sgIntrS $\sqrt{\text{arise-Aut}}$
I arose.
 (Carlson and Flett 1989)

- (44b) $m\check{c}q^w nún$
 [PS[PR $m\check{c}q^w$] PR nuntən]PS
 $\sqrt{m\check{c}q^w}$ -nu-n-t-ən
 $\sqrt{\text{mound-Suc-Ctr-Tr-1sgTrS}}$
I finally made a mound.
 (Carlson and Thompson 1982)

- (45b) $\check{c}nl\check{c}ncút$
 $\check{c}n$ [PS[PR $l\check{c}$] PR ntsut]PS
 $\check{c}n$ $\sqrt{l\check{c}}$ -n-t-sut
 1sgIntrS $\sqrt{\text{tie-Ctr-Tr-Refl}}$
I tied myself up.
 (Carlson and Flett 1989)

- (46b) $\dagger u?ntwé?x^w$
 [PS[PR $\dagger \text{əw}'$] PR $ntwe?x^w$]PS
 $\sqrt{\dagger \text{əw}'}$ -n-t- $wé(?)x^w$
 $\sqrt{\text{stab-Ctr-Tr-Recip(Pl)}}$
They stabbed each other.
 (Carlson 1972a)

The same stress pattern occurs for strong Root forms with the C_2VC_3 bimoraic allomorph of the *Out-of-Control* reduplicant. Compare the words in (47) and (48). Example (47) demonstrates that the full Root vowel of $ptax^w$ bears primary stress when followed by suffixal material which contains only a schwa-class vowel. In example (48), however, the full Root vowel of $ptax^w$ remains unstressed when a copy of that full vowel is positioned in the Suffixal domain as a

consequence of *Out-of-Control* reduplication.¹⁷

- (47) ptáx^wntx^w
 [ps[_{PR} pta^w]_{PR} ntəx^w]_{PS}
 √pta^w-n-təx^w
 √spit-Ctr-Tr-2sgTrS
You spit it out. (Black 1995a)
- (48) pttáx^wx^wntx^w
 [ps[_{PR} pta]_{PR} ta^wx^wntəx^w]_{PS}
 √pta(ta^wx^w)-n-təx^w
 √spit(+OC)-Ctr-Tr-2sgTrS
You accidentally spit it out. (Black 1995a)

The data set also includes some forms which indicate that when a full vowel and schwa-class vowel co-occur in the domain determined to be the optimal domain for stress placement, the full vowel is more highly valued than the schwa-class vowel. In such forms the leftmost full vowel in the relevant domain receives primary stress. This is the case even in the event that a schwa occupies a position

¹⁷As mentioned in Footnote 16, *Out-of-Control* reduplication is evidently sensitive to the derived prosodic structure of the Root; when the underlying prosodic structure of a Root is altered as a consequence of unstressed vowel deletion, the choice of allomorph of the reduplicant may also be altered. Compare the following strong Root forms based on pta^w and observe that a single Root may be associated with both allomorphs of *Out-of-Control* reduplication:

- (a) pttáx^wnún *I managed to hit it with spit.* (Carlson and Thompson 1982)
 (b) pttáx^wx^wntx^w *You accidentally spit it out.* (Black 1995a)

These data indicate that the OC marker can be realized quite late by the morphological spelling mechanism, after the phonological processes of primary stress assignment and unstressed vowel deletion have been applied. Subsequent to the spell-out of OC, the form enters the phonology, yet again. The facts indicate that, in the interest of maintaining strict modularity, the MS-component is probably best understood as a sub-component of the phonology proper, as suggested by Beard (1995).

closer to the left edge of the domain than does the full vowel. The relevant forms are presented in (49)-(51) below. The important thing to notice about the stress patterns of these words is that primary stress has not been assigned to the leftmost vowel within that domain; instead, it has been assigned to the leftmost full vowel.

- (49) čn'šcút
 [ps[pr čən']pr šətsut]ps
 √čən'-šə-t-sut
 √hold onto-Redi-Tr-Refl
He called for help. (Carlson and Flett 1989)
- (50) m'eyštw'é?x^w18
 [ps[pr m'ey']pr šətw'é?x^w]ps]pw
 √m(e)y'-šə-t-we(?)x^w
 √tell(Rep)-Redir-Tr-Recip(Pl)¹⁹
They told stories to each other. (Carlson and Flett 1989)
- (51) lmmštw'é?x^w
 [ps[pr lem]pr mšətw'e?x^w]ps
 √lem-m-šə-t-we(?)x^w
 √glad-Mid-Redir-Tr-Recip(Pl)
They exchanged gifts. (Carlson and Flett 1989)

Unfortunately, the data base does not include even one form in which two full vowels co-occur in the Suffixal domain. What is needed are forms which display, for example, the /nu/ *Success* marker followed by the /wex^w/ *Reciprocal* marker within the Suffixal domain. Lacking such examples at present, I cannot

¹⁸The glottalization which appears on the resonants of this form are a consequence of *Repetitive* reduplication. The position of the *Repetitive* within the phonological structure of non-compounds is discussed in Section 4.1.4 of this chapter.

¹⁹The underlying quality of the Root vowel is /ə/.

provide any examples to illustrate the stress pattern of such a combination.²⁰

Nevertheless, based on the patterns of bare Roots with full vowels, I predict that for forms which contain two full vowels in the Suffixal domain, the leftmost full vowel within that domain will bear primary stress.

As demonstrated by the stress patterns displayed by these forms, forms comprising Roots followed by suffixal material with vowel(s) provide support for the claim that the phonology sees two distinct domains within these forms: a Root domain and a Suffixal domain. These stress patterns also support the claim that full vowels are more highly valued than schwa. Consequently, a revision of the stress placement parameters as stated in Section 4.1.2.1 is provided below.

*Parameters of Primary Stress Placement for Non-compound Lexemes
(Second Revision)*

- a. Locate primary stress on the leftmost full vowel within the rightmost domain which contains a full vowel.
- b. Lacking a full vowel, locate primary stress with respect to the leftmost sonorant unmarked for the feature [+consonantal] in the rightmost domain. If that sonorant is a schwa(-class vowel), place primary stress on it; otherwise, epenthesize schwa before it and place primary stress on it.
- c. Lacking a full vowel and lacking a sonorant unmarked for the feature [+consonantal] in the rightmost domain, locate primary stress on an epenthetic schwa at the left edge of the rightmost domain.

²⁰The /mist/ *Reflexive* marker may, in fact, be diachronically identifiable as the /min/ *Instrumental* marker followed by the /n/ *Control*, /t/ *Transitive* and /sut/ *Reflexive* markers within the Suffixal domain. In such a sequence the /i/ of /min/ *Instrumental* is predicted to bear primary stress; subsequent to stress placement the /nt/ sequence and the vowel /u/ were presumably lost due to regular phonological processes.

This concludes the examination of words comprising only a Root and suffixal material. We now turn our attention to forms which contain prefixal material.

4.1.3 Roots with prefixal material

Regarding forms in which Roots have been augmented with prefixal material, we gain some insight as to the status of the phonological domain which occurs to the left of the Root domain. The stress patterns exhibited by the data indicate that prefixes are never stressed; even in forms which possess prefix(es) with full vowel(s) and Roots with only schwa, prefixal vowels remain unstressed.²¹ The data effectively demonstrate that the left edge of the stress domain, the Phonological Stem, coincides exactly with the left edge of the Root. As the Prefixal domain resides beyond the purview of stress assignment, it is necessarily represented as existing ‘outside’ the Phonological Stem constituent which is the province of primary stress assignment. That the Prefixal domain represents a legitimate member of the Phonological Word is evidenced by the fact that it lacks a primary stress of its own and, further, that it displays the effects of phonological processes which do not occur across word boundaries.

²¹Although the Prefixal domain is beyond the purview of stress assignment, the effects of reanalysis give the impression that reduplicative prefixes may participate in stress assignment. For a detailed discussion of reanalysis, refer to Chapter 5.

As has already been demonstrated with non-prefixal forms, stress assignment is particularly attentive to the presence of vowels, especially full vowels. This suggests that prefixes which possess at least one vowel underlyingly have the best possible chance of influencing stress placement. I have, therefore, limited the discussion to those forms with prefixes which contain an underlying vowel.

Consider the forms in (52)-(54). Those based on strong Roots can be found in the lefthand column, while those based on weak Roots can be found in the righthand column. Each form comprises a Root preceded by a prefix, specifically the *Diminutive* reduplicant. Recall from Chapter 2 that *Diminutive* reduplication copies the initial Root mora (C_1 or C_1V depending on the shape of the Morphological Root) and prefixes that copy to the Morphological Root with accompanying glottalization of all resonants to its right.²² Observe that stress is never assigned to the vowel of the prefix, regardless of the quality of the Root vowel.

²²E. Czaykowska-Higgins (p.c.) raises the following important issue: if the glottalization which accompanies *Diminutive* and *Repetitive* reduplication spreads to resonants in the Suffixal domain, then does this mean that these spelling operations are, in fact, targeting a constituent larger than the Morphological Root domain? On my view, it does not. I assume that morphological spelling operations can only attend to and preserve that structure available within the MS-component; that is, only the flat constituent structures defined (maximally) in Chapter 3 for non-compounds and compounds are relevant to such operations. Information regarding larger constituents such as the phonological structures of the phonological component are presumed unavailable to such operations. The rightward spread of glottalization is then presumed to occur after the spell-out of *Diminutive* and/or *Repetitive* in the phonology proper.

Strong Roots

- (52a) hi t̥t̥iʃ
 hi [p_w t̥i [p_s[p_r t̥iʃ]p_r]p_s]p_w
 hi t̥i+√t̥iʃ
 Prt Dim+√sweet
It's small and sweet.
 (Black 1995a)

- (53a) hi ssúf
 hi [p_w su [p_s[p_r suf]p_r]p_s]p_w
 hi su+√suf
 Prt Dim+√cold
It's little and cold.
 (Black 1995a)

- (54a) hi t̥t̥eɬ
 hi [p_w t̥e [p_s[p_r t̥eɬ]p_r]p_s]p_w
 hi t̥e+√t̥eɬ
 Prt Dim+√soft sticky mass
A small amount is sticky.
 (Black 1995a)

Weak Roots

- (52b) hi q^wq^wis
 hi [p_wq^wə [p_s[p_r q^wəs]p_r]p_s]p_w
 hi q^wə+√q^wəs
 Prt Dim+√flimsy
A small thing is flimsy.
 (Black 1995a)

- (53b) hi p̥p̥óq^w
 hi [p_wp̥ə [p_s[p_r p̥əq^w]p_r]p_s]p_w
 hi p̥ə+√p̥əq^w
 Prt Dim+√powdered
It's a little bit of powdery stuff.
 (Black 1995a)

- (54b) hi t̥t̥iɬ
 hi [p_w t̥ə [p_s[p_r t̥əɬ]p_r]p_s]p_w
 hi t̥ə+√t̥əɬ
 Prt Dim+√dirty
A small thing is dirty.
 (Black 1995)

The same pattern is exhibited by forms which surface with the *Distributive* reduplicant. Recall from Chapter 2 that *Distributive* reduplication copies the first two moras of the Root (C_1VC_2 or C_1C_2 depending on the shape of the Morphological Root) and prefixes that copy directly to the Morphological Root. Each of the forms in (55)-(57) contains this type of reduplicant. As with the *Diminutive*, stress is never assigned to the vowel of the *Distributive* reduplicant, regardless of the quality of the Root vowel.

Strong Roots

- (55a) hoyhóy
 [PW hoy [PS[PR hoy]PR]PS]PW
 hoy+√hoy
 Dist+√finished
It's completely done.
 (Carlson and Flett 1989)

- (56a) ʔšʔiš
 [PW ʔiš [PS[PR ʔiš]PR]PS]PW
 ʔiš+√ʔiš
 Dist+√sweet
They're sweet.
 (Carlson and Flett 1989)

- (57a) ʔʔʔúr
 [PW ʔúr [PS[PR ʔúr]PR]PS]PW
 ʔúr+√ʔúr
 Dist+√salty
They are salty.
 (Carlson and Flett 1989)

Weak Roots

- (55b) ʔrʔér
 [PW ʔər [PS[PR ʔər]PR]PS]PW
 ʔər+√ʔər
 Dist+√cut
It's all cut up already.
 (Carlson and Flett 1989)

- (56b) p'np'in
 [PW p'an [PS[PR p'an]PR]PS]PW
 p'an+√p'an
 Dist+√long objects on ground
Long objects are lying on the ground.
 (Carlson and Flett 1989)

- (57b) qʷmqʷúm
 [PW qʷəm [PS[PR qʷəm]PR]PS]PW
 qʷəm+√qʷəm
 Dist+√loosely piled material
They're piles.
 (Carlson and Flett 1989)

The presence of such prefixes in forms which also contain suffixes does not influence the stress patterns of Spokane words; the stress patterns remain identical to those in forms which completely lack prefixal material. The words in (58)-(59) are examples of forms which display both prefixes and suffixes. The strong Root forms bear primary stress on the Root vowel, while the weak Root forms bear stress on a schwa in the Suffixal domain.

Strong Roots

- (58a) nʔaʔáx^wm'
 [PW nʔa [PS[PR ʔax^w]PR m']PS]PW
 n-ʔa+√ʔax^w-m'
 Loc-Dim+√scrape-Mid
He scraped from inside out.
 (Carlson and Flett 1989)

- (59a) q^wlq^wélstn
 [PWq^wel [PS[PR q^wel]PR stən]PS]PW
 q^wel+√q^wel-s-t-ən
 Dist+√talk-Caus-Tr-1sgTrS
I talked to him.
 (Carlson and Flett 1989)

Weak Roots

- (58b) qqcíp
 [PW qə [PS[PR qəc]PR p]PS]PW
 qə+√qəc-p
 Dim+√shrunk
It shrunk a little bit.
 (Black 1995a)

- (59b) ʔacʔacím
 [PW ʔəc [PS[PR ʔəc]PR m]PS]PW
 ʔəc+√ʔəc-m
 Dist+√tie-Mid
He tamed a horse.
 (Carlson and Flett 1989)

Likewise, strong and weak Root forms with prefixes bear stress on a vowel in the Suffixal domain when that domain contains a full vowel. These stress patterns are also identical to those displayed by forms which completely lack prefixal material. The words in (60) serve as examples.

- (60a) suʔsʔunwéʔx^w
 [PW sew [PS[PR sew]PR ntweʔx^w]PS]PW
 sew+√sew-n-t-we(?)x^w
 Dist+√ask-Ctr-Tr-Recip(Pl)
They asked questions of each other. (Carlson and Flett 1989)

- (60b) čntqtqncút
 [PW čntəq [PS[PR təq]PR ntsut]PS]PW²³
 čn təq+√təq-n-t-sut
 1sgIntrS Dist+√touch-Ctr-Tr-Refl
I crossed myself. (Carlson and Flett 1989)

²³The proclitic /čn/ is represented as part of the Phonological Word. A discussion of the phonological status of proclitics follows directly.

These data indicate that the presence of prefixes which contain a vowel in no way influences the stress pattern of the form. The fact is that the stress patterns exhibited by such forms exactly match the patterns of those which completely lack prefixal material. Nevertheless, it may be the case that these stress patterns remain the same, not because the Prefixal domain is beyond the purview of stress assignment; instead, it may be that, given these data, the parameters of stress assignment can apply in no other way. More specifically, since these reduplication processes by definition replicate the vowel of the Root, these reduplicated forms are not significantly different from their non-reduplicated counterparts; that is, in a form with a full vowel, stress is located with respect to the full vowel in the rightmost domain, and in a form with only schwa, stress is located with respect to the rightmost domain (with or without schwa). The Prefixal domain would never be the rightmost relevant domain in these cases.

The type of evidence that is needed to establish that the Prefixal domain is beyond the purview of stress assignment is a set of weak Root forms which display a full vowel in the Prefixal domain. In fact, Spokane does utilize non-reduplicative prefixes which contain a full vowel; these include, but are not limited to, the first and second person singular prefixes from the *Possessive* paradigm, /hin/ and /han/ respectively, and perhaps the aspectual prefix /hec/ *Actual*,²⁴ among others. Forms with these inflectional prefixes display the same stress pattern as those with

²⁴The vowel /e/ of the *Actual* prefix may be a consequence of epenthesis. Recall that laryngeals must be accompanied by a vowel. For discussion, refer to Chapter 2.

the reduplicative prefixes examined above and confirm that the Prefixal domain is beyond the purview of stress assignment. This fact is demonstrated by the words in (61)-(63). To be comprehensive, I have included both strong and weak Root forms. Observe that even in forms which contain only schwa in the Phonological Stem constituent, but a full vowel in the Prefixal domain, stress is still not assigned to the Prefixal domain.

Strong Roots

- (61a) hacx^wélm
 [PW hanhec [PS[PRx^wel]PR m]PS]PW
 han-hec-√x^wel-m
 2sgPoss-Act-√abandon
You are abandoning someone.
 (Carlson 1972a)

- (62a) hintúm'
 [PW hin [PS[PRtum']PR]PS]PW
 hin-√tum'
 1sgPoss-√woman's mother
She is my mother.
 (Carlson and Flett 1992)

- (63a) hecp'p'úlk^wstm
 [PW hecp'ul [PS[PR p'ulk^w]PRstəm]PS]PW
 hec-p'ul+√p'ulk^w-s-t-əm
 Act-CVC+√rolled up-Caus-Tr-Pass
Someone rolls things up
(customarily). (Black 1995a)

Weak Roots

- (61b) haqslč'im
 [PW hanqʰs [PS[PRləč']PR m]PS]PW
 han-qʰ-s-√ləč'-m
 2sgPoss-Unr-Nom-√tie-Mid
You're going to tie him.
 (Black 1995a)

- (62b) hiqsacím
 [PW hinqʰs [PS[PR ʔəc]PR m]PS]PW
 hin-qʰ-s-√ʔəc-m
 1sgPoss Unr-Nom-√tie-Mid
I'm going to catch him.
 (Carlson and Flett 1989)

- (63b) hecx^wt^wét
 [PW hecx^wət [PS[PRx^wət]PR]PS]PW
 hec-x^wət+√x^wət
 Act-Dist+√cut off
It's cut in pieces of different
size. (Carlson and Flett 1989)

It must be acknowledged that, in addition to prefixes, proclitics also occupy the Prefixal domain of the Phonological Word. Evidence for this is provided by the fact that the phonological forms of proclitics are subject to phonological processes which occur within the Prefixal domain but do not occur at the

boundary between Phonological Words. Consider the forms in (64)-(66). In each case the form of the proclitic has been altered. Notice that in (64) and (65) the underlying /n/ of /čn/ surfaces as [y] and [i], respectively, each a consequence of nasal shift, and in (66) the vowel of the proclitic surfaces as [a], a consequence of local retraction.²⁵

(64) cyecʔácʰxi
 [PW čnhec [PS[PR ʔacʰ] PR mə]PS]PW
 čn hec-√ʔacʰ-mə
 1sgIntrS Act-√look-Nonperf
I am watching. (Carlson and Flett 1989)

(65) čiqsx^wisti
 [PW čnqʰs [PS[PR x^wist] PR mə]PS]PW
 čn qʰ-s-√x^wist-mə
 1sgIntrS Unr-Nom-√walk-Nonperf
I'm going to walk. (Carlson 1972a)

(66) qaqsčcnwéx^wi
 [PW qʔqʰs [PS[PR čic] PR ntwe^wx^wmə]PS]PW
 qʔ qʰ-s-√čic-n-t-we^wx^w-mə
 1plIntrS Unr-Nom-√arrive-Ctr-Tr-Recip
We are going to meet. (Black 1995a)

The stress patterns displayed by forms with prefixal material indicate the need for a revision of the parameters of stress assignment as stated in Section 4.1.2.2 above. Specifically, the parameters must state that the Phonological Stem is the domain of stress assignment. The final version of these parameters is provided below; the revised portions appear underlined.

²⁵For a discussion of these processes, refer to Chapter 2.

*Parameters of Primary Stress Placement for Non-compound Lexemes
(Final Revision)*

- a. Locate primary stress on the leftmost full vowel within the rightmost domain of the Phonological Stem which contains a full vowel.
- b. Lacking a full vowel in the Phonological Stem, locate primary stress with respect to the leftmost sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem. If that sonorant is a schwa(-class vowel), place primary stress on it; otherwise, epenthesize schwa before it and place primary stress on it.
- c. Lacking a full vowel in the Phonological Stem and lacking a sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem, locate primary stress on an epenthetic schwa at the left edge of the rightmost domain of the Phonological Stem.

4.1.4 Roots with infixes

Spokane makes use of three ‘true’ infixes. These include the /ʔ/ *Plural*, the /ʔ/ *Inchoative*, and the *Repetitive* markers. True infixal morphemes behave differently from ‘apparent infixal’ morphemes to the extent that true infixes are not adjoined but positioned within a particular morphophonological constituent. Recall that this is unlike the situation for the ‘apparent infix,’ the *Out-of-Control* reduplicant; although the surface position of the *Out-of-Control* reduplicant within certain forms suggests that the reduplicant has been infixal, it has actually been adjoined as a suffix as demonstrated by the stress pattern displayed by those forms.

