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Topics in Mohawk grammar

Hopkins, Alice Woodward, Ph.D.

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TOPICS IN MOHAWK GRAMMAR

by

ALICE W. HOPKINS

A dissertation submitted to the Graduate Faculty in Anthropology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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DEDICATION

This dissertation is dedicated
to the memory of my aunt,
Elizabeth Woodward Disston,
who lived with courage and faith
and hope, and, above all,
grace.

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Table of Contents

CHAPTER 1

INTRODUCTION

Mohawk is a North American Indian language currently spoken by about 3,000 people living in New York State and Canada (Mithun 1979). The variety described in this thesis is spoken at Kahnawà:ke (English: Caughnawaga), a reserve in Québec. Fieldwork was conducted from July to December 1983, with one return trip in November 1985, and was supported by grants from the National Science Foundation and the American Philosophical Society (Phillips Fund). I worked primarily with two Mohawk speakers, Grace Curotte and Grace Goodleaf.

This chapter provides (1) a general description of polysynthesis in Mohawk, (2) the hypothesis of this thesis, and (3) the theoretical framework that will be used. Chapter 2 describes phonological and morphophonemic rules in Mohawk, using the theoretical framework given in Chapter 1. Chapter 3 describes Mohawk verbal and nominal structure and gives new analyses for several areas of the morphological structure, emphasizing the distinction between derivation and inflection. Chapter 4 provides an analysis of noun incorporation in Mohawk, supporting the hypothesis stated in Chapter 1 that word boundaries are not barriers to syntactic processes.

In Chapter 5, three Mohawk narratives, by Grace Curotte at Kahnawà:ke, are given to provide exemplification in naturally occurring speech of the processes described in the first four chapters. These texts are placed at the end of this work because the phonological and morphophonemic rules given in Chapter 2, as well as the analysis of verbal and nominal structure given in Chapters 3 and 4 are needed to make the texts accessible to a non-Iroquoianist reader. However, the texts are by no means peripheral to the concerns of this thesis. On the contrary, the grammatical analysis presented here depends on the analysis of such samples of naturally occurring speech, and many of the examples in the body of the thesis come from these narratives. Although the focus of this thesis is not discourse analysis, an awareness of some of the concerns of discourse analysis, especially the demarcation of "boundaries," is essential to a complete grammatical description. I am grateful to Sally McLendon for sharing with me techniques for determining utterance-internal boundaries in spoken narratives and methods for presenting such narratives in written form.

1.1 The Polysynthetic Nature of Mohawk

The term "polysynthetic" has been used since the early 19th century to describe the morphology of North American

Indian languages, although certainly not all North American Indian languages share this characteristic. "Polysynthetic" generally refers to the combination of many morphemes (and hence many semantic concepts) within the boundaries of a single word. Sapir (1921), in his classification of languages by their morphological structure, used the terms "analytic," "synthetic," and "polysynthetic" quantitatively to refer to the amount of semantic and syntactic information contained within word boundaries in the various languages of the world. In noting the variability of languages in this respect, he stated: "A word is merely a form, a definitely molded entity that takes in as much or as little of the conceptual material of the whole thought as the genius of the language cares to allow."

The variability cross-linguistically in the semantic and grammatical content of words creates difficulties for defining "word," as been noted by many linguists (see, e.g., discussion in Matthews, 1974; Lyons, 1968). The traditional definition of morphology as the internal structure of words, and syntax as the rules for combining words into sentences (e.g., Bloomfield, 1933; Matthews, 1974) suggests that there is a continuum between morphology and syntax, and that morphology provides the building blocks or units that are used on the next level--the syntax. Polysynthetic languages refute these simple definitions, and suggest that if one is to define

"morphology" and "syntax" universally, one must abandon the notion that "words" are the basic units of syntax.

Trnka (1928) described analytic-type languages like English as "sentence-based"--that is, meaning and grammatical relations are determined on the sentence level. For example, in English, words like paint, painting, and painted can only be categorized as nouns, verbs, or adjectives in larger contexts, such as phrases, clauses, or sentences. Aspect, tense, and other grammatical categories are often expressed in analytic-type languages periphrastically ('used to X', 'often Xed', 'was Xing'), Trnka points out. Trnka calls this phenomenon "the syntagmatical or sentence feeling," whereby "words acquire various functions according to their respective positions in the sentence." He contrasts this with what he terms "synthetical languages," where the words themselves are modified to express grammatical and semantic relationships; that is, synthetical languages are "word-based."

The extent to which a language can be "word-based" may be quite dramatic. Swadesh (1939) in describing Nootka, a language spoken on Vancouver Island, used the term "internal syntax" to describe the juxtaposition of morphemes within word boundaries, which, he said, seemed to be similar to the juxtaposition of independent words in the syntax of nonpolysynthetic languages.

Examples (1.1)-(1.11) below contrast sentences in English, a semi-analytic language, with sentences in Mohawk, a polysynthetic language. Each language uses approximately the same number of morphemes to convey the same meaning; however, in Mohawk, many morphemes are combined within word boundaries, whereas in English, the words in these examples contain, at most, two morphemes, and most contain only one morpheme. An explanation of the abbreviations used in the morpheme segmentation is given below in Section 1.4.

	Mohawk	English
(1.1)	wa?katervnotátye?	I'm singing as I go along.
	wa-a?-k-ate-rvn-ot-atye-?	
	fact-H-1A-srf-song-be there-prog-punc	
(1.2)	ke?nikhúnyus	I'm sewing several things.
	ke-?nikhu-nyu-s	
	1A-sew-dist-hab	
(1.3)	wa?kstatha?tányu?	I dried several things.
	wa-a?-k-st-ath-a-?t-a-nyu-?	
	fact-H-1A-nf-be dry-J-caus-J-dist-punc	
(1.4)	tehoyvtyà:khu	He's gone there to cut up the wood.
	te-ho-yvt-ya?k-ha-u	
	du-MP-wood-break,cut-purp-stat	
(1.5)	vhí:ni?	I will lend it to him.
	v-hi-ni-?	
	fut-I/him-lend-punc	

(1.6)
tyéhas — She always brings it.

t-ye-ha-s
cis-FA-bring-hab

(1.7)
ya?akwate?seréhtayv? — We parked the car.

y-a-a?-yakwa-ate-?sere-ht-a-yv-?
trans-fact-H-1expA-srf-drag-nom-J-put-punc

(1.8)
tvhayestáhsi? — He will sort it out.

t-v-ha-yest-a-hsi-?
du-fut-MA-mix-J-un-punc

(1.9)
uwá:ri washakonuhsahní:nu?se? — He bought a house for Mary.

uwari wa-shako-nuhs-a-hninu-?s-?
Mary fact-he/her-house-J-buy-dat-punc

(1.10)
áhsv na?thanuhsatá:se? — He went around the house three times.

ahsv n-a-a?-t-ha-nuhs-a-tase-?
three part-fact-H-du-MA-house-J-go around-punc

(1.11)
vwahsirowá:nv? ki:kv ku:ni — The blanket that I am making will be large.

v-w-ahsir-owanv-? kikv k-uni-ø
fut-ZA-blanket-be big-stat this 1A-make-stat

As can be seen from these examples, aspect, pronominal reference, locatives, causative, case markers (e.g., dative), and derivational morphemes (e.g., distributive) are all included within the word-domain of the verb in Mohawk. In some cases, a patient noun is also incorporated (examples (1.1), (1.3), (1.4), (1.7), (1.9), (1.10), and (1.11)). The productivity of incorporating constructions can be seen by comparing the following

examples with example (1.10):

(1.12)
áhsv na?tkatekhwahratsheratá:se?
'I went around the table three times.'

ahsv
three

n-a-a?-t-k-ate-khw-a-hra-tsher-a-tase-?
part-fact-H-du-1A-srf-food-J-put on-nom-J-go around-punc

(1.13)
áhsv na?tkanitskwahra?tsheratá:se?
'I went around the chair three times.'

ahsv
three

n-a-a?-t-k-an-itskw-a-hra-?tsher-a-tase-?
part-fact-H-du-1A-srf-thigh-J-put on-nom-J-go around-punc

Polysynthetic languages present a problem for theoretical approaches that describe words as the building blocks of the syntax, as has been noted by many investigators. Bloomfield's (1933) definition of "syntax" as the rules for combining free forms, and "morphology" as the rules for combining bound forms failed to provide a characterization of many constructions in nonpolysynthetic languages, let alone those in polysynthetic languages. If "syntax" is defined as the rules governing the combination of free forms (words), then the syntax of polysynthetic languages is practically nonexistent. This has been one of the dilemmas of characterizing morphology and syntax in polysynthetic languages: either the "morphology" is extremely rich and the "syntax" poor, or the traditional

definitions of the division of labor between morphology and syntax are not valid.

In polysynthetic languages, bound forms seem to combine with free forms in syntactic structures. In example (1.14) below, the free form wisk 'five' is in phrasal construction with the bound morpheme -wir- 'child':

(1.14) wísk niwakewí:rayv
'I have five children.'

wisk ni-wake-wir-a-yv-ø
five part-1P-child-J-have-stat

The characteristic linkage of part of a word with elements external to the word and the complexity of co-occurrence restrictions within word boundaries and across word boundaries in polysynthetic languages contributes to the difficulty of using traditional models that separate syntactic and morphologic "components." A theory of grammar must, of course, be capable of accounting for constructions in polysynthetic languages. In addition, the description of polysynthetic languages should be no more difficult or less difficult than the description of, say, analytic languages. Much linguistic work, up to and including generative work, has lacked a truly typological perspective. However, recently, perhaps in response to extreme "analytic-centric" work in linguistics, there has been a resurgence of interest in

constructing theoretical approaches that can account equally well for all types of languages (e.g., Shopen, 1985; Nichols and Woodbury, 1985). One of the most obvious areas of variability across languages is morphological structure; this thesis focuses on the interaction of morphology and syntax as a key to developing a theoretical approach that is typologically-based--that is, an approach that uses the diversity of languages as its starting point, rather than developing a theory based on one language type and trying to extend it to other language types.

1.2 Assumptions and Hypothesis

The hypothesis of this thesis rests on three assumptions, to be explained in detail below:

(1) that words are best defined as the smallest independently occurring phonological units. Words are grammatical units only coincidentally--that is, in all languages, words will coincide with some grammatical unit, but which unit they coincide with is a consequence of the morphological type (roughly, analytic, synthetic, polysynthetic) of the language. In polysynthetic languages, words may coincide with morphemes, phrases, clauses, or sentences.

(2) that language structure consists of two separate, independent, hierarchical structures--the phonological and the grammatical--which speakers can manipulate independently.

(3) that derivation and inflection are distinct processes that can be universally defined.

1.2.1 Words as Phonological Units

Although individuals usually have intuitions about what constitutes a word in their language, there is little consensus among linguists as to a definition of the term "word." Some linguists have concluded that there are two concepts to be defined: "grammatical word" and "phonological word." Lyons (1968), for example, notes that in many languages every word has a primary accent, and that in some languages phonological processes like vowel harmony may be limited to the domain of the word, or word-initial and word-final positions may be phonologically marked by the occurrence of a restricted set of segments. However, Lyons states that the phonological criteria for defining word are "subordinate" to the grammatical criteria because there are exceptions in any language; i.e., words that are not stressed or words that are exceptions to the stress rule in languages that have "fixed" (e.g., penultimate) stress.

Therefore, Lyons gives the following criteria for a grammatical definition of word. It is a unit with:

(1) internal stability--that is, the component units are in a fixed order;

(2) positional mobility: words are permutable with other words within sentence boundaries; morphemes block together into units that move as units;

(3) uninterruptibility: the component units (morphemes) of a word cannot be interrupted by other, independently occurring words.