Recall from the discussion in Chapter 2 that the /ʔ/ *Plural* expresses the

notion that a group acts together (e.g., ‘they work as a group’), possesses someone or something in common (e.g., ‘their grandmother’), is affected by the action(s) of another (e.g., ‘he pushed them’), or amounts to a particular quality or state of being (e.g., ‘they are heavy’). The marker is positioned directly after the stressed vowel; the fact that stress assignment must already have occurred in order for /ʔ/ to be positioned properly indicates that this marker is realized quite late by the spelling mechanism, after certain phonological processes have applied.²⁶ Given that fact, it is necessary to represent forms which include this marker as having already been subjected to certain rules of the phonology, particularly that of primary stress assignment. Regarding the issue of structure, it is most likely that the application of phonological rules at this point in the derivation has not resulted in the elimination of any internal structure. Since the evidence provided by the facts of *Out-of-Control* reduplication indicate that Root edges persist in non-compounds even after the application of primary stress assignment and unstressed vowel deletion,²⁷ I assume that such forms maintain all internal structure and I provide p-representations in accordance with that assumption.

The forms under consideration appear below. Forms lacking the /ʔ/ *Plural* marker appear in the lefthand column; the representation of the phonological structure of each word corresponds to the phonological form of the word prior to

²⁶These facts indicate that, in the interest of maintaining strict modularity, the MS-component is again probably best understood as a sub-component of the phonology proper.

²⁷See footnotes 16 and 17 of this chapter for examples.

the application of the phonological rules. Forms with /ʔ/ *Plural* appear in the righthand column; the representation of the phonological structure of each word necessarily corresponds to the phonological form of the words after the application of the phonological rules.

The examples in (67) and (68) are representative of strong Root forms. Notice that the position of primary stress is identical in the forms lacking /ʔ/ and in those with /ʔ/. As far as primary stress placement is concerned then, there is no difference between the structures of those forms which lack /ʔ/ and those which include /ʔ/.²⁸

²⁸Since the morphological spelling operation /ʔ/ *Plural* attends solely to a feature of the phonological form (the stressed vowel), and since stress is assigned only within the Phonological Stem, it is not surprising that the site of infixation always corresponds to a position within the Phonological Stem. Nevertheless, I do not interpret the fact that the domain of infixation coincides with the Phonological Stem to mean that this morphological spelling operation attends to the phonological structure of the p-representation (as opposed to the morphological structure); instead, I view it as mere coincidence.

- (67a) tyěš
[MS[H tyeš]H]MS

[PW[PS[PR tyeš]PR]PS]PW

√tyeš
√crawl
She crawled. (Black 1995a)
- (67b) tyé?š
[MS[H tyé?š]H]MS

[PW[PS[PR tyé?š]PR]PS]PW

√tye(?)š
√crawl(P1)
They crawled. (Black 1995a)
- (68a) ?axaxilš
[MS ?x [H ?xil]H ilš]MS

[PW ?x [PS[PR ?xil]PR ilš]PS]PW

?x+√?xil-ilš
Dist+√do certain way-Aut
He's busy doing a number of things. (Carlson and Flett 1989)
- (68b) ?axaxiʔilš²⁹
[MS ?ax [H?axiʔ]H iʔilš]MS

[PW?ax[PS[PR?axiʔ]PRiʔilš]PS]PW

?x+√?xil-i(?)lš
Dist+√do certain way-Aut(P1)
They're busy doing a number of things. (Carlson and Flett 1989)

The examples in (69) and (70) are representative of weak Root forms. Again, observe that the position of primary stress is identical in the forms lacking /ʔ/ and in those with /ʔ/.

²⁹The source for the glottalization which appears on the /l/ is unknown.

- | | |
|--|--|
| <p>(69a) $\chi' \chi' \text{il}$
 $[_{MS} \chi' \text{al} [_H \chi' \text{al}]_H]_{MS}$
 $[_{PW} \chi' \text{al} [_{PS}[_{PR} \chi' \text{al}]_{PR}]_{PS}]_{PW}$
 $\chi' \text{al} + \sqrt{\chi' \text{al}}$
 Dist + $\sqrt{\text{still}}$
 <i>Each of them is still.</i>
 <i>(Black 1995a)</i></p> | <p>(69b) $\chi' \chi' \text{i?l}$
 $[_{MS} \chi' \text{l} [_H \chi' \text{i?l}]_H]_{MS}$
 $[_{PW} \chi' \text{l} [_{PS}[_{PR} \chi' \text{i?l}]_{PR}]_{PS}]_{PW}$
 $\chi' \text{al} + \sqrt{\chi' \text{a}(\text{?})\text{l}}$
 Dist + $\sqrt{\text{still(Pl)}}$
 <i>They are still (collectively).</i>
 <i>(Black 1995a)</i></p> |
| <p>(70a) cu?ntés
 $[_{MS}[_H \text{cəw'}]_H \text{ntəs}]_{MS}$
 $[_{PW}[_{PS}[_{PR} \text{cəw'}]_{PR} \text{ntəs}]_{PS}]_{PW}$
 $\sqrt{\text{cəw'-n-t-əs}}$
 $\sqrt{\text{hit-Ctr-Tr-3sgTrS}}$
 <i>He hit him.</i> <i>(Black 1995a)</i></p> | <p>(70b) cu?nté?s
 $[_{MS}[_H \text{cu?}]_H \text{nté?s}]_{MS}$
 $[_{PW}[_{PS}[_{PR} \text{cu?}]_{PR} \text{nté?s}]_{PS}]_{PW}$
 $\sqrt{\text{cəw'-n-t-ə}(\text{?})\text{s}}$
 $\sqrt{\text{hit-Ctr-Tr-3sgTrS(Pl)}}$
 <i>They hit him.</i>
 <i>(Carlson and Flett 1989)</i></p> |

The next true infix under consideration is the /ʔ/ *Inchoative* marker. Recall from Chapter 2 that this morpheme is correlated with the notion of noncontrol and indicates the occurrence of an action or state without the aid of an agent. This true infix is positioned directly before the vowel of the Morphological Root regardless of the status of the Root as strong or weak.³⁰ That this spelling operation locates the infixation site only with respect to the Root vowel is the case regardless of the morphological complexity of the word. The positioning of the *Inchoative* relative to the Root vowel indicates that it is realized quite early by the spelling mechanism, prior to unstressed vowel deletion. Unlike the

³⁰While the /ʔ/ *Inchoative* marker typically, but not exclusively, marks strong Roots, the /p/ *Inchoative* marker typically, but not exclusively, marks weak Roots. The data set includes a small number of strong Roots marked by /p/ and a small number of weak Roots marked by /ʔ/. For a detailed discussion, see Carlson (1993a).

representations provided for forms with the /ʔ/ *Plural* then, those provided for forms with the /ʔ/ *Inchoative* necessarily correspond to the phonological form of the word prior to the application of the phonological rules.

The words in (71) and (72) serve as examples. Strong Root forms can be found in the lefthand column, and weak Root forms in the righthand column. Notice that in each case the Root vowel bears primary stress. These *Inchoative* forms bear stress on the same Root vowels as do their bare Root counterparts. A possible analysis of these facts is that, similar to *Out-of-Control* reduplication, the morphological spelling operation responsible for the /ʔ/ *Inchoative* marker redefines the right edge of the Morphological Root to minimally exclude the Root vowel and the Root final consonant. The position of primary stress would then be assigned in accordance with the first parameter of primary stress placement for the strong Roots and the second parameter of primary stress placement for weak Roots. However, since such an operation would create a Root form inconsistent with the canonical Root form (that is, one which is minimally CVC), I interpret these facts simply to indicate that the /ʔ/ *Inchoative* marker is infixated within the Root before the Root vowel.³¹

³¹As the data set lacks appropriate examples, the infixation site of the /ʔ/ *Inchoative* marker for Roots with multiple vowels is, as yet, unknown.

Strong Roots

- (71a) čʔip'
[ms[H čʔip']H]MS
[pw[ps[PR čʔip']PR]ps]pw
√čʔ(?)ip'
√pinch(Inch)
It became pinched.
(Black 1995a)

Weak Roots

- (71b) čʔén'
[ms[H čʔən']H]MS
[pw[ps[PR čʔən']PR]ps]pw
√čʔ(?)ən'
√touch(Inch)
It became tender to touch.
(Carlson 1993a)

- (72a) xʔáq'
[ms[H xʔaq']H]MS
[pw[ps[PR xʔaq']PR]ps]pw
√xʔ(?)aq'
√hot(Inch)
He got a fever.
The weather got hot.
(Carlson and Flett 1989)

- (72b) čʔán³²
[ms[H čʔən]H]MS
[pw[ps[PR čʔən]PR]ps]pw
√čʔ(?)ən
√tight(Inch)
It tightened up on its own.
(Carlson 1993a)

The last true infix under consideration is the *Repetitive*. Recall from Chapter 2 that this type of reduplication refers to the repetition of an action or state. This morphological spelling operation locates the infixation site only with respect to the Morphological Root regardless of the morphological complexity of the word, as was demonstrated in Chapter 3. It has two surface allomorphs: an infix /e/ and /e/ preceded by a copy of the initial Root consonant. Either allomorph occurs with accompanying glottalization of all resonants to its right.

Interestingly, the *Repetitive* may have a surface appearance of infix or 'prefix'. The realization of the *Repetitive* as infix or 'prefix' by the spelling

³²The surface value of this vowel is determined by the presence of a floating pharyngeal feature in the Root.

mechanism occurs after the application of the rules of the phonology; this is indicated by the fact that forms comprising the same Root may surface with the different allomorphs, depending on the resulting shape of the Root after primary stress assignment and unstressed vowel deletion.³³ Given this fact, it is necessary to represent forms which include this marker as having already been subjected to rules of the phonology. As mentioned above with respect to /ʔ/ *Plural*, it is most likely that the application of phonological rules at this point in the derivation has not resulted in the elimination of any internal structure. Since the evidence provided by the facts of *Out-of-Control* reduplication indicate that Root edges persist in non-compounds even after the application of primary stress assignment and unstressed vowel deletion,³⁴ I assume that such forms maintain all internal structure and I provide p-representations in accordance with that assumption.

Consider the examples in (73). Both forms have at their core the Morphological Root *ʃəl*; nevertheless, the *Repetitive* appears as infix in (73a), but as ‘prefix’ in (73b).

³³These facts indicate that, in the interest of maintaining strict modularity, the MS-component is probably best understood as a sub-component of the phonology proper.

³⁴See footnotes 16 and 17 of this chapter for examples.

- (73a) šefn'tén'³⁵
 √š(e)ʃ-n'-t-ən'
 √chop(+Rep)-Ctr-Tr-1sgTrS
I cut it up repeatedly. (Bates and Carlson 1989)
- (73b) šešīr'³⁶
 (še+).√šəʃ
 (Rep+).√chop
One small object is cut repeatedly. (Carlson 1989)

The forms in (74) serve as additional examples of *Repetitive* surfacing as infix and 'prefix'. The form in (74a) is a weak Root form, and that in (74b) is a strong Root form.

- (74a) fečn'tén'³⁷
 √ʃ(e)č-n'-t-ən'
 √tie(+Rep)-Ctr-Tr-1sgTrS
I tied it over and over. (Carlson 1980a)
- (74b) n'en'ičn'tx'³⁸
 (n'e+).√nič-n'-t-əx'
 (Rep+).√cut-Ctr-Tr-2sgTrS
You kept cutting. (Carlson 1980a)

Despite its appearance as a 'prefix', the *Repetitive* can only be classified as an infix, as is indicated by the long-distance retraction facts associated with such

³⁵The source of the glottalization which appears on the resonants is *Repetitive* reduplication. The underlying quality of the Root vowel is schwa.

³⁶The source of the glottalization which appears on the resonants is *Repetitive* reduplication.

³⁷The source of the glottalization which appears on the resonants is *Repetitive* reduplication. The underlying quality of the Root vowel is schwa.

³⁸The source of the glottalization which appears on the resonants is *Repetitive* reduplication.

forms. Recall from the discussion in Chapter 2 that long-distance retraction takes place only as far left as the left edge of the Root and does not include the material in the Prefixal domain. The data provided below indicate that *Repetitive* exists within the domain of long-distance retraction.

Compare the pairs of examples provided below.³⁹ In the lefthand column are forms which lack the *Repetitive* marker, but which contain prefixal material. Notice that the vowel which occurs in the Prefixal domain remains unaffected by the presence of the uvular consonant of the Root.⁴⁰ Conversely, the forms in the righthand column include the *Repetitive* and demonstrate that this affix exists within the Phonological Stem constituent, since it shows the effects of long-distance retraction. This indicates that while the morphological spelling operation which realizes the *Repetitive* marker positions /e/ before the initial Root consonant, that position nevertheless exists within the Morphological Root domain. The operation then reduplicates the initial Root consonant to fill the onset of the syllable headed by /e/ and most likely to maintain the prosodic shape of the Root as one which is consonant-initial. If this were not the case, the phonological component would not have included this marker within the

³⁹The representations of the forms in (75b), (76b), and (77b) present the *Repetitive* marker prior to the application of long-distance retraction since this necessarily occurs after infixation.

⁴⁰Recall from Chapter 2 that the identity of a vowel as full or schwa or as underlying, epenthetic or the result of consonant vocalization is immaterial with respect to retraction. Any vowel (with the exception of [i]) within the Phonological Stem domain which surfaces as a full vowel will show the effects of retraction regardless of its status.

Phonological Root which, as a domain of the Phonological Stem, exists within the purview of long-distance retraction.

- (75a) čyecʔáq'i
 [PWčnhec [PS[PRʔaq']PRmə]PS]PW
 čn hec-√ʔaq'-mə
 1sgIntrS Act-√scrape-Nonperf
I am scraping.
 (Carlson and Flett 1989)
- (75b) ʔatáqq
 [PW [PS[PR ʔetáq]PR q]PS]PW
 ʔe+√ʔaq-q
 Rep+√sit-OC
He kept sitting.
 (Carlson 1980a)
- (76a) hecqixʷi
 [PWhec [PS[PR qixʷ]PR mə]PS]PW
 hec-√qixʷ-mə
 Act-√herd-Nonperf
He's chasing.
 (Carlson and Flett 1989)
- (76b) ʔaʔáq'n⁴¹
 [PW [PS[PR ʔeʔáq']PR n']PS]PW
 ʔe+√ʔaq'-n'-t-ən'
 Rep+√bury-Ctr-Tr-1sgTrS
I just covered things as I went along.
 (Carlson 1980a)
- (77a) hecp'ác'qʷ
 [PW hec [PS[PR p'ác'qʷ]PR]PS]PW
 hec-√p'ác'qʷ
 Act-√stripped off
It was stripped off.
 (Carlson and Flett 1989)
- (77b) xax'áq'is⁴²
 [PW [PS[PR x'e'áq']PR is]PS]PW
 x'e+√x'áq'-n'-t-əs
 Rep+√hot-Ctr-Tr-3TrS
He heated it over and over.
 (Carlson 1980a)

A possible objection to the claim that the *Repetitive* marker is positioned within the Root domain is the fact that the vowel of the *Repetitive* never receives primary stress, even when the Root domain is identified as the optimal domain for stress placement. In response to such an objection, I suggest that the vowel of the *Repetitive* is not considered as a potential 'stress site' since the realization of

⁴¹The source of the glottalization which appears on the resonants is *Repetitive* reduplication.

⁴²The source of the glottalization which appears on the resonants is *Repetitive* reduplication.

Repetitive necessarily occurs after primary stress assignment and unstressed vowel deletion. Hence it never exerts influence over the positioning of primary stress.

The stress patterns displayed by forms which comprise the *Plural*, *Inchoative* or *Repetitive* indicate that these are infixes which do not contribute to the structural complexity of the p-representations of Spokane non-compounds. The *Plural* marker is simply positioned 'inside' the existing constituent(s) with respect to the stressed vowel. The *Inchoative* and *Repetitive* markers are positioned 'inside' the Root with respect to the Root vowel and the left edge of the Root, respectively.

4.1.5 Summary: the phonological structure of non-compounds

The stress facts, as well as the facts of retraction and nasal shift, confirm that the phonology attends to the p-representation of the non-compound lexeme which results as the output of the MS-component. The phonological patterns displayed by the data indicate that the domains of the p-representations to which the phonological component attends are isomorphic with the domains of the p-representations which emerge from the MS-component (at least at the lowest level of structure). As such, the structural characteristics of the p-representation of non-compound lexemes remain salient for the phonology. Once these p-representations enter the phonology proper, their preexisting domains are organized into a hierarchical structure. The p-representations of non-compounds, then, maximally possess the phonological structure represented in (78):

(78) $[_{PW} \text{Prefixes } [_{PS}[_{PR} \text{Root }]_{PR} \text{Suffixes}]_{PS}]_{PW}$

The Phonological Stem represents the province of primary stress assignment and long-distance retraction; the stress facts firmly established the significance of both the Root and Suffixal domains within that constituent. Additional stress facts established that the Prefixal domain remains beyond the purview of primary stress assignment as well as long-distance retraction. Despite the invisibility of the Prefixal domain with respect to these processes, this domain nevertheless constitutes part of a larger phonological entity which also contains the Phonological Stem constituent. They are, therefore, represented as distinct members within the Phonological Word constituent. That the Prefixal domain represents a legitimate member of the Phonological Word is evidenced by the fact that it lacks a primary stress of its own and that it displays the effects of phonological processes, namely local retraction and nasal shift, which do not occur across word boundaries.

Finally, it must be acknowledged that the stress patterns reveal that the process of primary stress assignment is based on three parameters which not only assess the structure of the word, but also attend to: the quality of the vowels present within the Phonological Stem constituent; the presence or absence of a vowel within the domain identified as the optimal domain for stress placement; the underlying [consonantal] status of sonorants within that optimal domain; and, the leftmost edge within that optimal domain. The final version of the stress placement parameters is restated below.

Parameters of Primary Stress Placement for Non-compound Lexemes

- a. Locate primary stress on the leftmost full vowel within the rightmost domain of the Phonological Stem which contains a full vowel.
- b. Lacking a full vowel in the Phonological Stem, locate primary stress with respect to the leftmost sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem. If that sonorant is a schwa(-class vowel), place primary stress on it; otherwise, epenthesize schwa before it and place primary stress on it.
- c. Lacking a full vowel in the Phonological Stem and lacking a sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem, locate primary stress on an epenthetic schwa at the left edge of the rightmost domain of the Phonological Stem.

This concludes the examination of non-compounds. The focus of the investigation now turns to the phonological structure of compound composites.

4.2 The phonological structure of compound lexemes

Recall from the analysis provided in Chapter 3 that the morphological structure of the p-representations of compound lexemes comprises a flat structure which includes two Stems as illustrated in (79) for Free Stem compounds and (80) for Bound Stem compounds.

(79) [_{MS} Prefixes [Free Stem]₁ [Free Stem]₂ Suffixes]_{MS}

(80) [_{MS} Prefixes [_HFree Stem]_{H1} [Bound Stem]₂ Suffixes]_{MS}

The stress facts, as well as the facts of retraction and nasal shift, indicate that

these same domains are also relevant for the phonology. The data effectively demonstrate that the domains of the morphological structures of (79) and (80) are isomorphic with the domains of the phonological structure (at least at the lowest level of structure); unlike the domains of the morphological structure, however, those of the phonological structure are organized within a hierarchical relationship as represented in (81).

(81) $[_{PW} \text{Prefixes } [_{PS} [\text{Stem}_1] [\text{Stem}_2] \text{Suffixes}]_{PS}]_{PW}$

The bracketing provided in the representation illustrates the complex relationships which exist among these domains as evidenced by the application of various phonological rules, particularly that of primary stress assignment. The fact that the Stem_1 and Stem_2 members are characterized with left and right edge bracketing highlights the special phonological treatment each receives within the Phonological Stem (PS). The Phonological Stem (PS) and the Phonological Word (PW) constituents display both left and right edge bracketing, since such bracketing specifies the bounds of certain phonological processes.

The presence of Stem_1 and Stem_2 complicates the phonological structure of the p-representation of Spokane lexemes only slightly; in fact, the hierarchical relations which exist within the phonological structure of compounds are very similar to that of non-compounds. The Phonological Stem constituent includes the Stem_1 , Stem_2 , and Suffixal domains; as with non-compounds, this constituent has a special status to the extent that it represents the province of stress assignment and long-distance retraction. The Prefixal domain exists 'outside' the Phonological

Stem constituent; as with non-compounds, this domain constitutes part of the Phonological Word.

Certain characteristics of the phonological structure are not obvious in the representation. It is important to recognize that the left edge of the PS and that of the Stem₁ always coincide, as do the right edge of the PS and that of the PW. Other edge correspondences depend on the presence or absence of prefixal and suffixal material. For example, in a form which completely lacks affixes, the left edges of the PW, PS and Stem₁ coincide as do the right edges of Stem₂, PS, and PW and, therefore, represent only two domains.

As presented in this study, the p-representations of compounds differ in a significant way from those of non-compounds to the extent that the Stem₁ and Stem₂ members of the compound lexeme are structurally non-complex and phonologically complete words. Each inner Stem of a compound lexeme is presumed to have been subjected to rules of the phonology⁴³ prior to the application of morphological spelling operations which pertain to the compound lexeme.⁴⁴

Having said that, I have chosen to represent the Stem members of the p-

⁴³Again, in view of such facts and in the interest of maintaining strict modularity, the MS-component is probably best understood as a sub-component of the phonology proper.