Criterion 1 is useful mainly for languages with linearly concatenative word-formation. Criterion 2 fails to distinguish words and phrases and is therefore not very useful. Criterion 3 distinguishes words and phrases, but it depends on identification of "independently occurring" units; that is, it uses word to define word.

Matthews (1974) uses similar criteria to define "phonological words" and "grammatical words." He states that grammatical words have "cohesiveness" (Lyons' "uninterruptibility") and "fixed ordering" (Lyons' "internal stability"). Matthews also defines word as "the smallest sentence unit" but this needs further clarification to distinguish it from morpheme. Matthews then gives exceptions to each of these definitions. For

example, in Turkish, "fixed ordering" is violated by the potentially contrastive ordering of morphemes in:

(1.15)	Türktürler 'They are Turkish.'	turk-dIr-lEr Turk-be-plural
(1.16)	Türklerdir 'They are the Turks.'	turk-lEr-dIr Turk-plural-be

The criterion of "uninterruptibility" is violated by expletive insertion in English, for example.

Problems for a totally phonological definition of word have also been noted. In a given stretch of speech, word boundaries cannot be discovered solely on phonological criteria. For example, the Latin phrase bóna Calígula could also be broken into two "words" *bónaca lígula, based on stress rules of Latin (Martinet, 1964). The correct division into words depends on the fact that words are always meaningful, in contrast with the next smallest phonological unit--the syllable--which may or may not be meaningful.

Matthews concludes that the fields of morphology and syntax cannot be defined in a universally valid way, due to the variety of morphological types in the languages of the world. The problem is that definitions of morphology and syntax depend on a definition of "word," since morphology is traditionally defined, according to Matthews, as the description of the "internal structure of words and their relationship to other words within the

paradigm," whereas syntax is usually defined as the description of the "external functions" of words and "their relationship to other words within the sentence." If "word" itself cannot be defined universally, then definitions depending on the concept "word" are also suspect.

I will argue below that "word" can be defined universally and that morphology and syntax can also be defined universally. The definition of morphology does depend on the definition of "word": I will use the traditional definition of morphology, as the "internal structure of words." However, the definition of "syntax" that I will use does not depend on a definition of word. Syntax will be defined as the internal structure of sentences (of course, this still leaves the problem of defining "sentence," which will be addressed below), but there will be no mention of "word" as a grammatical unit referred to by the syntax. Rather, "word" is the smallest independent phonological unit that has meaning. This is a variation of Bloomfield's definition of word as a "minimal free form," where "free form" refers to the fact that this unit can stand alone as an utterance. The definition used here differs from Bloomfield's definition in its emphasis on the word as a phonological unit. In the hierarchy of phonological units, described in the next section, "word" is the next unit above the syllable--that is, words are constructed from syllables. Since they have meaning, they

always coincide with a unit on the grammatical hierarchy.

Bloomfield (1933) included forms like the and my in his definition of word, even though they are not minimal free forms and do not receive primary stress. He claimed that, on analogy with other words, like this and that, the definite article was a word. However, as many linguists have noted, this weakens Bloomfield's definition of word as a minimal free form.

Forms like of, my, the, and a in English are grammatical formatives and do not satisfy a phonological definition of word. However, the fact that they can be separated from the head word in a phrase--the bad boy, my rich uncle--has led to their designation as "grammatical words." It will be maintained here that these forms are actually clitics, not words. As clitics, they attach phonologically to a particular position in the phrase structure. In the case of the and my, this position is preceding the first word in the noun phrase. My and the are "special clitics" in the terminology of Zwicky and Pullum (1982), because, in the case of the, there is no corresponding full form (as there is no full form for the clitic -que 'and' in Latin or the possessive 's in English) and in the case of my, the distribution is different from that of the corresponding full form, mine (at least, this is true synchronically; diachronically, of course, my is a reduced form of prenominal mine, as in the

relic phrase mine enemy (Bloomfield, 1933:419)) [1].

In addition to their lack of stress, grammatical formatives like the and my can be considered clitics because they signal grammatical relations rather than having denotative, lexical meanings. Distributionally, they attach to a phrase, rather than a single lexical item, as evidenced by the fact that in phrases like the bad boy, boy is distributionally the head of (can be substituted for) bad boy; boy is not the head of the bad boy (see Hockett, 1958)--that is, the constituents are [the [[bad] boy]]. The line between inflectional affixes, which are morphologically bound, and special clitics is a fine one, as Zwicky and Pullum (1982) point out. Historically, inflectional affixes are assumed to derive from clitics.

Bloomfield (1933:187) uses the term "atonic forms" to describe the English indefinite article and the French article in l'homme [lɔm]. He then classifies atonic forms as either proclitics or enclitics, depending on their position. Presumably, when the article is stressed ('I said a, not the'), it is a word for Bloomfield, whereas I will assume that in such instances, the singling out of the clitic is similar to the singling out of an affix: 'I said re not deform.' That is, the possibility of stressing the and a in special situations does not constitute evidence for including them in the definition of "word."

In summary, then, the definition of word adopted here is similar to Bloomfield's "minimal free form" with the understanding that "free" is interpreted as the minimum independent phonological unit--i.e., the minimum phonological unit that can occur as an utterance. This entails that a word is the minimal independent phonological unit that has meaning.

1.2.2 The Phonological and Grammatical Hierarchies

The description of the as a grammatical formative that cliticizes phonologically to a word reflects an approach that will be assumed in this thesis: that not only does every utterance have both a phonological and a grammatical structure, but these structures are independent. This approach is basically that of Fudge (1969). In describing two hierarchies of structural units--phonological and grammatical--Fudge asserts that words are primarily, if not totally, phonological units. Such traditional problems as the structural analysis of the king of England's hat are solved by Fudge by using two structures: grammatically, this is a "noun phrase + possessive," whereas phonologically, it is a sequence of words. Thus, each utterance has two structural analyses, which do not have to match at prescribed points. The phonological unit "word" may coincide with various units on the grammatical hierarchy--morpheme, phrase, or clause--depending on the

language-type.

Phonological Hierarchy. If the two independent hierarchies do not necessarily match at any given point, there is no reason to assume that grammatical rules of combination refer to phonological boundaries or, vice versa, that phonological rules are concerned with grammatical boundaries. Given the assumption that "word" is a phonological unit and that phonological units are independent of grammatical units, there is nothing to prevent syntactic rules from operating without regard to word boundaries.

The phonological hierarchy consists of the following levels [2]:

segments
syllables
words
intonational phrases
sentences

Speakers usually have reliable, reproducible intuitions about what constitutes a unit in their language on each of these levels. Segments and syllables may have meaning (that is, they may coincide with a unit on the grammatical hierarchy, such as "formative"), but they do not necessarily have meaning; words and intonational phrases (defined, respectively, by the phonological criteria of primary stress and intonation/pause) have meaning--that is, they must coincide with a unit on the grammatical

hierarchy, although which unit they coincide with varies from language to language. A phonological sentence may consist of only one phonological word or of several phonological words grouped into intonational phrases.

Although defining "sentence" is perhaps even more difficult than defining "word" (see, e.g., discussions in Lyons, 1968; Matthews, 1981), I will try to distinguish two senses of the term "sentence." One is phonological and consists of one or more phonological phrases. The texts in Chapter 5 are divided into "sentences" based solely on phonological criteria, the criteria being sharply downward intonation followed by a pause--as opposed to a more even intonation at (usually shorter) pause boundaries, which demarcates units that are interpreted here as intonational phrases.

In the grammatical hierarchy, described in the next section, the highest unit is also designated "sentence" and is intended in the sense of Bloomfield's (1933:170) definition: "[A sentence] is an independent linguistic form, not included by virtue of any grammatical construction in any larger linguistic form." As Lyons (1968) points out, this definition does not really provide a sufficient way to decide where to place sentence boundaries in an utterance. For example, in I'll tell him if I see him I might not go, phonological information is needed to determine whether if I see him belongs with the

first clause or the second. The meanings could be quite different. Therefore, the phonological criteria appear to be more basic in determining sentences than the grammatical, although this is a topic that cannot be resolved here. In the model used here, the phonological and grammatical hierarchies meet at the point of the largest unit on each hierarchy (just as they meet at the lower end of the hierarchy, as will be discussed below).

Grammatical Hierarchy. The grammatical hierarchy consists of the following units [3]:

formatives
constructs
  (i) derived items (compounds, derived stems)
  (ii) phrases
  (iii) clauses
sentences

"Formative' is used here rather than "morpheme" to refer to the minimal grammatical unit that productively combines to form larger grammatical units. This usage follows Bolinger (1948). As Bolinger points out, "morpheme" has been used for both productive and nonproductive parts of words. He proposes to use "formative" for "the least element that can enter into new combinations." Meaningless residues, like cran- in cranberry, and etymological components, like com- of compare, which speakers may or may not recognize, are not formatives. "Morpheme" is used by Bolinger as a cover

term for all three types of components--formatives, residues, and etymological components.

The term "formative" is used rather than "root" because formative is intended to describe an abstract unit. It is realized in the lexicon as either a root, a derivational affix, or an inflectional affix, in languages that have such affixes. Thus, the lexicon contains pairings of formative-meanings with phonological segments to form roots, derivational affixes, and inflectional affixes. In many languages, of course, some grammatical formatives are not realized as a segment or sequence of segments that can be listed in the lexicon, but, rather, are realized as a phonological process, like reduplication or ablaut. In the model used here, in such cases the formative cannot be listed with a specific shape, but rather is matched to a rule stating the phonological process associated with that formative. The rule applies at the time of the combination of the derivational or inflectional formative with a root or stem.

The lexicon will contain stems in languages that have inflection. Stems may be composed of (1) a root plus derivational affixes or (2) two or more roots (compounds). Stems are, by definition, bound forms that need inflectional processes to "complete" them. In languages without inflection (i.e., word-internal modification signalling grammatical relations), the output of the

lexicon will be isomorphic with words (including derived words and compounds) to which stress and other phonological rules (as defined in Section 1.3 below) have not yet applied. In languages with inflection, the output of the lexicon will be stems to which inflectional modifications apply, followed by phonological rules.

"Lexeme" will be used here to refer to units that are the output of the lexicon--i.e., depending on the language type, either roots, compounds, roots plus derivational affixes, stems, or derived stems. Hence, lexemes are meaningful units that are inserted into syntactic structures where they undergo inflectional marking, in languages that use word-internal modification to signal grammatical relations. That is, the realization of inflectional processes is accomplished by syntactic rules.

The grammatical unit phrase is defined by its modifier/head structure and is realized phonologically by groupings of lexemes. These groupings may be phonological words or phonological phrases. That is, some languages express modifier/head relations within the phonological domain of the word, while others use more than one word.

Clause is defined as the smallest NP-VP sequence that is in a subject/predicate relation. It may coincide with the phonological unit "word" or "sentence."

Interaction of the Two Hierarchies. Languages vary in the way that these two hierarchies are related. In analytic languages, the phonological units word and syllable may coincide with each other and with the grammatical unit formative. In polysynthetic languages, the phonological unit word may coincide with the grammatical unit clause, whereas the phonological unit syllable may coincide with none of the grammatical units, except, in some cases, formative.

"Morphology" will be defined here as "word formation" in all its aspects: that is, the internal structure of the smallest independently occurring (free) phonological units--words. Just as the rules of syllable structure apply to give phonotactic constraints within the phonological domain of the syllable, the morphological rules apply within the phonological domain of the word. Morphological rules, then, comprise (1) position-class rules (in languages where the formatives are linearly concatenated), (2) morphophonemic rules governing the morphologically conditioned phonological changes that occur when formatives are combined, and (3) irregular rules of allomorphy and suppletion. Both inflectional and derivational alterations of roots and stems are included in the morpholcgical rules. For example, in Mohawk, the order of the inflectional formatives and the morphophonemic rules are part of "morphology" because they contribute to the formation of words.