⁴⁴As mentioned in Chapter 3, this may be a consequence of the language system itself to the extent that once the morphological spelling mechanism has reached the Morphological Stem limit of a p-representation, that Stem immediately enters the phonology proper.

representations of compound lexemes as having already been subjected to rules of the phonology. Consequently, each Stem member of a compound displays full vowel(s), a preliminary determination of primary stress (which is signaled by underscores), and perhaps other phonological effects; each also lacks internal structure. Significantly, the prefixal and suffixal material relevant to the grammatical features of the compound lexeme reflect the fact that the p-representation of the compound lexeme as a whole has yet to enter the phonology proper.

I begin this examination of the phonological structure of the p-representations of compound composites by first considering the stress facts associated with bare compounds. I then proceed to forms which display bound affixes. Finally, I provide a summary of the facts concerning compound composites. As Free Stem compounds and Bound Stem compounds have phonological structures which are identical, the two types of compound are considered in parallel.

4.2.1 Bare compounds

Before examining the compounds which display bound affixes, let us first consider the facts of primary stress assignment in forms which comprise only a

bare compound.⁴⁵ The stress patterns exhibited by such forms provide evidence that the phonological structure of the bare compound minimally includes two domains which correspond to Stem₁ and Stem₂.

The bare compounds provided in (82)-(85) serve to illustrate this claim. The forms on the left are Free Stem compounds, while those on the right are Bound Stem compounds. Notice that each form bears primary stress on a vowel of the Stem₂ member of the compound. Given this stress pattern, it cannot be the case that these forms comprise a single phonological domain. If these forms comprised a single domain, primary stress would have been assigned to the leftmost full vowel in that domain, as was demonstrated by the stress patterns of non-compounds. The stress pattern of these compounds indicates that there are two domains present in the phonological structure of these forms and that primary stress has been assigned to a vowel in the rightmost domain (Stem₂) of this structure.

⁴⁵As mentioned above, compounds which lack affixal material have a phonological structure in which the edges of the PW and PS coincide exactly with the left edge of Stem₁ and the right edge of Stem₂. For the purpose representational simplicity, I have chosen to omit any reference to the PW and PS edges in this section.

Free Stem Compounds

- (82a) ʔayp̄t̄x^wist
 [ʔayp̄]₁ † [x^wist]₂
 √ʔay-p-t̄-√x^wist
 √hurry-Inch-Conn-√walk
He walked fast.
 (Carlson 1990)
- (83a) ʔalp̄tnq^wéwt̄n
 [ʔalp̄]₁ † [nq^wéwt̄n]₂
 √ʔəl-p-t̄-n-√q^wew-tn
 √lose-Inch-Conn-Loc-√drunk-Instr
He lost whiskey.
 (Carlson and Flett 1989)
- (84a) x^wlsʔīt̄n
 [x^wel]₁ † [sʔīt̄n]₂
 √x^wel-s-√ʔīt̄n
 √abandon-Nom-√eat
memorial feast, goodbye meal
 (Carlson 1990)
- (85a) k^wisʔác'c'x̄
 [k^wen]₁ † [sʔác'c'x̄]₂
 √k^wen-s-√ʔác'(c')x̄
 √try-Nom-√look at-(OC)
He went to look on.
 (Carlson and Flett 1989)

Bound Stem Compounds

- (82b) x^wlá̄t̄q
 [x^wel]₁ [āt̄q]₂
 √x^wel=āt̄q
 √abandon=fruit
*He abandoned the race,
 the game, or his wife.*
 (Carlson and Flett 1989)
- (83b) ʔemtús
 [ʔemut̄]₁ [us̄]₂
 √ʔmut̄=us
 √sit=fire
She sat at the fire.
 (Carlson and Flett 1989)
- (84b) p'x'qín
 [pīx']₁ [qín]₂
 √p'əx'=qín
 √bare=head
He's hatless.
 (Carlson and Flett 1989)
- (85b) ʔemk^wéčst
 [ʔemuk^w]₁ [éčst]₂
 √ʔmək^w=éčst
 √skinned=hand
She skinned her hand.
 (Carlson and Flett 1989)

Of course, given only these facts, one might simply assume that the Stem₁ of each compound actually resides in the prefixal domain and is therefore beyond the purview of stress assignment. However, the data set also includes numerous examples which demonstrate that the vowel(s) of the Stem₁ are subject to long-distance retraction as illustrated by (86) and (87). As such, the Stem₁ of a compound clearly exists within the Phonological Stem.

- (86) čnč†?ačsošálq^w
 [PW čnč† [PS[?eč]₁ † [sošálq^w]₂]PS]PW⁴⁶
 čn č†-√?ač-s-√wiš=alq^w
 1sgIntrS Loc-√?-Nom-√stand up=tree
I stood under a tree. (Carlson and Flett 1989)
- (87) čʔarqín
 [čʔer]₁ [qín]₂
 √čʔ(?)er=qín
 √ache(Inch)=head
He has a head ache. (Black 1995a)

A review of the stress patterns of bare compounds must also include those forms whose Stem members derive from compounds themselves. Recall from the discussion in Chapter 3 that compounds are stored in the lexicon; as such, a compound lexeme is itself a potential candidate for compounding. Not surprisingly then, the class of bare compounds includes compounds comprising Stems which are themselves compounds. The forms provided in (88)-(90) serve as examples. Free Stem compounds can be found in the lefthand column and Bound Stem compounds in the righthand column. Observe that in each case, primary stress has been assigned to a vowel of Stem₂.

⁴⁶As this form displays a proclitic and a prefix, PS and PW bracketing are included in this representation. Discussion of the position of proclitics and prefixes is provided in section 4.2.2.

Free Stem Compounds

- (88a) $k^w ispl\acute{c}'\acute{u}lix^w$
 [$k^w en$]₁ † [$spl\acute{c}'\acute{u}lix^w$]₂
 $\sqrt{k^w en-s-\sqrt{pul-\acute{t}-\sqrt{c}'=ulix^w}}$
 $\sqrt{try-Nom-\sqrt{kill-Conn-\sqrt{?}-ground}}$
He went to go kill a deer.
 (Carlson 1990)

- (89a) $laps\acute{t}\acute{x}^w \acute{e}p$
 [lap]₁ † [$s\acute{t}\acute{x}^w ep$]₂
 $\sqrt{lap-s-\sqrt{t}\acute{x}^w=ep}$
 $\sqrt{emerge-Nom-\sqrt{opened=bottom}}$
hemorrhoids
 (Carlson and Flett 1989)

- (90a) $\acute{c}\acute{t}tqna?sq\acute{e}lix^w$
 [$\acute{c}\acute{t}tqne?$]₁ † [$sq\acute{e}lix^w$]₂
 $\acute{c}\acute{t}-\sqrt{t\acute{a}q=ene?-s-\sqrt{qel=mix^w}}$
 Loc- $\sqrt{touch=ear-Nom-\sqrt{body=person}}$
He got his hand on it (e.g., a louse in the hair).
 (Carlson and Flett 1989)

Bound Stem Compounds

- (88b) $c'\acute{u}lix^w \acute{e}lx^w$
 [$c'\acute{u}lix^w$]₁ [$\acute{e}lx^w$]₂
 $\sqrt{c'\acute{u}lix^w=elx^w}$
 $\sqrt{?}=ground=hide$
whitetailed deer skin
 (Carlson and Flett 1989)

- (89b) $sp'\acute{c}\acute{s}t\acute{a}x\acute{n}$
 [$sp'\acute{e}\acute{c}\acute{s}t$]₁ [$\acute{a}x\acute{n}$]₂
 $\sqrt{s\acute{a}p'=e\acute{c}\acute{s}t=\acute{a}x\acute{n}}$
 $\sqrt{tanned\ hide=hand=arm}$
sleeve (Carlson and Flett 1989)

- (90b) $?e\acute{c}su\acute{s}\acute{e}t\acute{c}'e?$
 [$?e\acute{c}swi\acute{s}$]₁ [$\acute{e}t\acute{c}'e?$]₂
 $\sqrt{?e\acute{c}-s-\sqrt{wi\acute{s}=e\acute{t}\acute{c}'e?}}$
 $\sqrt{?-Nom-\sqrt{stand\ up=inside}}$
He stood in the room.
 (Carlson and Flett 1989)

Regarding the Free Stem compounds, the Stem₂ member of (88a) derives from the Free Stem compound $[_{PW} s [_{PS}[pul]_1 \acute{t} [c'\acute{u}lix^w]_2]_{PS}]_{PW}$, while that of (89a) derives from the Bound Stem compound $[_{PW} s [_{PS}[\acute{t}ox^w]_1 [ep]_2]_{PS}]_{PW}$. In 90a, the Stem₁ member derives from the Bound Stem compound $[_{PW} \acute{c}\acute{t} [_{PS}[\acute{t}aq]_1 [ene?]_2]_{PS}]_{PW}$. Regarding the Bound Stem compounds, the Stem₁ members of (88b) and (89b) derive from the Bound Stem compounds $[_{PW}[_{PS}c'e?]_1 [ulix^w]_2]_{PS}]_{PW}$ and $[_{PW}[_{PS}[sip']_1 [e\acute{c}\acute{s}t]_2]_{PS}]_{PW}$, respectively. In (90b), the Stem₁ derives from the Free Stem compound $[_{PW}[_{PS}[\acute{e}\acute{c}]_1 \acute{t} [swi\acute{s}]_2]_{PS}]_{PW}$.

The stress pattern associated with the set of bare compounds indicates that the phonological structure of such forms includes two domains which are, in fact,

isomorphic with the Stem₁ and Stem₂ constituents of the corresponding morphological structure (at the lowest level of structure). In every case, primary stress has been assigned to the full vowel which bears preliminary primary stress within the rightmost domain. We now turn to those compounds which display affixal material.

4.2.2 Compounds with affixal material

The data indicate that the only time that a vowel of Stem₂ does not bear primary stress is when the Suffixal domain includes a full vowel. Neither the presence of suffixal material with a schwa-class vowel nor any type of prefixal material serves to influence the position of primary stress placement.

The forms in (91)-(92) are representative examples of compounds which include a schwa-class vowel in the Suffixal domain. Notice that in each case primary stress is positioned on the vowel of Stem₂ which bears preliminary primary stress. As this is the same stress pattern exhibited by bare compounds, the presence of consonants or schwa-class vowels in the Suffixal domain clearly exerts no influence on primary stress placement.

- (91) $\kappa'e$ wiʔsq'ix^wn
 $\kappa'e$ [_{PS}[wiy']₁ † [sq'ix^w]₂ ntən]_{PS}
 $\kappa'e$ √wəy'-s-√q'ix^w-n-t-ən
 Part √finish-Nom-√drive away-Ctr-Tr-1sgTrS
I have already cleared them away. (Carlson and Flett 1989)

- (92) $\acute{t}'k^w$ épmstx^w
 [_{PS}[$\acute{t}'uk^w$]₁ [ep]₂ mstəx^w]_{PS}
 √ $\acute{t}'ək^w$ =ep-m-s-t-əx^w
 √set down=bottom-TransDer-Caus-Tr-2sgTrS
You will start out with this. (Carlson and Flett 1989)

An additional example provided in (93) illustrates the stress pattern which results when the *Out-of-Control* reduplicant occurs. The monomoraic allomorph of the reduplicant appears suffixed to Stem₁ of the compound lexeme. Observe that the position of primary stress is unaffected by the presence of the reduplicant.

Primary stress is still assigned to a vowel of Stem₂.

- (93) nt'k^wk^wáťq^wŋt
 [PW n [PS[t'uk^w]₁ k^w [aťq^wŋt]₂]PS]PW⁴⁷
 n-√t'ək^w+k^w=aťq^wŋt
 Loc-√set down+ OC=throat
It accidentally fell in the mouth. (Carlson and Flett 1989)

While there are numerous examples of Free Stem and Bound Stem compounds with prefixal and suffixal material, there are fewer than ten compounds with full vowels in the Suffixal domain, all of them Bound Stem compounds. In the event that the suffixal material contains a full vowel, primary stress is assigned to that vowel. The forms in (94)-(96) serve as representative examples. Observe that in each case primary stress appears on the full vowel of the Suffixal domain.

- (94) nʔac'xčn'cút
 [PW n [PS[ʔac'x]₁ [ičn']₂ ntsut]PS]PW
 n-√ʔac'x=ičn'-n-t-sut
 Loc-√look=back-Ctr-Tr-Refl
He looked back upon something. (Carlson and Flett 1989)

⁴⁷ Although I assume that the *Out-of-Control* reduplicant adjoins to the right edge of Stem_{H1}, I do not provide any additional bracketing. At present it is unclear what kind of constituent is created by adjunction in these cases; consequently, I forestall complicating the representation with additional bracketing.

- (95) qe?čuplsmnwéx^w
 [PWq? [PS[čwup] [els] mntwex^w]PS]PW
 q? √čəw-p=els-m-n-t-wex^w
 1plIntrS √quiet-Inch=feeling-TrDer-Ctr-Tr-Recip
We felt lonesome for each other. (Carlson and Flett 1989)
- (96) čmšqnmíst
 [PW č [PS[miš]₁ [qin]₂ mist]PS]PW
 č-√miš=qin-mist
 Loc-√?=head-Refl
He was discouraged. (Carlson and Flett 1989)

The compound data are consistent with the facts of non-compounds regarding the role of prefixal material with respect to stress placement; that is, the presence of bound prefixes which contain vowel(s) exerts no influence on the placement of primary stress. As with non-compounds, then, the Prefixal domain of the compound is beyond the purview of stress assignment. Consider the following forms. The Prefixal domains of the Free Stem Compound in (97) and the Bound Stem compound in (98) include the /he†/ *Back/Again* marker⁴⁸ and the /ʔu†/ *Collective* marker, respectively. Despite the presence of the vowels of these markers in the Prefixal domain, primary stress has been assigned to a vowel of Stem₂. Note also that the effects of long-distance retraction do not extend to the Prefixal domain in these forms.

- (97) čne†očsqélix^w
 [PW čnhe† [PS[wič]₁ † [sqélix^w]₂]PS]PW
 čn he†-√wič-s-√qel=mix^w
 1sgIntrS Again-√see-Nom-√body=person
I could see people again. (Carlson and Flett 1989)

⁴⁸The vowel of the /he†/ *Back/Again* marker may be a consequence of epenthesis.

- (98) ʔuʔqʷyós⁴⁹
 [PW ʔuʔ [PS[qʷay]₁ [us]₂]PS]PW
 ʔuʔ-√qʷay=us
 Col-√black=face
black people (Carlson and Flett 1989)

Both types of compound frequently surface with the /hec/ *Actual* marker in the Prefixal domain.⁵⁰ Compounds which include this prefix display the same stress pattern as those with the /heʔ/ *Back/Again* and /ʔuʔ/ *Collective* markers; that is, the presence of a vowel in the Prefixal domain does not serve to influence the placement of primary stress. Examples of Free Stem compounds with the /hec/ *Actual* marker are provided in (99)-(100), while those of Bound Stem compounds with /hec/ *Actual* appear in (101) and (102). Observe that in each case primary stress has been assigned to a vowel of Stem₂.

- (99) hesč'eʔrspʔúsi
 [PW hec [PS[č'eʔr]₁ ʔ [spʔus]₂ mə]PS]PW
 hec-č-√č'e(?)r-s-√pʔus-mə
 Act-Loc-√ache(Inch)-Nom-√heart-Nonperf
His heart is aching. (Carlson and Flett 1989)
- (100) heckʷʔʔc'łqíntni
 [PW hec [PS[kʷuʔ]₁ ʔ [c'łqíntn]₂ mə]PS]PW
 hec-√kʷuʔ-ʔ-√c'əl=qin-tn-mə
 Act-√make-Conn-√stand=head=Instr-Nonperf
He's making a war bonnet. Carlson and Flett (1989)

⁴⁹The surface value [ɔ] of the vowel of the Stem₂ is a consequence of pharyngealization.

⁵⁰As mentioned above, the vowel /e/ of the *Actual* prefix may be a consequence of epenthesis.

(101) *hecmeʔčstm†túmš̥i*
 [PW *hec* [PS [*mʔečstm*]₁ [*†túmš̥*]₂ *mə*]PS]PW
hec-√məʔ=ečst-m=†túmš̥-mə
 Act-√bother=hand-TransDer-=person-NonPerf
He is bothering people. (Carlson and Flett 1989)

(102) *hecč'aʔráxni*
 [PW *hecč* [PS [*c'aʔr*]₁ [*axn*]₂ *mə*]PS]PW
hec-č-√c'e(?)r=axn-mə
 Act-Loc-√ache-(Inch)=arm-NonPerf
His arm is aching. (Carlson and Flett 1989)

Significantly, the compounds in (100) and (102) also demonstrate that the process of long-distance retraction does not extend to the Prefixal domain, but is instead confined to the Phonological Stem constituent. If this prefix were within the purview of long-distance retraction, then the vowel of /hec/ *Actual* would have lowered and backed to [a], regardless of its status as an underlying or epenthetic vowel.

As the data set of Free Stem compounds does not include any forms which display Head-referencing prefixes relative to the compound lexeme (since this type of compound lacks a Head), none are included here; however, there are numerous examples of Bound Stem compounds with such prefixes. Those in (103)-(104) display the *Diminutive* and those in (105)-(106) the *Distributive*. Observe that in such forms stress is never assigned to the vowel of the reduplicative prefix; instead, it appears on a vowel of Stem₂.

(103) *sx^wx^wyén'eʔ*
 [PW *sx^wi* [PS [*x^wy'*]₁ [*en'eʔ*]₂]PS]PW
s-x^wə+√x^wəy=eneʔ
 Nom-Dim+√sharp=ear
small prickly pear cactus (Carlson and Flett 1989)

- (104) čʔiʔpús
 [PW čʔ [PS[ʔyʔp]₁ [us]₂]PS]PW
 č-ʔə+√ʔəyʔ-p=us
 Loc-Dim+√fall-Inch=eye
A little foreign object fell into her eye. (Carlson and Flett 1989)
- (105) čʔacʔacʔúsntx^w
 [PW čʔacʔ [PS[ʔacʔx]₁ [us]₂ ntəx^w]PS]PW
 č-ʔacʔ+√ʔacʔx=us-n-t-əx^w
 Loc-Dist+√look=eye-Ctr-Tr-2sgTrS
You examined her eyes. (Black 1995a)
- (106) čpʔpʔk^wicʔeʔ
 [PW čpʔul [PS[pʔulk^w]₁ [icʔeʔ]₂]PS]PW
 č-pʔul+√pʔulk^w=icʔeʔ
 Loc-Dist+√rolled up=covering
cigarettes (Carlson and Flett 1989)

As with non-compounds, the Prefixal domain of compounds is also occupied by proclitics which, as expected, have no influence on the placement of primary stress. Such proclitics reside in the Prefixal domain as the forms provided below illustrate. Those in (107) and (108) are Free Stem compounds, while those in (109) and (110) are Bound Stem compounds. Observe that the proclitic in each exhibits a sound change, triggered by the presence of a sound within the Prefixal domain, which does not occur across the boundary between Phonological Words. In (107) the vowel of the proclitic surfaces as [a], a consequence of local retraction due to the adjacent uvular. In (108)-(110) the /n/ of the proclitic displays the varied effects of nasal shift.

- (107) qaqs^wisláqʔm
 [PW qʔqʔs [PS[k^wen]₁ † [sláqʔm]₂]PS]PW
 qʔ qʔ-s-√k^wen-s-√laqʔ-m
 1plIntrS Unr-Nom-√try-Nom-√bury-Mid
We're going to bury it. Carlson and Flett (1989)

- (108) $\kappa'x^w$ čiqsk^wisxécti
 $\kappa'x^w$ [_{PW} čnqłs [_{PS} [k^w en]₁ † [s \check{x} ect]₂ mə]_{PS}]_{PW}
 $\kappa'x^w$ čn qł-s-√ k^w en-s-√ \check{x} ect-mə
 ? 1sgIntrS Unr-Nom-√try-Nom-√dig-Nonperf
I'm going to go dig roots. (Carlson and Flett 1989)
- (109) čiqsłx^wpúsi
{[PW} čnqłs [{PS} [łx^wup]₁ [us]₂ mə]_{PS}]_{PW}
 čn qł-s-√łx^w-p=us-mə
 1sgIntrS Unr-Nom-√opened-Inch-eye-Nonperf
I'm going to rope a horse. (Carlson and Flett 1989)
- (110) čyecčłx^wk^wéłpi
{[PW} čnhecčł [{PS} [x^wuk^w]₁ [elp]₂ mə]_{PS}]_{PW}
 čn hec-čł-√x^wək^w=elp-mə
 1sgIntrS Act-Loc-√clean=floor-Nonperf
I'm sweeping my floor. (Black 1995a)

To complete this discussion of the phonological structure of compounds, let us briefly review the facts related to 'true' infixes. Recall that such infixes do not contribute to the structural complexity of the p-representations of the non-compound; the same is true for compounds. For present purposes, the infixes under consideration include only the /ʔ/ *Plural* and the *Repetitive* markers. As the data set lacks Free Stem compounds which display either of these markers, only Bound Stem compounds are offered as examples.⁵¹ Representative forms are provided below.

⁵¹The fact that the data set lacks Free Stem compounds which display the *Repetitive* (as well as /ʔ/ *Inchoative*) is not surprising since the spelling operation responsible for that morpheme refers to a Head. Recall that Free Stem compounds lack a Head. The absence of Free Stem compounds which display the /ʔ/ *Plural* is unexpected, however, since the spelling operation responsible for that morpheme does not refer to a Head; rather, it refers to a phonological entity, the stressed vowel. I suspect that the lack of such forms is simply a gap in the data.

Each of the Bound Stem compounds in (111) and (112) displays the /ʔ/ *Plural* marker. Recall that this infix is positioned directly after the stressed vowel which indicates that it is realized quite late by the morphological spelling mechanism. Given that fact, it is necessary to represent compounds which include *Plural* as having already been subjected to the rules of the phonology, particularly that of primary stress assignment; hence the phonological structure of each word is represented with a p-representation which corresponds to that which results after certain phonological processes have applied. The stress patterns associated with these compounds remain unaffected by the presence of the *Plural* marker. As with non-compounds, infixation depends on locating the stressed vowel; not surprisingly, this marker does not serve to influence stress placement.

(111) x^weʔtciʔn
 [p_w[p_s[x^weʔt]₁ [ciʔn]₂]p_w
 √x^wəʔ-t=ci(?)n
 √many-Stat=mouth(Pl)
Their voices grew in number. (Carlson and Flett 1989)

(112) hecčscnwéʔx^wi
 [p_w hec [p_s[čs]₁ [cn]₂ wéʔx^wi]p_w
 hec-√čəs=cin-n-t-we(?)x^w-mə
 Act-√bad=mouth-Ctr-Tr-Recip(Pl)-NonPerf
They're saying bad things to each other. (Carlson and Flett (1989)

Lastly, let us consider the stress patterns of compounds with the *Repetitive* marker. Recall that *Repetitive* locates the infixation site with respect to the Head and that it is also realized quite late by the morphological spelling mechanism as evidenced by the effects of unstressed vowel deletion on the allomorph selected. As in compounds with the /ʔ/ *Plural* marker, then, it is necessary to represent

compounds which include the *Repetitive* as having already been subjected to certain rules of the phonology prior to infixation. Since the vowel of the *Repetitive* necessarily occurs after primary stress assignment, it can never exert influence over the positioning of primary stress.

Although *Repetitive* has two allomorphs, the /e/ allomorph (with accompanying glottalization) is the most relevant to a discussion of compounds. Since stress is never assigned to the Stem_{HI} of the compound, the vowels of that Head are usually deleted,⁵² thereby creating the requisite environment for infixation after the initial consonant of the Head. Examples of compounds with *Repetitive* are provided in (113) and (114). Observe that in each case a vowel of the Stem₂ has been assigned primary stress. As with non-compounds then, the presence of the *Repetitive* marker does not influence the position of primary stress.

- (113) čncew'cín'm'⁵³
 [PW čn [PS[cew']₁ [cín']₂ m]PS]PW
 čn √c(e)w'=cín'-m'
 1sgIntrS √say(+Rep)=mouth-Mid
I repeated something mockingly. (Carlson and Flett 1989)

⁵²The only exceptions being those forms in which the Head comprises a /ʔ/ or /h/; in such cases the vowel of the Head may necessarily surface to meet the needs of the laryngeal.

⁵³The source of the glottalization which appears on the resonants is *Repetitive* reduplication. The surface [e] is a consequence of *Repetitive* reduplication. The underlying Root from which Stem₁ derives is **cuw**.

- (114) nʔekʷɪsn'cút⁵⁴
 [p_w n [p_s[ʔekʷ]₁ [ɪs]₂ n'tsút]p_s]p_w
 n-√ʔ(e)kʷ=eɪs-n'-t-sut
 Loc-√strung together(+Rep)=feeling-Ctr-Tr-Refl
He's mulling it over. (Carlson and Flett 1989)

The stress patterns of compounds with affixal material indicate that the only element exerting any influence on the position of primary stress is the presence of a full vowel in the Suffixal domain. The only parameter relevant for primary stress assignment in compounds, then, is a modified version of the first parameter proposed for non-compounds.

Parameter of Primary Stress Placement for Compound Lexemes

Locate the optimal domain for primary stress placement with respect to the rightmost domain of the Phonological Stem which contains a full vowel. If that optimal domain contains a vowel which displays preliminary primary stress, position stress on it; otherwise position primary stress on the leftmost full vowel within that optimal domain.

4.2.3 Summary: the phonological structure of compounds

The stress facts, as well as the facts of long-distance and local retraction and nasal shift, confirm that the phonological component attends to the p-representation of the compound lexeme which results as the output of the MS-component. As is the case with non-compounds, the phonological patterns displayed by compounds indicate that the domains of the p-representations

⁵⁴The source of the [e] and the glottalization which appears on the resonants is *Repetitive* reduplication. The underlying Root form from which Stem₁ derives is ʔikʷ.

relevant for the phonology are isomorphic with the domains which emerge from the MS-component (at least at the lowest level of structure). As such, the same structural characteristics of the p-representations remain salient for the phonology. The phonological patterns of compounds demonstrate that once these p-representations enter the phonology proper, their preexisting domains are organized into a hierarchical structure. The p-representations of compounds, then, maximally possess the phonological structure provided in (115).

(115) [_{PW} Prefixes [_{PS}[Stem]₁ [Stem]₂ Suffixes]_{PS}]_{PW}

The Phonological Stem, which includes the Stem₁, Stem₂ and Suffixal domains, represents the province of primary stress assignment and long-distance retraction. As with non-compounds, the Prefixal domain constitutes part of a larger phonological entity which also contains the Phonological Stem. These constituents are, therefore, represented as distinct members within the Phonological Word. That the Prefixal domain represents a legitimate member of the Phonological Word is again evidenced by the fact that it lacks a primary stress of its own and displays the effects of phonological processes, namely local retraction and nasal shift, which do not occur at the boundary between Phonological Words.

It was stipulated that the p-representations of compounds differ in a significant way from those of non-compounds to the extent that each inner Stem of a compound lexeme is presumed to have been subjected to the rules of the phonology prior to the application of morphological spelling operations and

phonological processes which pertain to the compound lexeme. As a consequence, the Stem₁ and Stem₂ of each p-representation possess full vowels which bear (preliminary) primary stress and lack internal structure. As such, compounds only display the stress pattern associated with strong Root forms; that is, a vowel of the Stem₂ bears stress unless a full vowel is present in the Suffixal domain.

Finally, the stress patterns exhibited by compounds can be accounted for with a modification of the first parameter of primary stress assignment proposed for non-compounds.

Parameter of Primary Stress Placement for Compound Lexemes

Locate the optimal domain for primary stress placement with respect to the rightmost domain of the Phonological Stem which contains a full vowel. If that optimal domain contains a vowel which displays preliminary primary stress, position stress on it; otherwise position primary stress on the leftmost full vowel within that optimal domain.

4.3 Conclusions

Throughout this chapter I have relied on the facts of primary stress assignment and, when necessary, the facts of retraction and nasal shift to demonstrate that the domains of the p-representations to which the phonology attends are isomorphic with the domains of the p-representations which emerge as the output of the MS-component (at least at the lowest level of structure). These facts also demonstrate that once these p-representations enter the phonology proper, the preexisting domains of the the p-representations of non-compounds

and compounds are organized into the hierarchical structures provided in (116) and (117), respectively.

(116) [_{PW} Prefixes [_{PS}[_{PR} Root]_{PR} Suffixes]_{PS}]_{PW}

(117) [_{PW} Prefixes [_{PS}[Stem]₁ [Stem]₂ Suffixes]_{PS}]_{PW}

Finally, it must be recognized that the stress patterns exhibited by the data require the following parameters:

Parameters of Primary Stress Placement for Non-compound Lexemes

- a. Locate primary stress on the leftmost full vowel within the rightmost domain of the Phonological Stem which contains a full vowel.
- b. Lacking a full vowel in the Phonological Stem, locate primary stress with respect to the leftmost sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem. If that sonorant is a schwa(-class vowel), place primary stress on it; otherwise, epenthesize schwa before it and place primary stress on it.
- c. Lacking a full vowel in the Phonological Stem and lacking a sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem, locate primary stress on an epenthetic schwa at the left edge of the rightmost domain of the Phonological Stem.

Parameter of Primary Stress Placement for Compound Lexemes

Locate the optimal domain for primary stress placement with respect to the rightmost domain of the Phonological Stem which contains a full vowel. If that optimal domain contains a vowel which displays preliminary primary stress, position stress on it; otherwise position primary stress on the leftmost full vowel within that optimal domain.

This concludes the discussion of the phonological structure of p-representations of compounds. We now turn our attention to the issue of structural reanalysis.

Chapter 5

The Structural Reanalysis of Spokane Lexemes

5.0 Introduction

Having identified the morphological and phonological structures of the p-representations of Spokane lexemes, we now turn our attention to those forms which seem to contradict the validity of those structures. This chapter examines the irregular phonological patterns exhibited by seemingly anomalous forms and hypothesizes that these patterns are the consequence of structural reanalysis.

In Chapter 3, we encountered one type of reanalysis. Recall that Free Stem compounds, as stored lexical items, became susceptible to reanalysis which resulted in the development of Bound Stem compounds. In this case, the lexicalized Free Stem compounds were reanalyzed morphologically (with respect to the specification of a Head constituent) and phonologically as a consequence of analogical change. The data also indicate that another type of reanalysis occurs in Spokane, specifically, the structural reanalysis of the p-representations of lexemes.

The expression 'structural reanalysis' refers explicitly to a psycho-linguistic process whereby language speakers and learners interpret the internal structures of particular p-representations in configurations which are distinct from those of an earlier language state. The process of reanalysis is limited to the extent that forms are reanalyzed only on analogy with an existing morphological structure. The complex structure of a non-compound may be reanalyzed so that affixal

material is integrated into the Head constituent, resulting in the simplex structure $[_H\text{Root}]_H$. The complex morphological structure of compounds may also be reanalyzed so that the two Stem domains may be restructured as a solitary Head constituent, and, further, that affixal material may be integrated into that Head, resulting in the simplex structure $[_H\text{Root}]_H$.

Before considering the anomalous facts, let us review the basic structures of the p-representations of Spokane lexemes. The data indicate that there are two basic categories regarding the morphological structure of p-representations: non-compounds and compounds. Non-compounds maximally possess the flat constituent structure which appears in (1), while compounds maximally possess the flat constituent structures which appear in (2a) for Free Stem compounds and (2b) for Bound Stem compounds.

(1) $[_{MS}\text{Prefixes } [_H\text{ Root }]_H \text{ Suffixes }]_{MS}$

(2a) $[_{MS}\text{Prefixes } [\text{Free Stem }]_1 [\text{Free Stem }]_2 \text{ Suffixes}]_{MS}$

(2b) $[_{MS}\text{Prefixes } [_H\text{ Free Stem }]_{H1} [\text{Bound Stem }]_2 \text{ Suffixes}]_{MS}$

The data also indicate that there are two basic categories regarding the phonological structure of p-representations: non-compounds and compounds. The phonology hierarchically organizes the structural domains of p-representations into two different structures: one for non-compounds as in (3) and another for both types of compounds as in (4).

- (3) [PW Prefixes [PS[PR Root]PR Suffixes]PS]PW
 (4) [PW Prefixes [PS[Stem]₁ [Stem]₂ Suffixes]PS]PW

After identifying these morphological and phonological structures, I concluded that the phonological domains of the p-representations to which the phonology attends are isomorphic with the morphological domains of the p-representations which emerge from the MS-component (at least at the lowest level of structure). Having acknowledged these basic structures and the fact that there is a direct correlation between morphological and phonological domains, let us now consider the anomalous facts.

5.1 The anomalous facts

The data set under consideration for this study comprises approximately 8050 forms, including 5900 non-compounds and 2150 compounds. Of these, the vast majority ---more than 7000 non-compounds and compounds combined--- follow predictable and regular phonological patterns regarding primary stress assignment, long-distance retraction and nasal shift. Fewer than 1000 forms, approximately 350 non-compounds and 650 compounds, display seemingly anomalous patterns; that is, such forms display phonological patterns which are inconsistent with the phonological (and, therefore, morphological) structures identified above.¹

¹Actually, there are fewer than one thousand forms which display an anomalous stress pattern. The number of anomalous non-compounds has been purposely inflated. For an explanation see footnote 11 below.

Consider the non-compounds that appear in (5) and (6). Those with a completely predictable stress pattern can be found in the lefthand column, and those with an apparently anomalous stress pattern in the righthand column. Both examples in (5) have been augmented with the suffixal material /ilš/ *Autonomous*. As demonstrated by the data provided in Chapter 4, /ilš/ exists to the right of the Root within the Suffixal domain; as such, the full vowel of /ilš/ is predicted to bear primary stress regardless of the status of the Root vowel as full or schwa, as determined by the first parameter of primary stress placement for non-compounds. Notice that only the form in (5a) is consistent with this claim. In (5b) stress is actually positioned on the vowel of the putative Root.

Composite non-compound

(5a) čnx^wʔilš
 čn √x^wəʔ-ilš
 1sgIntrS √arise-Aut
I arose.
 (Carlson and Flett 1989)

Anomalous form

(5b) qéclš
 √qec-ilš
 √run-Aut
He ran.
 (Carlson and Flett 1989)

Now consider the non-compounds in (6), each of which bears phonological material corresponding to the *Diminutive* reduplicant. Recall that the *Diminutive* reduplicant, as a prefix, exists to the left of the Root within the Prefixal domain; as such, it remains beyond the purview of stress assignment and, therefore, never receives primary stress. Notice that the form in (6a) is consistent with this claim, as it bears stress on the Root vowel and not on the vowel of the reduplicant. The form in (6b), however, seems to contradict this claim, since stress appears on the

vowel of the putative reduplicant.

Composite non-compound

- (6a) hi tʃiš
 hi ti+√ʃiš
 Part Dim+√sweet
It's small and sweet.
 (Black 1995a)

Anomalous form

- (6b) xʷóxʷɪqʷ
 xʷo+√xʷolqʷ
 Dim+√roll
buggy (Carlson and Flett 1989)

The same inconsistencies are demonstrated by Free and Bound Stem compounds. Of the approximately one hundred Free Stem compounds included in the data set, one among them exhibits a seemingly anomalous stress pattern. Compare the forms in (7). The compound in (7a) bears stress on the vowel of the Stem₂ member of the compound as predicted by the parameter of primary stress placement for compounds, while the form in (7b) bears stress on the vowel of the putative Stem₁ member of the compound.

Composite compound

- (7a) čulpspʔús
 č-√wəɾ-s-√pʔus
 Loc-√burn-Nom-√heart
indigestion
 (Carlson and Flett 1989)

Anomalous form

- (7b) čkʷúʃslkʷptn
 č-√kʷuʃ-s-√lukʷ=ep-tn
 Loc-√make-Nom-√wood=bottom-Inst
firepoker (Carlson 1990)

By far the most interesting set of anomalies falls within the category of Bound Stem compounds; that is, those forms which contain putative lexical suffixes. Such forms display the most varied phonological behavior, particularly with respect to stress assignment. Consider the forms in (8) and (9). While the forms on the left follow a predictable stress pattern in which primary stress has been assigned to a vowel of Stem₂ in accordance with the parameter of primary

stress placement for compounds, those on the right display an apparently anomalous stress pattern. In (8b) primary stress appears on the vowel of the putative Stem₁, and in (9b) it appears on a putative prefix, the *Diminutive* reduplicant. The form in (9b) also contains a violation of long-distance retraction to the extent that it displays the effects of retraction on the vowel of the putative prefix.

Composite compounds

- (8a) niŋx^wús
 n-√yefx^w=us
 Loc-√covered=eye
One of his eyes is covered.
 (Carlson and Flett 1989)
- (9b) nɬɬk^wpqín'tx^w
 n-ɬi+√ɬik^w-p=qin-n-t-əx^w
 Loc-Dim-√chained-Inch-head-Ctr-Tr-2sgTrS
*You hung a little thing up on a
 nail or a tree limb.*
 (Carlson and Flett 1989)

Anomalous forms

- (8b) c'éw'sm
 √c'ew'=us-m
 √wash=face-Mid
He washed his face.
 (Carlson and Flett 1989)
- (9b) čhóhi?qn'
 č-hu+√huy'=qin'
 Loc-Dim+√piled=head
*It's something little in a
 pile.*
 (Carlson and Flett 1989)

The forms in (10)-(12) illustrate the variability of stress placement in such forms. Out of approximately 650 anomalous Bound Stem compounds, some 500 display a pattern where a vowel of the putative Stem₁ is stressed as in (10). Of these, the vast majority conform to the shape of (10a) with a single putative lexical suffix; the data set includes approximately 25 forms which pattern as in (10b) with two putative lexical suffixes and approximately one form which patterns as in (10c) with three putative lexical suffixes.

- (10a) čnásqn
 č-√nas=qin
 Loc-√wet=head
His head is wet. (Carlson and Flett 1989)
- (10b) sčq^wq^wáy'qsčšn'²
 s-č-q^w+√q^way'=aqšč=šin'
 Nom-Loc-Dim+√blue=?=foot
overalls / bluejeans (Black 1995a)
- (10c) k^wílpoʔsqn
 √k^wəl=ep=ew's=qin
 √red=bottom=middle=head
lipstick (Carlson and Flett 1989)

Of the approximately 650 anomalous Bound Stem compounds, fewer than 50 bear primary stress on the vowel of a putative prefix as illustrated by the form in (11).

This form also contains a violation of long-distance retraction to the extent that it displays the effects of retraction on the vowel of the putative prefix.

- (11) ʔóʔpnčstqn
 ʔu+√ʔupn=ečst=qin
 Dim+√ten=hand=head
one thousand (Carlson and Flett 1989)

In addition, of the 650 anomalous Bound Stem compounds, approximately 100 display anomalous stress patterns where primary stress appears on the vowel of a putative lexical suffix which occurs in a sequence of such lexical suffixes. Of these, the vast majority display a pattern where the first such lexical suffix in a string of two or more lexical suffixes is stressed as in (12a) and (12b). The form in (12c)

²The glottalization which accompanies the resonants is a consequence of *Diminutive* reduplication.

serves as an example of those forms comprising a string of three lexical suffixes in which the second among them bears primary stress. Regardless, these stress patterns are unexpected since the vowel of the rightmost such suffix is predicted to bear primary stress, as established in Chapter 4. The patterns displayed in (12b) and (12c) are extremely uncommon; the data set includes approximately 5 words which pattern as in (12b) and approximately 10 words which pattern as in (12c). Observe that the form in (12c) also contains a violation of nasal shift to the extent that the /n/ of the underlying /nš/ consonant cluster surfaces intact.

- (12a) č'ápqtn
 √č'əc' = ep = qin - tn
 √long object lies = bottom = head - Inst
a yoke (Carlson and Flett 1989)
- (12b) p'rq'ápo?sqn
 √p'raq' = ep = ew's = qin
 √turned back = bottom = middle = head
(old horn type) phonograph
 (Carlson and Flett 1989)
- (12c) snq'aw'sqínšn
 s - n - √q'e? = ew's = qin = šin
 Nom - Loc - √squeezed = middle = head = foot
middle toe (Carlson and Flett 1989)

The entire data set contains only one form which comprises four putative lexical suffixes, provided in (12d). As with the forms cited above, this form also displays an anomalous stress pattern; in this case, primary stress appears on the third such lexical suffix in the string.

- (12d) yerčn'ełpáw'astqn
 √yer = ičn' = ełp = ew'est = qin
 √? = back = plant = middle = head
Coyote's fourth son (Carlson and Flett 1989)

It is important to acknowledge that these anomalous stress patterns cannot be attributed to the fact that the putative Stem₁ members possess distinct morphological or phonological properties which serve to influence the outcome of stress placement. The fact is that compounds comprising similar Stem members can display both predictable and anomalous patterns. Consider each pair of examples provided in (13) through (16) below. The words in the lefthand column display a predictable stress pattern where primary stress is assigned to a vowel of Stem₂; conversely, those in the righthand column display an anomalous pattern where primary stress is assigned to a vowel of the putative Stem₁. Significantly, these stress patterns occur despite the fact that the Stem₁ of the forms within each pair is based on the same Root. Likewise, forms with the same Stem₂ show such variability. Observe that the Bound Stem [us]₂ bears primary stress in (13a), but remains unstressed in (14b). The same is true for the Bound Stem [uleʔx^w]₂ which bears primary stress in (16a), yet remains unstressed in (15b).

Composite forms

- (13a) niʔx^wús
 n-√yeʔx^w=us
 Loc-√covered=eye
One of his eyes is covered.
(Carlson and Flett 1989)

- (14a) spqíʔeʔ
 s-√piq=iʔeʔ
 Nom-√white=blanket
white blanket
(Carlson and Flett 1989)

Anomalous forms

- (13b) čyáʔx^wqn
 č-√yeʔx^w=qin
 Loc-√covered=head
a bandana
(Carlson and Flett 1989)

- (14b) čpqpíqs
 č-piq+√piq=us
 Loc-Dist+√white=face
whitemen
(Carlson and Flett 1989)

Composite forms

- (15a) nχ'a?q'étk^w
 n-√χ'a(?)q'=etk^w
 Loc-√hot(Inch)=water
The water is hot.
 (Carlson and Flett 1989)

- (16a) p'e?x^wúle?x^w
 √p'e(?)x^w=ule?x^w
 √bright(Inch)=ground
firelight
 (Carlson and Flett 1989)

Anomalous forms

- (15b) χ'áq'le?x^w
 √χ'aq'=ule?x^w
 √hot=land
the South/hot land/hot earth
 (Carlson and Flett 1989)

- (16b) čp'áx^wqn
 č-√p'ex^w=qin
 Loc-√sorrel=head
brown hair
 (Carlson and Flett 1989)

The most problematic of such anomalous forms are those which show competing stress patterns for identical and near-identical sequences as illustrated in (17) and (18).