Speakers manipulate units on the grammatical hierarchy to form meaningful utterances. The smallest grammatical unit that they manipulate is the formative, which is represented phonologically either by a sequence of segments or, in the case of some grammatical formatives, as a phonological process. All languages, then, "join" the two hierarchies at this point: pairings of formative-meaning and phonological segments in the lexicon to form roots and affixes, or pairing of a formative-meaning with a phonological process. However, depending on the language type, the output of the lexicon--lexemes--may or may not coincide with the unit "word" on the phonological hierarchy.

Syntax consists of all the rules that handle relational concepts among lexemes within the domain of the sentence. The syntactic rules may relate units that coincide with intonational phrases, words, or parts of words, but they do not recognize word boundaries. Therefore, "morphology" and "syntax" are not two contiguous aspects of "grammar." They may or may not overlap, depending on the language type. Morphological rules are not located "in" the lexicon, since they may govern the construction of inflected lexemes, phrases, and even clauses, as well as derived words and stems.

The rules of morphology do not necessarily resemble those of syntax. For example, the rules of combination in morphology may or may not be linearly concatenative; in languages where they are concatenative, there will be an apparent similarity to the phrase structure rules of syntax. In other languages (e.g., Arabic), this similarity will not exist. The notion "head of X," being a syntactic concept based on distribution, is not part of the morphological rules. When it does apply within the domain of word boundaries, it is part of syntactic structure--i.e., it can ignore word boundaries, just as other syntactic rules can. Lexemes (i.e., the output of the lexicon), therefore, will not have "heads," as the term is used here.

Morphology, then, cannot be opposed to syntax because it is not on a continuum with syntax. Syntax consists of the rules governing the formation of sentences, but these rules can ignore word boundaries, up to the point of lexemes.

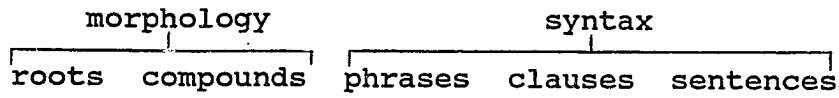
It is useless, then, to try to discover a "boundary" between morphology and syntax, since they are coexisting systems that may or may not overlap, not contiguous systems on one plane. That is, groupings of units of one system do not constitute a unit in the other system in any universally consistent way for all languages. Rather, units in syntax are composed of various subgroupings,

which, depending on the language, coincide with various groupings within the domain of morphological rules--root, lexeme, inflected word.

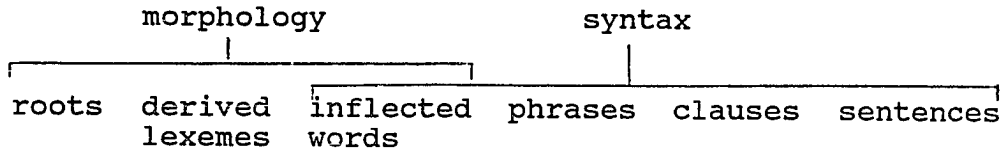
Syntax always "stops" at the same place: the output of the lexicon. Lexemes are barriers to syntactic rules. Morphology, however, does not "stop," except that apparently no language has all its sentences be isomorphic with word boundaries. The potential overlapping of morphology and syntax in languages of different morphological type is shown below in Chart 1.1.

Chart 1.1

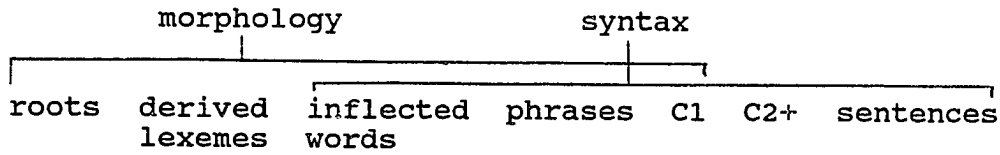
Analytic (e.g., Chinese):



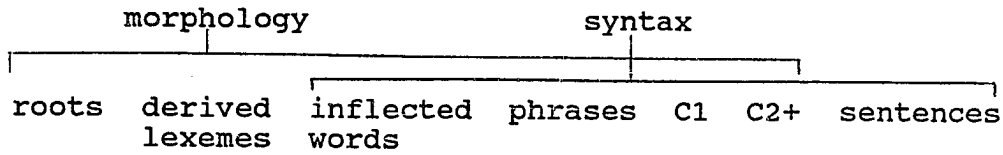
Semi-Analytic (e.g., English):



Synthetic (e.g., Latin):



Polysynthetic (e.g., Mohawk):



where C1 = a clause with one of its arguments
C2+ = a clause with two or more of its arguments

Words have been described as the interface of morphology and syntax (e.g., see Selkirk, 1982), being units of both. It will be argued here that words are not units of syntax, except coincidentally, because they are not grammatical units at all. If they are to be considered units--as they must be since they are

identifiable to speakers--it is only in a phonological sense.

1.2.3 The Distinction Between Derivation and Inflection

"Morphology" as defined above--the internal structure of words--will necessarily include derivational processes, since "derivation," as traditionally defined, creates new words. As used here, "derivation" will be defined as processes that create new lexemes, not necessarily new words. These lexemes may be stems that need inflections to complete them before they become words, or they may be compound roots or roots plus derivational affixes that are represented directly as words phonologically.