Composite forms

- (17a) nmicín
 n-√møy=cin
 Loc-√know=mouth
His stories are interpreted.
 (Carlson and Flett 1989)

- (18a) čnčx^wttéls
 čn č-√x^wet+t=els
 1sgIntrS Loc-√hate+OC=feeling
I became irate. (Black 1995a)

Anomalous forms

- (17b) nmiycn
 n-√møy=cin
 Loc-√know=mouth
He knows his stories.
 (Carlson and Flett 1989)

- (18b) čx^wétls
 č-√x^wet=els
 Loc-√hate=feeling
He's feeling mean.
 (Carlson and Flett 1989)

As discussed in Chapter 1, recent theoretical works present various metrical accounts to explain the Spokane stress system (Bates and Carlson 1989, Carlson and Bates 1990, 1991, Stonham 1990, Idsardi 1991b, Smith 1991, Czaykowska-

Higgins 1993b³). Characteristic of these accounts are the assumptions of morpheme compositionality and that each morpheme maintains a predictable morphophonological relation with respect to other morphemes. Given that fact, these approaches attempt to capture the unexpected variations in stress placement by identifying Roots and/or suffixes in exceptional ways; that is to say, these accounts rely heavily on morphological diacritics which are relevant for the phonology. Although the various diacritics and theoretical mechanisms proposed in these studies can account for some of the Spokane data, they fail to account for the placement of primary stress in numerous forms, most noticeably those with competing stress patterns. Equally problematic is the fact that these studies enlist an inordinate amount of theoretical machinery to handle a minority of forms.

On my view, the key to analyzing forms with apparently anomalous phonological patterns relies on two principles: first, that the p-representations of Spokane lexemes (maximally) possess the morphological structures as specified in (1) or (2) above which remain salient for the phonology; and second, that such structure, once stored in the lexicon as part of the lexical representation, becomes vulnerable to reanalysis as one of several functions of lexicalization. The development of these apparent anomalies represents yet another analogical adjustment of lexicalized forms which at an earlier stage in the language possessed a composite structure.

³As mentioned in Chapter 1, some of these studies deal only peripherally with the Spokane language.

5.2 Hypothesis of structural reanalysis

Having acknowledged the morphological and phonological structures of the p-representations available in Spokane and the fact that the basic domains of the phonological form are an integral and salient feature of the p-representation of every lexeme, the phonological patterns exhibited by Spokane lexemes prove invaluable when it comes to identifying the structures of the anomalous forms. That is to say, since a direct and regular correlation exists between the morphological and phonological structures, it is possible to infer the morphological structure of a particular form by how the phonology attends to that form.

Despite the presence of morphophonological material which attests to the anomalous forms' diachronic structural state as composite, the phonological patterns exhibited by such forms indicate that their synchronic structural state is one which has resulted from the reanalysis of morphological structure. This is not to suggest that the phonological patterns of such forms reveal structures which are distinct from those already identified for non-compound and compound composites; instead, they indicate that the structures relevant to the present language state of such forms are distinct from the structures relevant to an earlier language state of the same forms.

Structural reanalysis can be viewed as one of several functions of lexicalization. In the wake of lexicalization, lexical items become vulnerable to various types of linguistic change, particularly changes with respect to phonological form and semantic properties; however, the anomalous facts of Spokane suggest

that the potential for change as a consequence of lexicalization must also include adjustments with respect to the morphological structure of the p-representation. Since morphological structure and phonological form are distinct aspects of a p-representation, neither, either or both aspects may be subject to change. Similarly, since the phonological, grammatical, and semantic representations of a lexeme represent discrete fields of a lexical representation, none, any, or all may be adjusted. The Spokane facts illustrate this quite well since the changes displayed by such lexicalized forms range from no change to changes in multiple dimensions. At issue here are those forms which indicate a reanalysis of morphological structure; such reanalysis may or may not be accompanied by phonological, grammatical, or semantic changes.

Following Pagliuca (1976), MacWhinney (1978), Bybee (1985), among others, I assume that the frequency with which a lexeme is used or encountered (and not simply the fact of its being lexicalized) significantly contributes to the potential for structural reanalysis⁴. This occurs to the extent that a highly frequent form is learned by rote memorization, stored in the lexicon and simply retrieved "without an analysis into constituent parts, and without relating it to other words" (Bybee 1985:90).

Regardless of the synchronic or diachronic status of a lexeme's morphological structure, the structural shapes available to the p-representations

⁴Neither Pagliuca, MacWhinney nor Bybee specifies morphological structure as subject to reanalysis. I simply extend to morphological structure their argument regarding transparency.

remain limited to those already present in the grammar; that is to say, such forms are reanalyzed on analogy with the existing morphological structure $[_H\text{Root}]_H$. The complex morphological structure of a non-compound may be reanalyzed to the extent that various affixes are integrated into the Head constituent which includes the Root material. The complex morphological structure of compounds may also be reanalyzed to the extent that the two Stem domains may be restructured as a solitary Head constituent, and, further, that various affixes may be integrated into that Head. Viewed in this way, the phonological patterns exhibited by the anomalous forms are, in fact, quite regular.

5.2.1 Structurally reanalyzed non-compounds

Highly frequent non-compounds show stress patterns which are inconsistent with the phonological (and, therefore, morphological) structures typically associated with certain Root and affix combinations. Consider those forms displaying the putative /t/ *Stative* marker which is both numerous with respect to the number of Roots with which it has combined as well as in terms of the high frequency of occurrence for each such combination. Significantly, the forms based on weak Roots display stress patterns which are inconsistent with the phonological structures presumed for such forms. The non-compounds in (19) serve as illustrations. If the representations for the forms in (19) included a Suffixal domain, then the surface forms predicted for such representations would be $*\chi'xét$ and $*s\check{s}k^w\acute{f}ít$, where primary stress is positioned on an epenthetic vowel at the

left edge of that Suffixal domain. In fact, primary stress surfaces on the Root schwa, indicating that the underlying structure of each form does not include a Suffixal domain and that the putative /t/ *Stative* is actually the Root-final consonant.⁵ As such, the stress patterns conform to the second parameter of primary stress placement for non-compounds whereby stress is assigned to the Root schwa.

<p>(19a) hi kʰəxt</p> <p>[PW[PS[PR kʰəxt]PR]PS]PW</p> <p>[MS[H kʰəxt]H]MS</p> <p>hi √kʰəx-t Part √fast-Stat <i>It's fast.</i> (Black 1995a)</p>	<p>(19b) sčskʷɪt⁶</p> <p>[PW sčs [PS[PR kʷəɪt]PR]PS]PW</p> <p>[MS sčs [H kʷəɪt]H]MS</p> <p>s-č-s-√kʷəɪ-t Nom-Loc-Nom-√red-Stat <i>sweat</i> (Carlson and Flett 1989)</p>
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The forms provided in (20) demonstrate that these weak Roots display a predictable stress pattern when phonological material appears in the Suffixal domain, primary stress having been positioned on a schwa(-class vowel) in that domain. The stress pattern in (20a) again conforms to the second parameter of primary stress placement for non-compounds. Since the form completely lacks a full vowel, √kʰəx-t stress has been located on the schwa-class vowel in the Suffixal domain. The stress pattern in (20b) conforms to the third parameter of primary stress placement for non-compounds but assumes additional complexity. In this

⁵The data suggest that all /t/ *Stative* forms have been subjected to reanalysis, and further, that this morphological spelling operation is no longer productive in Spokane. For discussion, see section 5.3.2 of this chapter.

⁶The source for the glottalization on the /l/ is unknown.

case, the morphological spelling operation *Out-of-Control* reduplication has redefined the right edge of the Root domain to exclude the /t/. The reduplicant /l/ and the /t/ then exist in the Suffixal domain. Lacking a full vowel (in the Root or Suffixal domain) as well as an appropriate sonorant in the Suffixal domain, primary stress has been assigned to an epenthetic vowel at the left edge of the Suffixal domain.

(20a) ʰx̣tmstéx^w

[_{PW}[_{PS}[_{PR} ʰəx̣t]_{PR} mstəx^w]_{PS}]_{PW}

[_{MS}[_H ʰəx̣t]_H mstəx^w]_{MS}

√ʰəx̣-t-m-s-t-əx^w

√fast-Stat-Mid-Caus-Tr-2sgTrS

You made it go fast.

(Black 1995a)

(20b) čsk^wřít

[_{PW} čs [_{PS}[_{PR} k^wəř]_{PR} řt]_{PS}]_{PW}

[_{MS} čs [_H k^wəř]_H řt]_{MS}

č-s-√k^wəř+ř-t

Loc-Nom-√red+OC-Stat

He got sweaty.

(Carlson and Flett 1989)

Reanalysis of non-compounds is not restricted to the restructuring of the /t/ *Stative* marker within the Root domain. Other markers which have been subjected to reanalysis include the suffixal material /m/ *Middle*, /min/ *Instrumental*, /mist/ *Reflexive*, /ilš/ *Autonomous*, /wilš/ *Developmental*, /p/ *Inchoative* and *Out-of-Control* reduplication, the infixal material /ʔ/ *Inchoative*, and the prefixal material resulting from *Diminutive* and *Distributive* reduplication.⁷ Additional examples of reanalysis can be found below; in each case, the stress pattern suggests that the

⁷Not all forms displaying these suffixes have been subjected to reanalysis; that is to say, the data indicate that the morphological spelling operations which realize these affixes remain productive. It must also be noted that consonantal prefixes are presumed vulnerable to reanalysis; however, since they lack a vowel by definition, reanalysis will not display surface effects with respect to stress assignment.

Root domain contains more than just a canonical Root.

Regarding each of the forms in (21), the phonological material from both the Prefixal and Suffixal domains has been integrated into the Root domain. Observe that in each case primary stress has been assigned to the vowel of what was once the *Distributive* reduplicant.⁸ For (21a) this pattern is determined by the first parameter of primary stress placement for non-compounds where primary stress is located on the leftmost full vowel within the Root domain. Example (21a) provides additional evidence that the reduplicant has been integrated into the Root domain to the extent that long-distance retraction has applied to the vowel of that phonological material resulting in the surface vowel [a]. For (21b), the stress pattern is determined by the second parameter of primary stress placement for non-compounds. Lacking a full vowel, primary stress has been located with respect to the leftmost schwa in the Root domain.

(21a) čnq^wáyq^wit

[_{PW}čn [_{PS}[_{PR} q^weyq^weyt]_{PR}]_{PS}]_{PW}

[_{MS} čn [_H q^weyq^weyt]_H]_{MS}

čn q^wey+√q^wey-t
1sgIntrS Dist+√plenty-Stat
I've got plenty.
(Carlson and Flett 1989)

(21b) síʃsʌt

[_{PW}[_{PS}[_{PR} səʃsəʃt]_{PR}]_{PS}]_{PW}

[_{MS}[_H səʃsəʃt]_H]_{MS}

səʃ+√səʃ-t
Dist+√wrong-Stat
He's always confused.
(Carlson and Flett 1989)

⁸Similar forms have been analyzed as a type of suffixal reduplication termed *Characteristic* for the Southern Interior language Moses-Columbia (Czaykowska-Higgins 1993a) and the Northern Interior language Thompson (Thompson and Thompson 1992). Such an analysis is not appropriate for Spokane since the semantics of such forms do not necessarily differ from that associated with the *Distributive*.

Likewise, each of the forms in (22) demonstrate that phonological material from both the Prefixal and Suffixal domains can be integrated into the Root domain. In (22a), the *Diminutive* reduplicant and the /t/ *Stative* have been restructured within the Root domain; in (22b), the *Diminutive* reduplicant and /min/ *Instrumental* have been restructured within the Root domain. Since in each form the vowel of what was once the reduplicant is a full vowel, primary stress has been assigned to that vowel, as predicted by the first parameter of primary stress placement for non-compounds.

(22a) ʔuʔxʷt

[PW[PS[PR ʔuʔuxʷt]PR]PS]PW

[MS[LH ʔuʔuxʷt]H]MS

ʔu+√ʔuxʷ-t⁹

Dim+√fly-Stat

*Something small flew.**(Black 1995a)*(22b) nʔinʔmʔn¹⁰

[PW[PS[PR nʔinʔmʔinʔ]PR]PS]PW

[MS[LH nʔinʔmʔinʔ]H]MS

nʔi+√nʔiʔ-mʔinʔ

Dim+√cut-Instr

*pocket knife**(Carlson and Flett 1989)*

Additional examples of reanalyzed forms are provided below. The forms in (23) indicate that prefixal material alone may be restructured within the Root domain, while those in (24) indicate that the same is true for suffixal material. In all cases, stress has been assigned in accordance with the first parameter of primary stress placement for non-compounds.

⁹The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

¹⁰The original source for the glottalization which appears on the /m/ and final /n/ of this form is *Diminutive* reduplication.

- | | |
|---|---|
| <p>(23a) $\text{no}\bar{x}^w\text{no}\bar{x}^w$</p> <p>$[\text{PW}[\text{PS}[\text{PR } \text{no}\bar{x}^w\text{no}\bar{x}^w]_{\text{PR}}]_{\text{PS}}]_{\text{PW}}$</p> <p>$[\text{MS} [\text{H } \text{no}\bar{x}^w\text{no}\bar{x}^w]_{\text{H}}]_{\text{MS}}$</p> <p>$\text{no}\bar{x}^w + \sqrt{\text{no}\bar{x}^w}$¹¹
 Dist + $\sqrt{\text{wife}}$
 <i>wife/wives</i>
 <i>(Carlson and Flett 1989)</i></p> | <p>(23b) $\text{k}^w\text{ú}\text{k}^w\text{u}\text{f}$</p> <p>$[\text{PW}[\text{PS}[\text{PR } \text{k}^w\text{ú}\text{k}^w\text{u}\text{f}]_{\text{PR}}]_{\text{PS}}]_{\text{PW}}$</p> <p>$[\text{MS}[\text{H } \text{k}^w\text{ú}\text{k}^w\text{u}\text{f}]_{\text{H}}]_{\text{MS}}$</p> <p>$\text{k}^w\text{u} + \sqrt{\text{k}^w\text{u}\text{f}}$
 Dim + $\sqrt{\text{make}}$
 <i>Something small is created.</i>
 <i>(Carlson 1989)</i></p> |
| <p>(24a) $\text{t}\acute{o}\text{c}\text{m}\text{n}$</p> <p>$[\text{PW}[\text{PS}[\text{PR } \text{t}\acute{o}\text{c}\text{m}\text{i}\text{n}]_{\text{PR}}]_{\text{PS}}]_{\text{PW}}$</p> <p>$[\text{MS}[\text{H } \text{t}\acute{o}\text{c}\text{m}\text{i}\text{n}]_{\text{H}}]_{\text{MS}}$</p> <p>$\sqrt{\text{t}\acute{o}\text{c}}\text{-min}$
 $\sqrt{\text{mash}}\text{-Instr}$
 <i>potato masher</i>
 <i>(Carlson and Flett 1989)</i></p> | <p>(24b) $\text{č}\acute{i}\text{w}\text{i}\text{l}\check{s}$</p> <p>$[\text{PW}[\text{PS}[\text{PR } \text{č}\acute{i}\text{w}\text{i}\text{l}\check{s}]_{\text{PR}}]_{\text{PS}}]_{\text{PW}}$</p> <p>$[\text{MS}[\text{H } \text{č}\acute{i}\text{w}\text{i}\text{l}\check{s}]_{\text{H}}]_{\text{MS}}$</p> <p>$\sqrt{\text{č}\acute{i}\text{w}}\text{-il}\check{s}$
 $\sqrt{\text{climb}}\text{-Aut}$
 <i>He climbed.</i>
 <i>(Carlson and Flett 1989)</i></p> |

As suggested by the forms in (20) above, reanalyzed forms may be subjected to subsequent L- and I-derivation. The grammatical features acquired during derivation may trigger morphological spelling operations; consequently, a reanalyzed non-compound may comprise the Head of an adjoined structure. Consider the form in (25a). In this case, /ʔ/ *Inchoative* infix represents part of the Root domain, as is evidenced by the fact that it is reduplicated as a consequence of *Distributive* reduplication. Observe that the vowel of the Root domain bears primary stress, indicating that the reduplicant exists beyond the purview of stress

¹¹The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

assignment in the Prefixal domain. Similarly, the stress pattern of (25b) indicates that while /mist/ *Reflexive* has been reanalyzed as part of the Root domain, the reduplicant exists in the Prefixal domain. In both cases, stress has been assigned in accordance with the first parameter of primary stress placement for non-compounds.

(25a) nʔanʔás

[_{PW}nʔa [_{PS}[_{PR}nʔas]_{PR}]_{PS}]_{PW}

[_{MS} nʔa [_H nʔas]_H]_{MS}

nʔa+√n(?)as

Dist+√wet(Inch)

It got all wet.

(Carlson and Flett 1989)

(25b) mcmúcmiʔst

[_{PW} muc [_{PS}[_{PR}mucmiʔst]_{PR}]_{PS}]_{PW}

[_{MS} muc [_H mucmiʔst]_H]_{MS}

muc+√muc-mi(?)st

Dist+√ball-Ref(PI)

They made themselves into a

ball. (Carlson and Flett 1989)

The forms in (26) serve as additional examples. If the structure of the form in (26a) included a Suffixal domain containing the suffix /ilš/ *Autonomous*, then the surface form predicted for such a representation would be *čłqqcqcíʔš, where primary stress is positioned on the full vowel in the Suffixal domain. In fact, primary stress has been assigned to the putative Root vowel, indicating that the phonological material [qecilš] occupies a single domain and that stress has been assigned in accordance with the first parameter of primary stress placement for non-compounds. Observe that the *Diminutive* and *Distributive* reduplicants maintain their status as prefixes and remain beyond the purview of stress assignment. The forms provided in (26b)-(26d) demonstrate that this reanalyzed form behaves predictably with affixation and in compound formation. In (26b)

and (26c), the position of primary stress conforms to the first parameter of primary stress placement for non-compounds. In (26d), the position of primary stress conforms to the parameter of primary stress placement for compounds.

(26a) čtqecqécifš¹²

[_{PW} čtqecqec [_{PS}[_{PR} qecifš]_{PR}]_{PS}]_{PW}

[_{MS} čtqecqec [_H qecifš]_H]_{MS}

čt-qe+qec+√qec-ifš

Loc-Dim+Dist+√run-Aut

He ran about anxiously on the floor. (Carlson and Flett 1989)

(26b) čqécilšmntm

[_{PW} č [_{PS}[_{PR} qecilš]_{PR} mntəm]_{PS}]_{PW}

[_{MS} č [_H qecilš]_H mntəm]_{MS}

č-√qec-ilš-m-n-t-əm

Loc-√run-Aut-Mid-Ctr-Tr-Pass

Someone ran toward him in a wild mood. (Carlson and Flett 1989)

(26c) qclšémn

[_{PW}[_{PS}[_{PR} qecilš]_{PR} emn]_{PS}]_{PW}

[_{MS}[_H qecilš]_H emn]_{MS}

√qec-ilš-émn

√run-Aut-Hab

One who likes to run. (Carlson and Flett 1989)

¹²The glottalization which appears on the /l/ of this form is a consequence of *Diminutive* reduplication.

(26d) nqclšétk^w

[_{PW}[_{PS}[nqɛclš]₁ [etk^w]₂]_{PS}]_{PW}

[_{MS}[_H nqɛclš]_{H1} [etk^w]₂]_{MS}

n-√qec-ilš=etk^w

Loc-√run-Aut-water

He ran in the water. (Carlson and Flett 1989)

Given that the forms in (20b), (25a), (25b) and (26a) display Head-referencing morphology, specifically *Out-of-Control*, *Diminutive* and/or *Distributive* reduplication, it is reasonable to assume that the process of structural reanalysis includes the marking of a Head constituent. Reanalysis of the complex morphological structure of the p-representations of non-compounds can be viewed, then, as a process which serves to integrate phonological material from the Prefixal and/or Suffixal domains within the same domain as the Root material on analogy with the existing morphological structure [_H Root]_H, the Root as Head constituent.

It is also important to note that the reanalyzed structure may remain obscured depending on the vowel quality of the diachronic Root.¹³ A composite non-compound structure comprising a strong Root (that is, one which

¹³In view of this circumstance, I have inflated the number of reanalyzed non-compounds. Despite the fact that weak Roots, but not strong Roots, followed by consonantal suffixes display the phonological effects of reanalysis, I assume that an equal number of such strong Root forms have also been reanalyzed. Similarly, while only strong Roots, but not weak Roots, followed by suffixal material which includes a full vowel display the phonological effects of reanalysis, I assume that an equal number of such weak Root forms have also been reanalyzed.

possesses a full vowel) and consonantal suffix will bear stress on a Root vowel, as will its reanalyzed counterpart. Likewise a composite non-compound structure comprising a weak Root (that is, one which possesses schwa) and a suffix which includes a full vowel will bear stress on the full vowel of the suffix, as will its reanalyzed counterpart.¹⁴ Both stress patterns conform to the first parameter of primary stress placement for non-compounds.

5.2.2 Structurally reanalyzed compounds

Highly frequent compounds also show stress patterns which are inconsistent with the phonological (and, therefore, morphological) structures typically associated with such forms. Consider the fact that forms based on *mus four*, culturally a highly significant and frequently used number referent, display phonological patterns distinct from all other number referents to the extent that stress seems to be exceptionally marked.¹⁵ The examples provided in (27)-(31)

¹⁴The data set contains a single exception to this generalization provided below.

ʰáqist
 [PW PS[PR ʰəqmist]PR]PS]PW
 [MS[H ʰəqmist]H]MS
 √ʰəq-mist
 √stuck-RefI
He stuck himself. (Carlson and Flett 1989)

It is possible that this form was created on analogy with the reanalyzed compound ʰáqne? *pocket* and does not derive from the weak Root ʰəq.

¹⁵ The only exceptions to this generalization are: the word ʔó?pnčstq̄n, usually glossed as *one thousand*, but which is also used simply to refer to *a very large number of ...*; and, the word čcílcl *five people*.

serve as illustrations. The Stem_{H1} member of each form in the lefthand column derives from the Root **nk^wu?**, while that of each form in the righthand column (diachronically) derives from the Root **mus**. The Stem₂ member within each pair of examples derives (at least diachronically) from the same Bound Stem.

*Composite forms**Reanalyzed forms*

- | | |
|---|---|
| <p>(27a) čnk^wé†c'e?
 č-√nk^wu?=e†c'e?
 Class-√one=animal
 <i>one animal</i>
 (Carlson and Flett 1989)</p> | <p>(27b) čmús†c'e?
 č-√mus=e†c'e?
 Class-√four=animal
 <i>four animals</i>
 (Carlson and Flett 1989)</p> |
| <p>(28a) čnk^wésšn'
 č-√nk^wu?=esšn'
 Class-√one=round object
 <i>one round object</i>
 (Carlson and Flett 1989)</p> | <p>(28b) čmúsšn'
 č-√mus=esšn'
 Class-√four=round object
 <i>four round objects</i>
 (Carlson and Flett 1989)</p> |
| <p>(29a) nk^wálq^w
 √nk^wu?=alq^w
 √one=long cylindrical object
 <i>one long object</i>
 (Carlson and Flett 1989)</p> | <p>(29b) móslq^w
 √mus=alq^w
 √four=long cylindrical object
 <i>four long objects</i>
 (Carlson and Flett 1989)</p> |
| <p>(30a) nk^wélx^w
 √nk^wu?=e†x^w
 √one=hide
 <i>one skin</i>
 (Carlson and Flett 1989)</p> | <p>(30b) múslx^w
 √mus=e†x^w
 √four=hide
 <i>four skins</i>
 (Carlson and Flett 1989)</p> |
| <p>(31a) ci? cnk^wásq't
 ci? c-√k^wu?=asq't
 ? Loc-√one=day
 <i>It was one day ago.</i>
 (Carlson and Flett 1989)</p> | <p>(31b) mósq't
 √mus=asq't
 √four=day
 <i>four days</i>
 (Carlson and Flett 1989)</p> |

Recall that since each Stem member of a compound is run through the phonology before being structured within the compound, each necessarily contains a full vowel, regardless of the underlying phonological form of the source Root for each Stem. The strong/weak distinction between Stem members is, therefore, nonexistent. Observe that all forms in the lefthand column (that is, those whose Stem₁ derives from **nk^wu?**) display primary stress on a vowel of the Stem₂ member. This is typical of all number referents except those whose Stem₁ derives from **mus**, as demonstrated by the forms in the righthand column.¹⁶ In that case, each bears primary stress on the vowel of the putative Stem₁.

Diachronically speaking, the forms in both column at one time possessed the structure typified in (4) and its morphological correlate in (2b), both of which minimally comprise [Stem]₁ [Stem]₂; however, synchronically, the forms in the lefthand column possess a structure distinct from those in the righthand column. The stress patterns displayed by the two sets of number referents indicate that those in the lefthand column have maintained the structure [Stem]_{H1} [Stem]₂ despite their lexicalized status as compounds, while those in the righthand column have incurred a change of structure resulting in a single domain [_H Root]_H. In the case of the forms on the left, stress has been assigned in accordance with the parameter of primary stress placement for compounds; for those forms on the right, stress has been assigned in accordance with the first parameter of primary

¹⁶As specified in footnote 15, I am aware of only two exceptions to this generalization.

stress placement for non-compounds.

Additional examples of the reanalysis of compound structures can be found below. In each case the stress pattern suggests that the complex compound structure has been reduced to simplex form. On my account, the form in (32) historically derives from the Bound Stem compound $[_{MS}[_{H}\check{y}ir]_{H1} [qin]_2]_{MS}$ (the $Stem_{H1}$ member of which derives from the weak Root form $[_{MS}\check{c}[_{H}y\grave{e}r]_{H}]_{MS}$). If this form comprised two Stem domains underlyingly, then the stress pattern predicted for such a representation would be $*\check{c}irq\acute{in}$, where primary stress is positioned on the full vowel of $Stem_2$ in accordance with the parameter of primary stress placement for compounds. In this case, however, primary stress has been assigned to the vowel of what was once the $Stem_{H1}$, indicating that the two Stem domains have been reanalyzed as one and that stress has been assigned in accordance with the first parameter of primary stress placement for non-compounds.

(32) $\check{c}y\acute{ir}q\acute{n}$

$[_{PW} [_{PS}[_{PR} \check{c}y\acute{ir}q\acute{n}]_{PR}]_{PS}]_{PW}$

$[_{MS}[_{H} \check{c}y\acute{ir}q\acute{n}]_{H}]_{MS}$

$\check{c}\sim y\grave{e}r = qin$

$Loc\sim\sqrt{round} = head$

round head (Carlson and Flett 1989)

Similarly, the form in (33) derives from the Bound Stem compound

$[_{MS}[_{H}t'p\acute{i}p]_{H1} [us]_2]_{MS}$ (the $Stem_{H1}$ member of which derives from the weak Root form $[_{MS}[_{H}t'\acute{e}p]_{HP}]_{MS}$). If this form comprised two Stem domains underlyingly,

then the stress pattern predicted for such a representation would be **sč'pús*, where primary stress is positioned on the full vowel of Stem₂ again in accordance with the parameter of primary stress placement for compounds. In this case, however, primary stress has been assigned to the vowel of what was once the Stem_{H1}, indicating that the two Stem domains have been reanalyzed as one and that stress has been assigned in accordance with the first parameter of primary stress placement for non-compounds.

(33) *sč'píps*

$[_{PW} sč [_{PS}[_{PR} \acute{p}ipus]_{PR}]_{PS}]_{PW}$

$[_{MS} sč [_{H} \acute{p}ipus]_{H}]_{MS}$

*s-č-√'əp-p=us*¹⁷

Nom-Loc-√upright-Inch=round object

a connection like a section of pipe (Carlson and Flett 1989)

One final example indicates that a story similar to that of reanalyzed Bound Stem compounds holds for reanalyzed Free Stem compounds. The form in (34) historically derives from the Free Stem compound $[_{MS}[k^w \underline{u}f]_1 [sl\underline{u}k^w p]_2 tn]_{MS}$.¹⁸ If this form comprised two Stem domains underlyingly, then the surface form predicted for such a representation would be **čk^wTslúk^wptn*, where primary stress

¹⁷The second /p/ may, in fact, be the *Out-of-Control* reduplicant. It is unclear what the source of this morpheme is.

¹⁸Interestingly, what was once the Stem₂ member of this form, itself, derives historically from the Bound Stem compound $[_{MS}s[_{H}l\underline{u}k^w]_{H1} [ep]_2]_{MS}$ which was subsequently reanalyzed as $[_{H}sl\underline{u}k^w ep]_{H}$.

is positioned on a vowel of Stem₂ in accordance with the parameter of primary stress placement for compounds. In this case, however, primary stress has been assigned to the vowel of what was once the Stem₁, indicating that the two Stem domains have been reanalyzed as one and that stress has been assigned in accordance with the first parameter of primary stress placement for non-compounds.

(34) č^wúřslk^wptn

[_{PW} č [_{PS}[_{PR} k^wúřslk^wp]_{PR} tn]_{PS}]_{PW}

[_{MS} č [_H k^wúřslk^wp]_H tn]_{MS}¹⁹

č-√k^wúř-s-√luk^w=ep-tn

Loc-√make-Nom-√wood=bottom-Inst

firepoker (Carlson 1990)

The pattern displayed by the forms in (32)-(34) matches that displayed by the approximately 474 anomalous forms as represented in (10a) above.

Recall that compounds, as stored lexical items, are potential candidates for compounding. For example, the Bound Stem compound [_{MS}[_Hčim]_{H1} [ičn']₂]_{MS} provided in (35a) was later selected to function as the Stem_{H1} member within another Bound Stem compound [_{MS}[_Hčmičn']_{H1} [čst]₂]_{MS} provided in (35b). Once formed, the compounded compound is also lexicalized. Despite their lexicalized

¹⁹The structural positions of /č/ and /tn/ have been arbitrarily located in the Prefixal and Suffixal domains, respectively. It is also possible that these affixes have been reanalyzed as part of the Head constituent.

status, both of these compounds have maintained their structural integrity as indicated by the fact that primary stress appears on a vowel of Stem₂ in accordance with the parameter of primary stress placement for compounds.

(35a) snčmíčn'

$[_{PW} sn [_{PS} [čim]_1 [ičn']_2]_{PS}]_{PW}$

$[_{MS} sn [_{H} čim]_{H1} [ičn']_2]_{MS}$

s-n-√čim=ičn'

Nom-Loc-√body=back

back (Carlson and Flett 1989)

(35b) snčmčn'ěčst

$[_{PW} sn [_{PS} [čmičn']_1 [ěčst]_2]_{PS}]_{PW}$

$[_{MS} sn [_{H} čmičn']_{H1} [ěčst]_2]_{MS}$

s-n-√čim=ičn'=ěčst

Nom-Loc-√body=back=hand

palm of the hand

(Carlson and Flett 1989)

This is not always the case, however, as evidenced by the stress pattern of the form provided in (35c). This word historically derives from the compounded compound $[_{MS} [_{H} čmičn'šín]_{H1} [šin]_2]_{MS}$, comprising the same Stem_{H1} member as that found in (35b). The stress pattern indicates that the synchronic morphological structure of the p-representation of this lexeme comprises the single domain $[_{MS} [_{H} čmičn'šin]_{H1}]_{MS}$ in which Stem_{H1} and Stem₂ of the original have been integrated into a single Head constituent. As such, primary stress is predictably assigned to the leftmost full vowel of that domain in accordance with the first parameter of primary stress assignment for non-compounds.

(35c) snčmičn'sin

[_{PW} sn[_{PS}[_{PR} čmičn'sin]_{PR}]_{PS}]_{PW}[_{MS} sn [_H čmičn'sin]_H]_{MS}

s-n-√čim=ičn'=šin

Nom-Loc-√body=back=foot

sole of the foot (Carlson and Flett 1989)

The forms provided in (36) serve as additional examples. The composite Bound Stem compound [_{MS}[_Hč'uw']_{H1} [šin]₂]_{MS} as in (36a) was presumably incorporated as the Stem_{H1} of the Bound Stem compound [_{MS}[_Hč'u?šin]_{H1} [eš'n']₂]_{MS}. At a later stage in the language, this composite compound was reanalyzed and the Stem_{H1} and Stem₂ members restructured within a single domain as indicated by the stress pattern of (36b). The pattern displayed by the forms in (35c) and (36b) matches that displayed by the approximately 85 anomalous forms represented as in (12a) above. While the stress pattern of (35c) conforms neatly to that predicted by the first parameter of primary stress placement for non-compounds, that of (36b) suggests that the relevant parameter must be revised to exclude certain vowels (those which are protected from deletion by laryngeals or pharyngeals and those which result from consonant vocalization) which do not bear preliminary primary stress. This issue receives additional attention below.

(36a) sc'u?šín

[PW s[PS[c'uw']₁ [šín]₂]PS]PW[MS s[H c'uw']_{H1} [šín]₂]MSs-√c'uw' = šín²⁰

Nom-√? = foot

foot (Carlson and Flett 1989)

(36b) sc'u?šinesšn'

[PW s[PS[PR c'u?šinesšn']_{PR}]PS]PW[MS s[H c'u?šinesšn']_H]MS

s-√c'uw' = šín = esšn'

Nom-√? = foot = round object

deer hoof (Carlson and Flett 1989)

A similar explanation holds for those extremely uncommon anomalous forms represented by (12b) and (12c). Although I am unable to provide an appropriate example to illustrate this for the five words which pattern as in (12b), I have located forms which do so for the ten words which pattern as in (12c). Consider the forms in (37). Presumably, the composite Bound Stem compound [MS[Hq'e?]_{H1} [ew's]₂]MS as in (37a) was selected as the Stem_{H1} of the Bound Stem compound [MS[Hq'?ew's]_{H1} [qin]₂]MS as in (37b). This compound was then selected as the Stem_{H1} of the Bound Stem compound [MS[Hq'?aw'sqin]_{H1} [šín]₂]MS. At a later stage in the language, this composite compound was reanalyzed and the Stem_{H1} and Stem₂ members restructured within a single Head constituent as in

²⁰The underlying form of this Root is unattested. At present, it is equally plausible that the underlying form is c'uw', c'aw', or c'u?.

(37c); reanalysis is indicated by the fact that primary stress has been assigned to the vowel of what was once the Stem_{H1}, indicating that the two Stem domains have been reanalyzed as one.

(37a) hecnq'əw's

[_{PW} hecn [_{PS}[_H q'ə?]₁ [əw's]₂]_{PS}]_{PW}

[_{MS} hecn [_H q'ə?]_{H1} [əw's]₂]_{MS}

hec-n-√q'ə? = əw's²¹

Act-Loc-√pinched = middle

It's in between. (Carlson and Flett 1989)

(37b) snq'aw'sqin

[_{PW} sn [_{PS}[_H q'əw's]₁ [qin]₂]_{PS}]_{PW}

[_{MS} sn [_H q'əw's]_{H1} [qin]₂]_{MS}

s-n-√q'ə? = əw's = qin

Nom-Loc-√pinched = middle = head

middle finger (Carlson and Flett 1989)

(37c) snq'aw'sqinšin

[_{PW} sn [_{PS}[_{PR} q'aw'sqinšin]_{PR}]_{PS}]_{PW}

[_{MS} sn [_H q'aw'sqinšin]_H]_{MS}

s-n-√q'ə? = əw's = qin = šin

Nom-Loc-√pinched = middle = head = foot

middle toe (Carlson and Flett 1989)

²¹The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

The forms in (36b) and (37c) raise certain questions regarding a speaker's ability to discern between those vowels which bear preliminary primary stress and those which remain throughout the derivation simply because they are protected by laryngeals or perhaps because they result from consonant vocalization. While speakers ignore the vowels [u] and [a] of the reanalyzed forms in (36b) and (37c), respectively, as a potential position for primary stress, they, nevertheless, recognize a prefixal vowel which has been restructured within the Head constituent as a candidate for primary stress. Consider the data below.

As with non-compounds, the structural reanalysis of compounds is not restricted to Stem_{H1} and Stem₂ as illustrated by the examples in (38) and (39).²² In each case, the stress pattern conforms to the first parameter of primary stress placement for non-compounds. In (38), primary stress has been assigned to the vowel of what was once a *Distributive* reduplicant, indicating that both the original prefix as well as the original Stem₂ member have been integrated into the same domain as the Stem_{H1} member. Similarly for the form in (39), primary stress has been assigned to the vowel of what was once the *Diminutive* reduplicant, indicating that both the original prefix and Stem₂ have also been integrated into the same domain as the Stem_{H1} member. This pattern matches that displayed by the approximately 50 anomalous forms as represented in (11) above.

²²Unfortunately, the data set does not include even one reanalyzed compound which clearly shows that suffixal material has been restructured within the Head constituent. Nevertheless, it is reasonable to presume that such reanalysis is possible.

(38) pólplqn

[PW[PS[PR polpólqin]PR]PS]PW

[MS[H polpólqin]H]MS

pol+√pol=qin²³

Dist+√?=head

thimbleberry (Carlson and Flett 1989)(39) sʔáʔtq^wʔp[PW[PS s [PR ʔaʔatq^weʔp]PR]PS]PW[MS s [H ʔaʔatq^weʔp]H]MSs-ʔa+√ʔatq=e^wʔp

Nom-Dim+√ponderosa pine=plant

small ponderosa pine (Black 1995a)

At present I have no explanation for the fact that the vowels of prefixes which have been integrated into the Head constituent are visible for stress placement while other vowels are not. It may be the case that the phonological process of unstressed vowel deletion occurs across the board at the lexical level, effectively eliminating even the vowels adjacent to laryngeals, and that other phonological processes such as epenthesis (to meet the needs of the laryngeals) and consonant vocalization (to meet the needs of syllabification) occur at the post-lexical level. For now I simply acknowledge this problem and leave it to future research.

As is the case for reanalyzed non-compounds, reanalyzed compounds are

²³The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is /u/.

subject to subsequent L- and I-derivation. The grammatical features acquired during derivation may trigger morphological spelling operations; consequently, a reanalyzed compound may comprise the Head of an adjoined structure. As such, a reanalyzed compound displays a predictable phonological pattern. The forms in (40) serve as illustrations; both are based on the reanalyzed compound $[_{MS}[_{H}\acute{a}mqin]_H]_{MS}$. Notice that, while the form in (40a) bears primary stress on the leftmost full vowel of the Head constituent, the form in (40b) bears primary stress on the full vowel in the Suffixal domain. Both patterns conform to the first parameter of stress placement for non-compounds.

(40a) č'ámqñ

$[_{PW} \check{c} [_{PS}[_{PR} \acute{a}mqin]_{PR} ntən]_{PS}]_{PW}$

$[_{MS} \check{c} [_{H} \acute{a}mqin]_{H} ntən]_{MS}$

č-√'em=qñ-n-t-ən

Loc-√gathered=head-Ctr-Tr-1sgTrS

I grabbed his hair. (Carlson and Flett 1989)

(40b) č'mqñwé?x^w

$[_{PW} \check{c} [_{PS}[_{PR} \acute{a}mqin]_{PR} ntwe?x^w]_{PS}]_{PW}$

$[_{MS} \check{c} [_{H} \acute{a}mqin]_{H} ntwe?x^w]_{MS}$

č-√'em=qñ-n-t-we(?)x^w

Loc-√gathered=head-Ctr-Tr-Recip(Pl)

We grabbed each other by the hair. (Carlson and Flett 1989)

The same patterns are displayed by the forms in (41), both of which are based on the reanalyzed compound $[_{MS}[_{H}^?ucšin]_H]_{MS}$. In (41a), primary stress appears on

the leftmost full vowel of the Head constituent. In (41b), the full vowel in the Suffixal domain bears primary stress.

(41a) nʔucšncn

[_{PW} n [_{PS}[_{PR} ʔucš̥in]_{PR} ntsəən]_{PS}]_{PW}

[_{MS} n [_H ʔucš̥in]_H ntsəən]_{MS}

n-√ʔuc=šin-n-t-sə-ən

Loc-√follow=foot-Ctr-Tr-2sgTrO-1sgTrS

I followed your tracks or example. (Carlson and Flett 1989)

(41b) nʔucʔucšncúti

[_{PW} nʔuc [_{PS}[_{PR} ʔucš̥in]_{PR} ntsutmə]_{PS}]_{PW}

[_{MS} nʔuc [_H ʔucš̥in]_H ntsutmə]_{MS}

n-ʔuc+√ʔuc=šin-n-t-sut-mə

Loc-Dist+√follow=foot-Ctr-Tr-Refl-NonPerf

He's visiting all the places that persons in love go to ease heartache.

(Carlson and Flett 1989)

It is also important to acknowledge that reanalyzed compounds, as stored lexical items, are available for both Bound Stem and Free Stem compounding. When reanalyzed compounds are selected for compounding, they behave like typical Stem members to the extent that primary stress predictably appears on a full vowel of the second member of the compound. Consider the Bound Stem compound in (42). The Stem_{H1} member derives from the reanalyzed compounds [_{MS}[_Hʔucš̥in]_H]_{MS} and the Stem₂ member from the Bound Stem [eɫc'e?]₂. Notice that a vowel of the Stem₂ member bears primary stress in accordance with the

parameter of primary stress placement for compounds.

(42) nʔucšnéʔeʔ

[_{PW} n [_{PS} [ʔucšn]₁ [eʔeʔ]₂]_{PS}]_{PW}

[_{MS} n [_H ʔucšn]_{H1} [eʔeʔ]₂]_{MS}

n-√ʔuc=šin=eʔeʔ

Loc-√follow=foot=animal

He followed the tracks of game animals. (Carlson and Flett 1989)

The same stress pattern is displayed by numerous compounds as illustrated by the forms in (43) and (44). Each of the forms in (43a) and (44a) comprises a reanalyzed compound as Head constituent of a non-compound structure. Observe that in each case primary stress appears on the leftmost full vowel of the reanalyzed compound. Now compare these patterns to those in (43b) and (44b). Each of these forms incorporates the same reanalyzed compounds as the Stem_{H1} member of a Bound Stem compound, and in each case the vowel of the Stem₂ member bears primary stress in accordance with the parameter of primary stress placement for compounds.