The definition of "inflection" used here is that used in most linguistic work. A traditional definition of "inflection" is given by Lyons (1977:521-522): "Inflexion produces from the stem (or stems) of a given lexeme all the word-forms of that lexeme which occur in syntactically determined environments." He goes on to say, "derivation, on the other hand, results in the formation of what is traditionally considered to be a different lexeme," and "derivation is traditionally referred to as a kind of word-formation (i.e., lexeme formation)." Lyons' definition of derivation is in accord with the model used in this thesis if the term "word-formation" is not equated

with "lexeme-formation"--that is, "derivation" will be used here to refer only to lexeme formation, which may or may not be the same as word-formation, depending on the language type.

Inflection will be used in this thesis for any affix or phonological process that is used, in Sapir's words, "to relate the concrete elements of a proposition to each other." Similarly, Anderson (1982) has defined inflection as "what is relevant to the syntax." Many linguists have claimed that it is difficult or impossible to distinguish derivation and inflection in any principled way. The difficulty of finding definitive criteria for differentiating derivation and inflection, in addition to the similarity of phonological processes used by both, is often cited as a reason for abandoning the distinction as crucial to a grammatical description.

Some of the criteria that have been proposed for distinguishing derivation from inflection are:

(1) Derivation may change the syntactic category of a lexical item, whereas inflection does not. However, since this is only a sufficient but not necessary criterion of derivation (cf. rest [noun] and unrest [noun]), it is not conclusive.

(2) Productivity. It has been argued that inflectional processes are productive, whereas derivational processes

are not. However, some derivational processes are quite productive. Also many linguists have pointed to "gaps" in inflectional paradigms, although the notion of linguistic paradigm, as a set of affixes or processes that apply to all members of a form-class, can distinguish inflectional and derivational processes in most cases, since derivational affixes or processes do not form such sets.

(3) Semantic regularity. Inflections add a predictable meaning, derivations do not. Again, exceptions are numerous--many derivational processes add a predictable meaning.

(4) Position in a word. Inflectional affixes are outside derivational affixes. Although this is generally true in linearly concatenative languages, it is difficult to apply to languages that use other types of processes (e.g., ablaut or infixation) extensively. Also, exceptions have been found (although these usually involve an inflected word that serves as the base for a derivational process).

(5) Derivation produces "anaphoric islands," to use Postal's (1969) term; inflection does not. That is, derivationally formed units are impervious to linking syntactic relations such as hold between an anaphor and antecedent.

The last criterion, to be further discussed below, is the basis of the distinction that will be used here. Inflectional affixes participate in syntactic rules. In Anderson's (1982) terms, they are "relevant to the syntax."

If "inflection" is defined as a type of word-internal modification, then only some languages have inflection. Yet all languages signal grammatical relations similar to those signalled by inflectional processes. Obviously, the languages that do not use word-internal modification use other means of signalling these relations--primarily, word order and periphrastic expressions. This variability with which languages use the domain "word" as a domain for signalling grammatical relations supports the hypothesis that will be proposed here--that syntactic rules may ignore word boundaries.

In summary, the distinction between derivation and inflection will be taken as basic here, although the two terms will be defined somewhat differently from the usual definitions. The distinction between derivation and inflection will be made here, in the spirit of Sapir, on the basis of relational/material function. Derivationally expanded lexical items (derived lexemes) are formed and listed in the lexicon. Derived lexical items may or may not be words, depending on the language type. In English, they are words, for example; however, in Mohawk, they are

stems.

Sapir (1921) noted "the indifference of the sentence as such to some part of the analysis of its words." In particular, he was referring to the fact that in the sentence the farmer kills the duckling, the words farmer and duckling can be replaced by radicals (nonderived words) like man and chick, without changing the "structural mold" (i.e., the expression of "relational concepts") of the sentence. Similarly kills can be replaced by takes. However, changing other aspects of the sentence (a for the, farmers for farmer, killed for kills, etc.) changes the relational concepts.

Bloomfield (1933) also noted that, for example, blackbird can only be modified as a unit: *a very blackbird is ungrammatical. The opacity of lexemes to syntactic rules was addressed by Postal (1969). Postal used the term "anaphoric island," which he defined as "a sentence part which cannot contain an anaphoric element whose antecedent lies outside of the part in question and which cannot contain the antecedent structure for anaphoric elements lying outside." Derived lexical items are opaque to rules of anaphoric reference, Postal argued, whereas parts of inflected forms can participate in anaphora. He uses the example: John's[1] book is making him[1] rich, where the bracketed number shows coreference relations.

The distinction between derivation and inflection, then, can be universally defined. "Derivation" is the set of processes in a language that forms new lexemes (i.e., items that are listed in the lexicon and hence are anaphoric islands) by expanding existing lexemes. "Inflection" is the set of word-internal processes that relate lexemes to each other by means of syntactic rules within the domain of a sentence.

1.2.4 Hypothesis: Words Are Not Barriers to Syntactic Processes

Syntactic relations like modifier/head and clause-level relations between NPs and VPs, as well as anaphoric relations, are realized within the domain of the sentence, without any necessary reference to the phonological unit "word." Phrase-level and clause-level relations may take place within word boundaries or across them. In analytic languages, the basic units manipulated on the phrase and clause level are coincidentally words; in polysynthetic languages, this is not the case.

Chapter 4 discusses noun incorporation in Mohawk in both its morphologic and syntactic aspects. It will be argued there that syntactic noun incorporation provides evidence that word boundaries are not barriers to syntactic processes.

1.3 Theoretical Framework

The theoretical framework used here incorporates the definitions in the previous section and follows Hooper (1975, 1976) in the treatment of phonological processes. Hooper's theory, known as Natural Generative Phonology (NGP), is a variation on an approach developed by Vennemann (1974) as a reaction to the abstractness of underlying representations in Chomsky and Halle's (1968) Sound Patterns of English (SPE). Vennemann's goal was to propose universal constraints on grammar construction that would directly reflect the mental representation of a speaker's internal grammar, i.e., psychological reality.