- (43a) sʔúluʔs
 [PW s [PS[PR ʔúlew's]PR]PS]PW
 [MS s [H ʔúlew's]H]MS
 s-√ʔul=ew's²⁴
 Nom-√meet=middle
separated, divided
 (Carlson and Flett 1989)
- (43b) snʔoloʔsáqs
 [PW sn [PS[ʔuloʔs]₁ [aqs]₂]PS]PW
 [MS sn [H ʔuloʔs]_{H1} [aqs]₂]MS
 s-n-ʔul=ew's=aqs
 Nom-Loc-√meet=middle=road
place where two roads meet
 (Carlson and Flett 1989)
- (44a) p'ışt̥p
 [PW[PS[PR p'ışt̥p]PR]PS]PW
 [MS[H p'ışt̥p]H]MS
 √p'əš=ełp
 √scrape=plant
cattail leaves
 (Carlson and Flett 1989)
- (44b) p'ışt̥páxn
 [PW[PS[p'ışt̥p]₁ [axn]₂]PS]PW
 [MS [H p'ışt̥p]_{H1} [axn]₂]MS
 √p'əš=ełp=axn
 √scrape=plant=arm
cattail mat
 (Carlson and Flett 1989)

Reanalyzed compounds are also available for Free Stem compounding and may be incorporated into the compound structure as the Stem₁ or the Stem₂ member. In any case, a vowel of the Stem₂ member bears primary stress as illustrated by the forms in (45) and (46). Observe that the same reanalyzed compound appears as the Stem₁ member in (45) and the Stem₂ member in (46).

- (45) sqlix^wsc'óm'
 [PW[PS[sqlix^w]₁ † [sc'óm']₂]PS]PW
 [MS[H sqlix^w]_{H1} † [sc'óm']₂]MS
 s-√qel=mix^w-s-√c'óm'
 Nom-√body=person-Nom-√bone
skeleton (Carlson and Flett 1989)

²⁴The underlying form of this Root is unattested.

(46) $\text{x}ltsq\acute{e}lix^{w25}$ $[_{PW}[_{PS}[\text{x}l\acute{i}t]_1 \dagger [\text{sq}\acute{e}lix^w]_2]_{PS}]_{PW}$ $[_{MS}[_{H} \text{x}l\acute{i}t]_{H1} \dagger [\text{sq}\acute{e}lix^w]_2]_{MS}$ $\sqrt{\text{x}\acute{a}l-t-s-\sqrt{q}el}=\text{mix}^w$ $\sqrt{\text{invite-Stat-Nom-}\sqrt{\text{body}}=\text{person}}$ *He invited all the people.* (Carlson and Flett 1989)

As mentioned above, since compounds are stored lexical items, they may be subjected to structural reanalysis; this also applies to compounds which include a reanalyzed compound as a Stem₁ or Stem₂ member. The forms provided in (47b) and (48b) serve as examples. On my account, the reanalyzed compound $[_{MS}[_{H}q^{w}\underline{u}sep]_{H}]_{MS}$ as in (47a) is presumed to have been incorporated as the Stem_{H1} member of the Bound Stem compound $[_{MS}[_{H}q^{w}\underline{u}sp]_{H1} [q\acute{i}n]_2]_{MS}$ which at a later stage was reanalyzed as a single domain $[_{MS}[_{H}q^{w}\underline{u}spq\acute{i}n]_{H}]_{MS}$ as in (47b). As such, stress is assigned to the leftmost full vowel in accordance with the first parameter of primary stress placement.

²⁵Interestingly, the Stem_{H1} member of this word is a reanalyzed non-compound which also exhibits changes in phonological form. Generally speaking, the surface form predicted for the weak Root form $[_{MS}[_{H}\text{x}\acute{a}l]_{H} t]_{MS}$ is $\text{x}l\acute{i}t$; this surface form was reanalyzed as the underlying phonological form of the lexical item. For discussion of such changes, see section 5.2.3 of this chapter.

(47a) nq^wúsp[PW n [PS[PR q^wúsep]PR]PS]PW[MS n [H q^wúsep]H]MSn-√q^wus=ep

Loc-√gathered=bottom

*drawstring bag**(Carlson and Flett 1989)*(47b) q^wóspqn[PW [PS[PR q^wúspqin]PR]PS]PW[MS[H q^wúspqin]H]MS√q^wus=ep=qin

√gathered=bottom=head

*cape gathered around the neck**(Carlson and Flett 1989)*

A similar story can be told for the form in (48b). Presumably, the reanalyzed compound [MS[H^wisšⁱn]H]MS as in (48a) was incorporated as the Stem_{H1} member of the Bound Stem compound [MS[H^wisšⁿ]H1 [qin]₂]MS which at a later stage was reanalyzed as a single Head constituent [MS[H^wisšⁿqin]H]MS. Again, stress is assigned to the leftmost full vowel in accordance with the first parameter of primary stress placement for non-compounds. The pattern displayed by the forms in (47) and (48) matches that displayed by the approximately 25 anomalous forms as represented by the form in (10b) above. Although I am unable to provide examples to describe the history of the one anomalous form as represented by the form in (10c), I suspect a similar explanation holds for it.

(48a) wíššn

[PW[PS[PR wíššín]PR]PS]PW

[MS[H wíššín]H]MS

 $\sqrt{\text{wíš}}=\text{šín}$ ²⁶ $\sqrt{\text{stand up}}=\text{foot}$ *It's long.**(Carlson and Flett 1989)*

(48b) čwíššnqn

[PW č [PS[PR wíššínqín]PR]PS]PW

[MS č [H wíššínqín]H]MS

č- $\sqrt{\text{wíš}}=\text{šín}=\text{qín}$ Loc- $\sqrt{\text{stand up}}=\text{foot}=\text{head}$ *long hair**(Carlson and Flett 1989)*

The structural reanalysis of compounds deserves one final comment regarding the issue of a morphological Head. As suggested by the presence of the *Distributive* reduplicant in the Prefixal domain of the form in (41b) above, the structural reanalysis of the p-representations of compounds includes the marking of a Head constituent. Reanalysis of the complex morphological structure of such p-representations can be viewed, then, as a process which serves minimally to integrate the phonological material of the two Stem domains of a compound into a single Head constituent on analogy with the existing morphological structure [H Root]_H, the Root as Head constituent. Additional examples displaying head-referencing morphology can be found in (49) and (50). For the purpose of comparison, the plain forms are provided in (a), while their reduplicated counterparts are provided in (b). The reanalyzed compound in (49b) displays the *Distributive* reduplicant, while that in (50b) displays the *Diminutive* reduplicant.

²⁶The underlying quality of this Root vowel has yet to be determined. It is equally plausible that the underlying vowel is schwa.

- (49a) čk^wilšín
- [_{PW} č [_{PS}[_{PR} k^wilšín]_{PR}]_{PS}]_{PW}
- [_{MS} č [_H k^wilšín]_H]_{MS}
- č-√k^wil=šín
 Loc-√red=foot
He has one red foot due to heat or cold.
 (Carlson and Flett 1989)
- (49b) čk^wlk^wilšín
- [_{PW} čk^wil [_{PS}[_{PR} k^wilšín]_{PR}]_{PS}]_{PW}
- [_{MS} čk^wil [_H k^wilšín]_H]_{MS}
- č-k^wəl+√k^wəl=šín
 Loc-√red=foot
He has red feet due to heat or cold.
 (Carlson and Flett 1989)
- (50a) qá+qá+ic'e?
- [_{PW}[_{PS}[_{PR} qá+qá+ic'e?]_{PR}]_{PS}]_{PW}
- [_{MS}[_H qá+qá+ic'e?]_H]_{MS}
- qá+√qá=ic'e?
 Dist+√?=outside covering
grouse
 (Carlson and Flett 1989)
- (50b) qqá+qá+ic'e?
- [_{PW}qa[_{PS}[_{PR}qá+qá+ic'e?]_{PR}]_{PS}]_{PW}
- [_{MS} qa [_H qá+qá+ic'e?]_H]_{MS}
- qa+qá+√qá=ic'e?
 Dim+Dist+√?=covering
little grouse
 (Carlson and Flett 1989)

5.2.3 Structural reanalysis accompanied by other lexical changes

Although the phonological patterns of the forms discussed in sections 5.2.1 and 5.2.2 indicate a change in the morphological structure of the p-representations of those lexemes, such change is not accompanied by phonological changes in that p-representation or by any (perceptible) grammatical or semantic changes; however, this is not always the case. The Spokane data set includes a number of forms which have incurred additional changes to their lexical representations.

The forms in (51) serve as examples of those non-compounds which have

been subjected to structural reanalysis as well as to a change in phonological form. Observe that the stress pattern of the form in (51a) conforms to that predicted for a weak Root form which has been augmented with /p/ *Inchoative*; nevertheless, the form in (51b) demonstrates that the Root in question is actually the strong Root $\chi^w\text{up}$, one which presumably resulted from structural and phonological reanalysis of diachronic $[_{MS}[_{H}\chi^w\text{əx}^w]_{HP}]_{MS}$ as synchronic $[_{\chi^w\text{up}}]_{H}$. Interestingly, this phonological change is one in which the surface form predicted for the weak Root followed by such suffixal material is reanalyzed as the underlying phonological form of the lexical item.

(51a) $\chi^w\text{úp}$ $[_{PW}[_{PS}[_{PR}\chi^w\text{up}]_{PR}]_{PS}]_{PW}$ $[_{MS}[_{H}\chi^w\text{up}]_{H}]_{MS}$ $\sqrt{\chi^w\text{əx}^w\text{-p}}$ $\sqrt{\text{win-Inch}}$ *He won. He surpassed.**(Carlson and Flett 1989)*(51b) $\chi^w\text{úp}t\text{tn}$ $[_{PW}[_{PS}[_{PR}\chi^w\text{up}]_{PR}t\text{tn}]_{PS}]_{PW}$ $[_{MS}[_{H}\chi^w\text{up}]_{H}t\text{tn}]_{MS}$ $\sqrt{\chi^w\text{əx}^w\text{-p-t-t-ən}}$ $\sqrt{\text{win-Redir-Tr-1sgTrS}}$ *I won his things from him.**(Carlson and Flett 1989)*

This combined change in both morphological structure and phonological form is not restricted to forms which bear the /p/ *Inchoative* marker. Additional examples can be found in (52) and (53). The stress pattern of the form in (52a) suggests that the word is based on the weak Root $\chi\text{əl}$ which has been augmented with /m/ *Middle*; however, the pattern exhibited in (52b) indicates that structural reanalysis and phonological change have transformed this weak Root form into the strong Root χlem .

(52a) čxlém

[PW č [PS[PR xlem]PR]PS]PW

[MS č [H xlem]H]MS

č-√xəl-m

Loc-√ambush-Mid

*He ambushed someone.**(Carlson and Flett 1989)*

(52b) čxlémis

[PW č [PS[PR xlem]PR ntəs]PS]PW

[MS č [H xlem]H ntəs]MS

č-√xəl-m-n-t-əs

Loc-√ambush-Mid-Ctr-Tr-3TrS

*He ambushed him.**(Carlson and Flett 1989)*

A similar explanation holds for the forms in (53). While the stress pattern of (53a) suggests that the word is based on the weak Root *c'əq* which has been augmented with the *Out-of-Control* reduplicant, the patterns exhibited by additional data indicate that structural reanalysis and phonological change have transformed this weak Root form into the strong Root *c'q^waq^w*.

(53a) c'q^wáq^w[PW[PS[PR c'q^waq^w]PR]PS]PW[MS[H c'q^waq^w]H]MS√c'əq^w+q^w

√cry+OC

He cried. (Carlson and Flett 1989)(53b) čc'q^wáq^wmn[PW č [PS[PR c'q^waq^w]PR mntən]PS]PW[MS č [H c'q^waq^w]H mntən]MSč-√c'əq^w+q^w-m-n-t-ən

Loc-√cry-+OC-TransDer-Ctr-Tr-1sgTrS

I cried about it. (Carlson and Flett 1989)

(53c) nc'q^wq^wéls[_{PW} n [_{PS} [c'q^waq^w]₁ [éls]_{2PS}]_{PW}[_{MS} n [_H c'q^waq^w]_{H1} [éls]₂]_{MS}n-√c'əq^w+q^w=els

Loc-√cry+OC=feeling

He feels like crying. (Carlson and Flett 1989)

The forms in (54) and (55) serve as examples of words which exhibit both structural reanalysis and semantic specialization but have not incurred any change in phonological form. Regarding reanalysis, if each form comprised two domains underlyingly (a Root domain preceded by a Prefixal domain), then the surface forms predicted for these representations would be *x̄sx̄és and *sc'm'c'óm', where primary stress is positioned on the Root vowel. In fact, in each case primary stress has been assigned to the vowel of what was once the *Distributive* reduplicant, indicating that this phonological material has been integrated into the Root domain. Regarding (54), the vowel quality of the putative *Distributive* indicates that long-distance retraction has applied, providing additional evidence that this CVC sequence has been integrated into the Root domain.

(54) x̄ásx̄s

[_{PW}[_{PS}[_{PR} x̄əsx̄əs]_{PR}]_{PS}]_{PW}[_{MS}[_H x̄əsx̄əs]_H]_{MS}

x̄əs+√x̄əs

Dist+√good

licorice root (Carlson and Flett 1989)

- (55) sc'óm'c'm'
 [PW s [PS[PR c'óm'c'óm']PR]PS]PW
 [MS s [H c'óm'c'óm']H]MS
 s-c'óm'+√c'óm'
 Nom-Dist+√bone
carbuncle (Carlson and Flett 1989)

The data set also includes numerous reanalyzed compounds which exhibit semantic change. In each case the phonological material of the Stem_{H1} and Stem₂ of the original compound have been reanalyzed as a single Head constituent. Those provided in (56) through (58) describe what I call generalized activities to the extent that they correspond to activities of a very routine nature. The form in (56) refers to working on vehicles in general; it does not refer to the work done on a particular vehicle. The same is true for the forms in (57) and (58). In (57) the activity referred to is that of turning off lights in general, not that of turning off a specific light. In (58) the form refers to the generalized activity of buying groceries; it does not refer to the purchase of a particular food item. Observe that in each case stress has been assigned to a vowel of what was once the Stem_{H1} indicating that the phonological material of Stem_{H1} and Stem₂ have been integrated into a single domain. As such, stress has been assigned to the leftmost full vowel in that domain in accordance with the first parameter of primary stress placement for non-compounds.

(56) $sx^w k^w \acute{u}f u \dagger$

$[_{PW} sx^w [_{PS} [_{PR} k^w \underline{u}f \acute{e}w \acute{1}]]_{PR}]_{PS}]_{PW}$

$[_{MS} sx^w [_{H} k^w \underline{u}f \acute{e}w \acute{1}]]_{H}]_{MS}$

$sx^w \sim \sqrt{k^w \acute{u}f = \acute{e}w \acute{1}}$

Agentive- $\sqrt{\text{make}} = \text{vehicle}$

auto mechanic (Carlson and Flett 1989)

(57) $\dagger p \dagger \acute{e} p s t n$

$[_{PW} \dagger p \dagger [_{PS} [_{PR} \dagger \acute{e} p \underline{u} s]_{PR} s t \acute{a} n]_{PS}]_{PW}$

$[_{MS} \dagger p \dagger [_{H} \dagger \acute{e} p \underline{u} s]_{H} s t \acute{a} n]_{MS}$

$\dagger p \dagger + \sqrt{\dagger \acute{e} p} = \text{us-s-t-}\acute{a}n$

Dist- $\sqrt{\text{extinguish}} = \text{fire-Caus-Tr-1sgTrS}$

I turned off all the lights. (Carlson and Flett 1989)

(58) $\check{c} n t \acute{e} w c n$

$[_{PW} \check{c} n [_{PS} [_{PR} t \acute{e} w \underline{c} i n]_{PR}]_{PS}]_{PW}$

$[_{MS} \check{c} n [_{H} t \acute{e} w \underline{c} i n]_{H}]_{MS}$

$\check{c} n \sqrt{t \acute{e} w} = \text{cin}$

1sgIntrS $\sqrt{\text{do business}} = \text{food}$

I bought groceries. (Carlson and Flett 1989)

Similarly, the activities expressed by the forms in (59) through (61) are also quite generalized; however, these activities are a bit more abstract, perhaps expressing their meaning metaphorically. The form in (59) does not refer to the generalized activity of land-stealing, nor does it refer to the stealing of a particular piece of land, but to something like the legal notion of trespassing. Likewise, the form in (60) does not refer to hand-crossing generally or to the crossing of a

specific hand, but to the notion of revenge. And finally, the form in (61) does not mean to mouth-hide generally or to hide a specific mouth; it simply means to gossip. Observe that in each case stress has been assigned to the vowel of what was once the Stem_{H1}, indicating that the phonological material of Stem_{H1} and Stem₂ have been integrated into a single domain and that stress has been assigned following the first parameter of primary stress placement for non-compounds.

(59) čnáq^wleʔx^w

[_{PW} č [_{PS}[_{PR} náq^wleʔx^w]_{PR}]_{PS}]_{PW}

[_{MS} č [_H náq^wleʔx^w]_H]_{MS}

č-√naq^w=uleʔx^w

Loc-√steal=land

He trespassed.

(Carlson and Flett 1989)

(60) čn ʔéyčsti

[_{PW} čn [_{PS}[_{PR} ʔeyčst]_{PR} mə]_{PS}]_{PW}

[_{MS} čn [_H ʔeyčst]_H mə]_{MS}

čn √ʔey=ečst-mə

1sgIntrS √cross=hand-NonPerf

I got revenge. (Carlson and Flett 1989)

(61) wék^wcnmn

[_{PW}[_{PS}[_{PR} wék^wcɪn]_{PR} mntən]_{PS}]_{PW}

[_{MS}[_H wék^wcɪn]_H mntən]_{MS}

√wek^w=cin-m-n-t-ən

√hide=mouth-Der-Ctr-Tr-1sgTrS

I gossiped about somebody. (Carlson and Flett 1989)

5.3 Some consequences of structural reanalysis for the grammar

Regardless as to whether or not the reanalysis of morphological structure is also accompanied by phonological, grammatical or semantic adjustments, structural reanalysis carries with it a variety of consequences for the grammar of Spokane. Some such consequences are reviewed below.

5.3.1 Renewal and extension of lexical and conceptual resources

One consequence of reanalysis is that it serves to "renew and extend the lexical and conceptual resources" of the Spokane language (Bynon 1977). Consider the fact that the ability to produce a particular composite form typically remains available to Spokane speakers despite the existence of a diachronically related reanalyzed form. That is to say, the process of reanalysis may add the reanalyzed lexical item to the lexicon; it does not necessarily replace or displace the existing lexical item(s) which originally served as its base, nor does it render any morphological spelling operations inactive.

The data set contains numerous examples of reanalyzed forms as coexistent with composite counterparts. Consider the forms below. The stress patterns of the forms in (62a) and (62b) indicate that the non-compound composite form $[_{MS}[_{H}\check{s}\check{\theta}\check{\chi}']_H m]_{MS}$ has been reanalyzed as $[_{MS}[_{H}\check{s}\check{\theta}\check{\chi}'m]_H]_{MS}$ and stored in the lexicon as such. Despite reanalysis, however, the original weak Root form $[_{MS}[_{H}\check{s}\check{\theta}\check{\chi}']_H]_{MS}$ remains available to Spokane speakers as is demonstrated by the fact that both $[_{MS}[_{H}\check{s}\check{\theta}\check{\chi}'m]_H]_{MS}$ and $[_{MS}[_{H}\check{s}\check{\theta}\check{\chi}']_H]_{MS}$ are utilized in compound formation. Consider

the compound forms in (62c) and (63). While the Stem_{H1} of (62c) is based on the weak Root form [MS[_Hšəχ'm]_{H1}]_{MS}, that of (63) is based on the weak Root form [MS[_Hšəχ']_{H1}]_{MS}; however, both forms comprise identical Stem₂ members as well as /m/ *Middle* in the Suffixal domain. The co-occurrence of these compounds indicates that these two historically related Stems coexist in the lexicon.

(62a) šəχ'mím

[PW [PS[_{PR} šəχ'm]_{PR} m]_{PS}]_{PW}

[MS[_H šəχ'm]_{H1} m]_{MS}

√šəχ'm-m

√straight-Mid

He lined them up all in a row.

(Carlson and Flett 1989)

(62b) šəχ'mísk^w

[PW [PS[_{PR} šəχ'm]_{PR} stk^w]_{PS}]_{PW}

[MS[_H šəχ'm]_{H1} stk^w]_{MS}

√šəχ'-m-s-t-k^w

√straight-Mid-Caus-Tr-Imp

Put (singular) them all in a row!

(Black 1995a)

(62c) šəχ'métx^wm

[PW [PS[šəχ'm]₁ [etx^w]₂ m]_{PS}]_{PW}

[MS[_H šəχ'm]_{H1} [etx^w]₂ m]_{MS}

√šəχ'm=etx^w-m

√straight=house-Mid

He put houses in a row. He straightened up a house or a room.

(Carlson and Flett 1989)

(63) šəχ'étx^wm

[PW [PS[šəχ']₁ [etx^w]₂ m]_{PS}]_{PW}

[MS[_H šəχ']_{H1} [etx^w]₂ m]_{MS}

√šəχ'=etx^w-m

√straight=house-Mid

He went from house to house canvassing. (Carlson and Flett 1989)

Similarly, the forms in (64) and (65) indicate that the lexicon contains the original Stem $[_{MS}[_{H}nas]_H]_{MS}$ as well as the reanalyzed Stem $[_{MS}[_{H}n?as]_H]_{MS}$. Observe that both forms serve as the base for *Distributive* reduplication.