NGP provides constraints on underlying representations and types of rules that limit the number of possible solutions in constructing grammars. Hooper's (1975) version of NGP makes the strong claim that speakers construct grammars based only on generalizations from surface forms and that they relate one surface form to another, without intermediate abstract levels of representation.

Types of Rules. In Hooper's version of NGP, all phonological rules (P rules) are "True Generalizations" about surface forms--i.e., they are exceptionless. Furthermore, they are "natural" in the sense that they reflect phonetically natural processes. In any given

language, the P rules are a subset of a universal set of phonetically motivated rules. This limits P rules to phonotactic constraints, allophonic variation, and automatic alternations. P rules do not change phonological features in morphologically conditioned environments. Since all P rules express generalizations that are true for all surface forms, abstract underlying segments that never appear on the surface are not allowed (Hooper, 1976). For example, no underlying segment can be proposed that conditions a rule and then deletes in all contexts (i.e., there is no absolute neutralization in NGP). Also, extrinsic rule ordering is not permitted because it would allow rules that are not true generalizations--i.e., rules that are used to produce an intermediate state to block another rule (as in "counterfeeding").

In addition to P rules, there are, of course, morphophonemic rules (MP rules), which change phonological features in environments conditioned by morphosyntactic information, including boundaries, like stem and formative. These rules are not subject to the True Generalization Condition, since they are not exceptionless generalizations about surface forms, but rather apply only in morphologically conditioned environments. In many cases, there is an underlying base form for a formative from which all surface forms can be derived either by regular MP rules or by automatic (P) rules. In other

cases, there is suppletion or partial suppletion within the formative's distribution. In such cases, the suppletive or partially suppletive alternate must be listed in the lexicon with its distribution. Hence, morphophonemic alternations can be either automatic (taken care of by P rules) or non-automatic, in which case they are characterized by MP rules, which are distribution rules that apply when formatives combine. Non-automatic alternations are usually relics of earlier phonological processes in the language that are either no longer operative or have been made opaque by further phonological changes (such as the loss of phonetic conditioning for German umlaut in the plural). Therefore, allomorphs (perhaps "alloforms" would be more consistent with the terminology used here) may be partially predictable (stated in terms of a base form to which morphophonemic rules apply), or totally unpredictable (suppletive forms listed in the lexicon). Partially predictable alloformic variations have been treated in various ways in other theoretical approaches--e.g., SPE included them with totally predictable phonological alternations. It will be assumed here that MP rules are distribution rules that apply when formatives combine, and that MP rules are separate from phonological rules, which are limited to true generalizations.

The Lexicon. The lexicon in this model contains lexical items--i.e., lexemes (not words) plus affixes. The roots and affixes are pairings of a formative-meaning with a phonological shape and may combine to form derived lexemes. The lexicon also contains pairings of formative-meanings with rule processes in languages where grammatical formatives are realized by ablaut, reduplication, etc. Of course, in some languages, like English, many lexemes and derived lexemes are isomorphic with words. In other languages, like Mohawk, very few lexemes or derived lexemes are isomorphic with words.

The roots and affixes are listed in the lexicon in an archisegmental form, as described in Hooper (1975). She sees this as an extension of Trubetskoy's (1939) proposal that "archiphonemes" be used in positions of phonemic neutralization. In Hooper's version, all redundant phonological features are removed from the segments comprising the roots and affixes in the lexicon. These features will be added by the phonological (P) rules. The reason for using an archisegmental form for units in the lexicon is that a base form from which all the alternants can be predicted cannot be chosen if the base form must be an actually occurring surface alternant (as Vennemann (1974) originally proposed). One example given by Hooper is taken from Schane (1974). In Paluan, vowels are reduced in unstressed syllables. Therefore, in two-syllable stems, at least one vowel will always be

reduced; however, which vowel reduces depends on whether a suffix or a prefix is added to the stem:

(1.17)	mə-dánəb	dənəb-áll	dənób-l	'to cover'
	mə-té?əb	tə?əb-áll	tə?íb-l	'to pull out'

None of the surface forms contains both full (unreduced) vowels in the stem; yet to derive the surface forms from a single underlying form, both vowels in the underlying form must be full. Therefore, the underlying form will be abstract to the extent that it is not one of the surface alternants; but a surface alternant is derivable by a strictly phonological (surface-true) P rule--the rule of vowel reduction in unstressed syllables. The archisegmental underlying forms for these two verbs will be danob and te?ib.

Stress and Syllable Structure. As Hooper (1975) points out, if phonotactic constraints are based on the syllable, and if the lexicon contains a list of roots and affixes, then phonotactic constraints can only apply after these have been combined into words. Lexemes (the output of the lexicon) do not have syllable structure unless they happen to be isomorphic with words, as in analytic languages. If the lexemes are stems, they must combine with inflectional processes to form words before the rules of syllabification can apply. Phonotactic constraints are part of the syllable structure rules.

Stress rules, which refer to syllable structure, can now apply, as can all the P rules, to produce a pronounciable surface form. Thus, in this model, the output of the lexicon consists of lexemes and derived lexemes. Syntactic rules apply and, finally, phonological (P) rules.

Relation Between Grammatical and Phonological Structure. True phonological processes, as defined by Hooper and others--automatic alternations, allophonic variation, and phonotactic constraints (stated in terms of syllable-structure constraints)--are "blind" to grammatical structure (Hooper, 1975). It will be argued here that grammatical rules (phrase structure rules, syntactic processes) operate without reference to phonological boundaries. That is, the two systems (phonological and grammatical) coexist but do not refer to each other's boundaries in their rules.

A subcategory of morphophonemic rules not described in detail by Hooper are rules that apply only at stem or formative [4] boundaries. These are called "internal sandhi rules." They are phonologically conditioned, except that they refer to a grammatical boundary; if they refer to a formative boundary, then they do not apply within formatives. These rules do not violate the separation of the phonological and grammatical hierarchies because they are not P rules. Rather, they are MP rules that operate

without exception to change phonological features, but only at a certain boundary.