- | | |
|--|--|
| <p>(64a) hi nás</p> <p>hi $[_{PW}[_{PS}[_{PR}nas]_{PR}]_{PS}]_{PW}$</p> <p>hi $[_{MS}[_{H}nas]_H]_{MS}$</p> <p>hi \sqrt{nas}
Part \sqrt{wet}
<i>It's wet.</i>
(Carlson and Flett 1989)</p> | <p>(64b) nsnás</p> <p>$[_{PW}nas[_{PS}[_{PR}nas]_{PR}]_{PS}]_{PW}$</p> <p>$[_{MS}nas[_{H}nas]_H]_{MS}$</p> <p>nas + \sqrt{nas}
Dist + \sqrt{wet}
<i>It's all wet.</i>
(Carlson and Flett 1989)</p> |
| <p>(65a) n?ás</p> <p>$[_{PW}[_{PS}[_{PR}n?as]_{PR}]_{PS}]_{PW}$</p> <p>$[_{MW}[_{H}n?as]_H]_{MS}$</p> <p>$\sqrt{n?as}$
$\sqrt{got\ wet}$
<i>It got wet.</i>
(Carlson and Flett 1989)</p> | <p>(65b) n?an?ás</p> <p>$[_{PW}n?a[_{PS}[_{PR}n?as]_{PR}]_{PS}]_{PW}$</p> <p>$[_{MW}n?a[_{H}n?as]_H]_{MS}$</p> <p>na? + $\sqrt{n?as}$
Dist + $\sqrt{got\ wet}$
<i>It got all wet.</i>
(Carlson and Flett 1989)</p> |

The same observations hold for compounds. Recall from the description of the anomalous facts that Spokane speakers utilize forms which show competing stress patterns for identical and near-identical sequences as illustrated in (66). This is possible since the reanalysis of a Bound Stem compound does not preclude the production of a composite compound based on the original Stem members which still reside in the lexicon.

Composite form

(66a) nmicin

[_{PW} n [_{PS} [miy]₁ [cin]₂]_{PS}]_{PW}[_{MW} n [_H miy]_{H1} [cin]₂]_{MS}

n-√məy=cin

Loc-√know=mouth

*His stories are interpreted.**(Carlson and Flett 1989)**Reanalyzed form*

(66a) nmiycn

[_{PW}[_{PS}[_{PR} nmiycin]_{PR}]_{PS}]_{PW}[_{MS}[_H nmiycin]_H]_{MS}

n-√məy=cin

Loc-√know stories

*He knows his stories.**(Carlson and Flett 1989)*

Related to this issue of extension/renewal of lexical and conceptual resources is the potential for speakers/learners to create new Bound Stems from the existing stock of Bound Stems. Based on the fact that reanalysis of certain compounds results in a stress pattern in which, for example, the first putative lexical suffix in a string of such lexical suffixes bears primary stress, speakers/learners may determine that such lexical suffix strings are functioning as a single Bound Stem. Consequently, it is possible that they may subject such forms, yet again, to structural reanalysis, this time on analogy with the complex structure associated with Bound Stem compounds.

For example, the stress patterns of the forms in (67) and (68) suggest that these forms historically derive from the Bound Stem compounds [_Hsp'ep]_{H1}[qin]₂ and [_Hč'cep]_{H1}[qin]₂ which were at a later stage structurally reanalyzed as the single Head constituents [_H sp'epqin]_H and [_H č'cepqin]_H, respectively.

(67) sp'ápqn

√səp'=ep=qin

√hit with stick=bottom=head

*He beat someone on the head.**(Carlson and Flett 1989)*

- (68) $\check{c}'\acute{a}pqntn$
 $\sqrt{\check{c}'\acute{a}c'}=ep=qin-tn$
 $\sqrt{\text{long object lays=bottom=head-Instr}}$
a yoke (Carlson and Flett 1989)

Given enough forms comprising the sound sequence /epqin/ (or perhaps /apqin/), it is possible that speakers/learners might analyze this sequence as a Bound Stem. It is also possible, then, that this type of re-reanalysis might result in the creation of new Bound Stem members which are productively employed in compounding. Such re-reanalysis can occur, however, only if the numbers warrant it; that is, a relevant proportional base must exist in the lexicon in order to justify such an analogical readjustment. Currently, it is unlikely that such re-reanalysis has occurred, since such forms are extremely rare.

5.3.2 Productivity of morphological spelling operations

Although reanalysis, itself, does not render morphological spelling operations inactive, the accumulation of reanalyzed forms may affect the productivity of the relevant spelling operation. While most of the morphological spelling operations responsible for affixes which have been subjected to reanalysis remain available to speakers, one operation in particular appears to have been lost. Evidence from putative /t/ *Stative* forms indicates that structural reanalysis, signaled by the idiosyncrasy of form which results from reanalysis, has adversely affected the productivity of that operation. Although historical studies must

recognize certain /t/ occurrences as relics of the once productive /t/ *Stative* marker, /t/ *Stative* seems to have no synchronic relevance for the grammar of Spokane.

The possible loss of this operation speaks to the problem of productivity as discussed in both Aronoff (1976) and Anderson (1992) and perhaps provides some support for the intuition that

...the accretion of particular idiosyncratic senses attached to instances of a given formation leads to a state in which speakers (and language learners) trust it less, and thus its productivity reduces. (Anderson 1992:197)

If this proves to be an accurate assessment, then the accumulation of reanalyzed forms may be a critical factor contributing to a decline in the productivity of morphological spelling operations. If so, other such operations could be expected to be lost.

5.3.3 Saliency of the notion Head

Despite the fact that the process of reanalysis redefines the complex structure of non-compounds and compounds as simplex on analogy with the existing morphological structure [_H Root]_H, it may be the case that such reanalysis has introduced a degree of instability with respect to the saliency of the notion Head constituent. The data set provides two types of evidence which suggest that reliance on a Head constituent is weakening, albeit only slightly. These include forms in which nasal shift has applied in an unexpected way as well as forms with unusual realizations of *Out-of-Control* reduplication.

Let us first consider the facts related to nasal shift. Recall from Chapter 2 that nasal shift involves the shift of a nasal consonant to [y] or [i] when it is immediately followed by a coronal fricative and when its position within the word meets particular structural requirements. As discussed in Chapter 2, if a nasal/coronal-fricative sequence is lexically specified within the Root, then the sequence remains unaffected by nasal shift as demonstrated by the form in (69).

(69) swenš

[_{PW} s [_{PS}[_{PR} wenš]_{PR}]_{PS}]_{PW}

[_{MS} s [_H wenš]_H]_{MS}

s-√wenš

Nom-√dance

wardance (Carlson and Flett 1989)

The same pattern is exhibited by reanalyzed forms as demonstrated by the forms in (70) and (71). The reanalyzed compound in (70) displays the nasal shift violation /nš/ occurring at what was once the boundary between Stems. The reanalyzed non-compound in (71) displays the nasal shift violation /ms/ which results as a consequence of unstressed vowel deletion.

(70) č̣ṭq̣ʷʔupcínṣ̌n

[_{PW}č̣ṭ[_{PS}[_{PR}q̣ʷʔpcínṣ̌in]_{PR}]_{PS}]_{PW}

[_{MS} č̣ṭ [_H q̣ʷʔpcínṣ̌in]_H]_{MS}

č̣ṭ-√q̣ʷʔuw'-p=cin=šin

Loc-√broken-Inch=edge=foot

broken ankle (Carlson and Flett 1989)

(71) čmúsms

[_{PW} č [_{PS}[_{PR} musmus]_{PR}]_{PS}]_{PW}[_{MS} č [_H musmus]_H]_{MS}

č-mus+√mus

Class-Dist+√four

four persons (Carlson and Flett 1989)

Significant for present purposes is the fact that reanalyzed forms which derive from Reflexives comprising the suffix /mist/ *Reflexive* undergo nasal shift despite the fact that such material has presumably been restructured within the Head constituent. The forms in (72) and (73) serve as examples. In each case, nasal shift has been fed by the process of unstressed vowel deletion, whereby the unstressed vowel /i/ is deleted leaving /m/ adjacent to /s/. As a result, the phoneme /m/ is presumed to have shifted to [i]. These facts at least suggest the possibility that speakers/learners are in the process of adjusting the structural constraints which limit the application of nasal shift; that is to say, the application of nasal shift may be achieving a wider distribution.

(72) čnʔép'ist

[_{PW} čn [_{PS}[_{PR} ʔep'mist]_{PR}]_{PS}]_{PW}[_{MS} čn [_H ʔep'mist]_H]_{MS}

čn √ʔep'-mist

1sgIntrS √wipe-Refl

I wiped it for myself. (Carlson and Flett 1989)

(73) yóq^wist

[_{PW} _{PS}[_{PR} yoq^wmist]_{PR}]_{PS}]_{PW}

[_{MS}[_H yoq^wmist]_H]_{MS}

√yoq^w-mist

√lie-Refl

He lies. (Carlson and Flett 1989)

The other type of evidence which suggests that reliance on a Head constituent is weakening includes those forms with non-comforming surface realizations of *Out-of-Control* reduplication. Recall that this type of reduplication realizes a monomoraic or a bimoraic copy of Root material as a suffix positioned after the second mora of that Root. Furthermore, this operation effectively redefines the right edge of non-canonical Roots at the second mora. In any case, a consequence of this spelling operation is morphological structure which comprises two domains, a Head and a Suffixal domain.

The data set includes a small number of forms which display unusual *Out-of-Control* patterns; those in (74) and (75) serve as representative examples. Observe that in the case of (74b), reduplication seems to have targeted the segment at the right edge of the Root (and not the second mora of the Root) for copying and affixation of the reduplicant. Regarding (75b), reduplication seems to have targeted the consonant which follows the stressed vowel for copying and affixation. Significantly, both examples suggest that *Out-of-Control* reduplication has not redefined the right edge of the Root and that the morphological and phonological structures of these forms comprise only single domains. If

reduplication had redefined the right edge of the Root, then a Suffixal domain, which includes the reduplicant and all the phonological material to the right of the reduplicant, would be present. In that case, primary stress would have been assigned to a vowel in that domain. Specifically, if the structure of (74b) were $[_{MS}[_{H} y\text{ər}]_{H} k^w k^w]_{MS}$, stress would have been assigned to an epenthetic vowel within the Suffixal domain in accordance with the third parameter of primary stress placement for non-compounds. In actuality, however, stress appears on the Root schwa indicating that this form comprises a single domain.

(74a) $y\text{ər}k^w$ $[_{PW}[_{PS}[_{PR} y\text{ər}k^w]_{PR}]_{PS}]_{PW}$ $[_{MS}[_{H} y\text{ər}k^w]_{H}]_{MS}$ $\sqrt{y\text{ər}k^w}$ $\sqrt{\text{bent}}$ *It's bent.**(Carlson and Flett 1989)*(74b) $y\acute{\text{e}}rk^w k^w$ $[_{PW}[_{PS}[_{PR} y\acute{\text{e}}rk^w k^w]_{PR}]_{PS}]_{PW}$ $[_{MS}[_{H} y\acute{\text{e}}rk^w k^w]_{H}]_{MS}$ $\sqrt{y\acute{\text{e}}rk^w + k^w}$ $\sqrt{\text{bent} + \text{OC}}$ *It got bowed by accident.**(Carlson and Bates (1990))*

Likewise, if the morphological structure of (75b) were $[_{MS}r^wix[_{H}r^wix]_{H}x\acute{\text{e}}\text{čst}]_{MS}$, stress would have been assigned to the full vowel within the Suffixal domain in accordance with the first parameter of primary stress placement for non-compounds. The position of primary stress remains on the same vowel as the non-reduplicated form indicating that $[r^wix\acute{\text{e}}\text{čst}]$ occupies a single domain. In both cases it appears that the *Out-of-Control* reduplicant has been infixated with no consequence to the morphological structure of the form.

(75a) $st'ixčst$ $[_{PW}st'ix[_{PS}[_{PR} \acute{t}ixčst]_{PR}}]_{PS}]_{PW}$ $[_{MS}st'ix[_{H} \acute{t}ixčst]_{H}]_{MS}$ $s-t'ix + \sqrt{t'ix} = ečst$ Nom-Dist + $\sqrt{}$ fanned out = hand*out-spread fingers**(Carlson and Flett 1989)*(75b) $\acute{t}ixčst$ $[_{PW}\acute{t}ix[_{PS}[_{PR} \acute{t}ixčst]_{PR}}]_{PS}]_{PW}$ $[_{MS}\acute{t}ix[_{H} \acute{t}ixčst]_{H}]_{MS}$ $\acute{t}ix + \sqrt{t'ix} + x = ečst$ Dist + $\sqrt{}$ fanned out + OC = hand*Out-spread fingers come up in**fright (to guard the face).**(Carlson and Flett 1989)*

Although forms which display these patterns of nasal shift and *Out-of-Control* reduplication are extremely rare and as such may simply be classified as exceptions, they nevertheless point to the possibility that speakers are in the process of adjusting the grammar in the wake of structural reanalysis.

5.4 Conclusions

Having examined the stress patterns of the seeming anomalous forms and having interpreted the morphological structure of those forms based on those patterns, it seems reasonable to conclude that such patterns are the consequence of structural reanalysis of the p-representations of lexemes. The data indicate that language speakers and learners have analyzed the internal structures of particular p-representations in configurations which are distinct from an earlier language state. The data also indicate that the process of reanalysis is quite constrained to the extent that forms are reanalyzed only on analogy with the existing morphological structure $[_{H} \text{Root}]_{H}$.

It was demonstrated that the complex structure of a non-compound may be

reanalyzed so that that affixal material is integrated into the Head constituent. Likewise, the complex morphological structure of a compound may be reanalyzed so that the two Stem domains may be restructured as a solitary Head constituent, and, further, that affixal material may be integrated into that Head. It was also demonstrated that structural reanalysis may be accompanied by other types of lexical changes, most notably changes in phonological form and semantic properties. As such, structural reanalysis has consequences for various areas of the grammar including the renewal and extension of lexical and conceptual resources, the productivity of morphological spelling operations, and the saliency of the notion Head. Other than the fact of reanalysis, however, these reanalyzed forms do not display any unusual morphophonological behavior.

Chapter 6

Conclusions

6.0 Significance of the present study

Viewing the morphophonological structures of Spokane words from the perspective of a lexeme-based framework has provided an analysis of the domains relevant for the morphology and the phonology which reveals the intricate and systematic nature of the Spokane grammar, specifically with respect to the phonological representation of a Spokane lexeme. By characterizing the phonological representations of Spokane lexemes as composites and by introducing the issue of structural reanalysis, the usual difficulties associated with the facts of primary stress placement disappear and the complex factors assessed by this phonological process become visible. Such an approach eliminates the need for the battery of lexical diacritics and theoretical mechanisms commonly employed in earlier analyses of the Spokane language.

6.1 Review of the main points

The data indicate that certain morphological spelling operations necessarily refer to a specific sub-string of the phonological representation which cannot be isolated phonologically. Consequently, the facts point to two basic categories regarding the morphological structure of phonological representations: non-

compound and compound. It was demonstrated that the phonological representation of the non-compound maximally possesses an adjoined structure and specifies the Morphological Root as the morphological Head of that structure as represented in (1). The left and right edges of the Morphological Root were justified with evidence provided by the reduplication facts. As such, morphological spelling operations are presumed to adjoin affixal material with respect to pre-existing morphological structure of a Head constituent, the Morphological Root, while preserving the structural integrity of that Head.

(1) $[_{MS} \text{Prefixes} \cdot [_{H} \text{Root}]_{H} \text{Suffixes}]_{MS}$

Likewise, it was demonstrated that the phonological representation of the compound maximally possesses an adjoined structure with two structurally distinct Stems as represented in (2). As illustrated by the compound representations, Spokane utilizes two types of compound: Free Stem and Bound Stem compounds. The phonological representation of the Free Stem compound comprises two Free Stems adjoined within a Morphological Stem and lacks a morphological Head. The phonological representation of the Bound Stem compound comprises a Free Stem and a Bound Stem (typically labeled lexical suffix) also adjoined within a Morphological Stem and specifies Stem₁ as the morphological Head. The presence of such structure is substantiated by the fact that it is referred to by morphological spelling operation(s); the /t/ marker in the case of Free Stem compounds and the various types of reduplication in the case of Bound Stem compounds. As such, morphological spelling operations are presumed to adjoin

affixal material with respect to the pre-existing morphological structure which includes two Stem constituents, while preserving the structural integrity of those Stems.

(2a) $[_{MS} \text{ Prefixes } [Free \text{ Stem}]_1 [Free \text{ Stem}]_2 \text{ Suffixes }]_{MS}$

(2b) $[_{MS} \text{ Prefixes } [_H \text{ Free Stem}]_{H1} [Bound \text{ Stem}]_2 \text{ Suffixes }]_{MS}$

The data also indicate that the phonological component attends to the phonological representation of the lexeme which results as the output of the MS-component. As such, the structural characteristics of that phonological representation remain salient for the phonology. I utilized the facts of primary stress assignment, retraction, and nasal shift to demonstrate that the domains of the phonological representations to which the phonological component attends are isomorphic with the domains of the phonological representations which emerge from the MS-component (at least at the lowest level of structure); and, further, that once these representations enter the phonology proper, their preexisting domains are organized into hierarchical structures. Consequently, Spokane non-compounds and compounds maximally possess the phonological structures represented in (3) and (4), respectively:

(3) $[_{PW} \text{ Prefixes } [_{PS}[_{PR} \text{ Root }]_{PR} \text{ Suffixes }]_{PS}]_{PW}$

(4) $[_{PW} \text{ Prefixes } [_{PS} [\text{ Stem }]_1 [\text{ Stem }]_2 \text{ Suffixes }]_{PS}]_{PW}$

In addition to utilizing the stress facts to provide evidence for the

phonological structures identified in (3) and (4), I utilized these facts to specify the parameters of primary stress placement in Spokane. It was demonstrated that, in addition to assessing the structure of the phonological representation of a particular lexeme, stress assignment attends to four additional aspects: the quality of the vowels present within the Phonological Stem constituent; the presence or absence of a vowel within the domain identified as the optimal domain for stress placement; the underlying [consonantal] status of sonorants within that optimal domain; and, the leftmost edge within that optimal domain. The process of primary stress placement employs three parameters for non-compounds and a single parameter for compounds as defined below:

Parameters of Primary Stress Placement for Non-compound Lexemes

- a. Locate primary stress on the leftmost full vowel within the rightmost domain of the Phonological Stem which contains a full vowel.
- b. Lacking a full vowel in the Phonological Stem, locate primary stress with respect to the leftmost sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem. If that sonorant is a schwa(-class vowel), place primary stress on it; otherwise, epenthesize schwa before it and place primary stress on it.
- c. Lacking a full vowel in the Phonological Stem and lacking a sonorant unmarked for the feature [+consonantal] in the rightmost domain of the Phonological Stem, locate primary stress on an epenthetic schwa at the left edge of the rightmost domain of the Phonological Stem.

Parameter of Primary Stress Placement for Compound Lexemes

Locate the optimal domain for primary stress placement with respect to the rightmost domain of the Phonological Stem which contains a full vowel. If that optimal domain contains a vowel which displays preliminary primary stress, position stress on it; otherwise position primary stress on the leftmost full vowel within that optimal domain.

The data also indicate that the structural reanalysis of the phonological representations of Spokane lexemes is an important aspect of the Spokane grammar. Structural reanalysis is defined as a psycho-linguistic process whereby language speakers and learners interpret the internal structures of particular phonological representations in configurations which are distinct from those of an earlier language state. The process of reanalysis is quite constrained to the extent that forms are reanalyzed only on analogy with the existing morphological structure $[_H \text{ Root }]_H$. The complex structure of non-compounds may be reanalyzed so that affixal material is integrated into the Head constituent. The complex structure of compounds may be reanalyzed so that the two Stem domains are restructured as a solitary Head constituent, and, further, that affixal material may be integrated into that Head. Structural reanalysis may be accompanied by other lexical changes, most notably changes in phonological form and semantic properties. As such, structural reanalysis has consequences for various areas of the grammar including the renewal and extension of lexical and conceptual resources, the productivity of morphological spelling operations, and the saliency of the notion Head.

6.2 Considerations for future research

It is important to recognize that, while the analysis provided for Spokane regarding morphological and phonological structures as well as structural reanalysis is consistent with the facts of the other dialects of the Spokane-Kalispel-Séliš language continuum, the facts of structural reanalysis for Spokane do not necessarily match the facts of the other dialects in the continuum. Given careful examination, the phonological patterns exhibited in the other dialects indicate that, while the lexical changes associated with reanalysis occur within the limits set by the existing grammar, such changes are not determined solely by that grammar; rather, the patterns indicate that the lexical changes are instituted by the speakers of a particular dialect. As such, each dialect is deserving of individual study.

A similar consideration must also be extended to the other languages of the Interior. While a preliminary examination of the data collected from those languages indicates that the issues of morphological and phonological structures as well as that of structural reanalysis may be relevant for their grammars, this description of the synchronic structures of the phonological representations of Spokane lexemes cannot be presumed to match those of the other languages of the Interior. Again, each language is deserving of individual study.

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