Internal sandhi rules, like MP rules in general, apply when formatives combine. Thus, vowel syncope in Mohawk, which refers to a formative boundary (see Section 2.2.1) and, hence, is an internal sandhi rule, applies before the syllabification and stress rules, since the latter apply only to fully combined forms. One result of dividing rules into types is that extrinsic ordering is no longer needed. Rules that refer to morphological information (distribution rules) apply when formatives combine. Rules that refer only to phonological information and are "blind" to grammatical information apply to entire utterances. This is, in effect, the traditional model of European linguists like Jakobson, except that a phonemic level was usually also assumed. In Hooper's NGP, there is no separate level where roots and affixes are listed in phonemic form. In the lexicon, formatives are in archisegmental form; after phonological rules apply, they are in surface phonetic form.

This model does not deny the psychological reality of phonemes for speakers, as evidenced, for example, in writing systems. Speakers have the ability to extrapolate phonemes from the surface phonetic forms. This ability is represented by some of the phonological rules. However, in NGP, this ability is not used as the basis for a level

of representation in the grammatical description (using "grammatical" in the broad sense of everything relevant to the interpretation of utterances). Rather, underlying representations in the lexicon are listed in archisegmental form--i.e., all redundant features, both subphonemic and neutralizable features, are removed. This provides a level where some abstractness is allowed. Some roots and affixes will be listed in the lexicon in a shape that does not appear as a surface alternant. However, it is only abstract to the degree that a surface alternant can be produced from the underlying form by P rules, which are reasonably assumed to be part of the linguistic competence of all speakers.

What is not allowed within NGP is an underlying lexical representation that cannot be changed by P rules into at least one of the surface alternants of the formative. Words like electric and electricity in English are not related by a surface-true P rule (since k -> s only in certain morphologically conditioned environments). These two words are listed in the lexicon and related by what Vennemann has called "via rules." Some speakers will connect many items in their lexicon by such rules, whereas other speakers will not, depending on education level and other factors. The via rules capture historical, no longer productive rules of morphology.

1.4 Abbreviations for Morphological Segmentation

Lounsbury's (1953) monograph on Oneida provided the initial identification of affixal formatives in Iroquoian languages. Since that time, alternative names for some of these formatives have been used by other Iroquoianists. The abbreviations used in this thesis to identify the formatives conform to the suggested standardization of abbreviations for Iroquoian languages found in the Native American Text Series: Northern Iroquoian Texts, edited by Marianne Mithun and Hanni Woodbury (IJAL-NATS Monograph No. 4, University of Chicago Press, 1980). In alphabetical order, the abbreviations are the following:

caus	causative
cis	cislocative
coin	coincident
contr	contrastive
dat	dative
dim	diminutive
dist	distributive
du	dualic
fact	factual
fut	future
hab	habitual
inch	inchoative
inst	instrumental
mod	modalizer (called "continuative" in other work)
neg	negative
nom	nominalizer
nsf	noun suffix
opt	optative
part	partitive
pl	plural
prog	progressive

punc	punctual
purp	purposive
ref	reflexive
srf	semi-reflexive
stat	stative
trans	translocative
un	undoer (called "reversive" in other work)

Person and gender

1	first person
2	second person
3	third person
M	masculine
F	feminine-indefinite (used for females or when gender is either not known or not relevant)
Z	neuter-zoic (used for objects and some females; usually implies lack of respect when applied to persons)
in	inclusive
ex	exclusive
d	dual
p	plural
A	agent
P	patient
/	separates agent from patient in transitive prefixes (e.g., 3/1 = 'third person agent acting on first person patient' = 'he/me'; 3p/1 = 'they/me')

In addition, the following will also be used:

FP	former past
H	hinge (explained in text)
J	joiner (explained in text)
nf	noun filler
P	particle
Q	question particle
RP	remote past

Most of the examples in this thesis are from my fieldwork. When an example is taken from another source, it is identified either in the text or in a note signalled by a bracketed reference number, as [1], for example. Examples taken from other sources are reproduced here

exactly as they appeared in the original, including the segmentation and glosses, unless otherwise noted. Examples taken from Hewitt (1903) are given first exactly as they appear in Hewitt, including his glosses. I then provide a formative segmentation using the orthography and abbreviations of this thesis for each Hewitt example.

Notes to Chapter 1

1. Other possessives, like ours, theirs, hers, etc., also have separate forms when they are being used prenominally as clitics (her house) versus predicate adjectives (that's hers). Cf. *that's my.

2. This is slightly different from Fudge's phonological hierarchy, which consists of: segments, syllables, words, phrases, and intonation groups.

3. Fudge's grammatical hierarchy consists of: morphs, morphemes, constructs, and sentences.

4. "Formative" was defined above as an abstract unit. However, just as "morpheme" is often used by linguists where "morph" (the realization of the abstract unit "morpheme") is actually the more appropriate term, I will use "formative" in the following chapters to refer to the realization or set of realizations of formatives--i.e., roots, affixes, or processes like ablaut.

CHAPTER 2

MOHAWK PHONOLOGY AND MORPHOPHONEMICS

Although the facts concerning the phonological and morphological processes that exist in Mohawk have been presented in detail by other researchers (Bonvillain, 1973, and Michelson, 1983, as well as Lounsbury's (1953) influential monograph on Oneida, a language closely related to Mohawk), there remain significant questions about the optimal organization and representation of these processes. This chapter makes use of previous work on Mohawk phonology; however, it differs from previous work because the rules described here conform to the theoretical approach outlined in Chapter 1; that is, they are consistent with the theory of natural generative phonology. The constraints of NGP restrict the relationship between underlying and surface forms and dictate the division of rules into different types, based on their domain of application. It will be shown that this division of rules into types eliminates the need for extrinsic rule ordering and, in fact, provides a natural explanation for why the rules apply in the manner that they do.

The lexicon in the model assumed here contains a listing of roots, derivational affixes, inflectional affixes, and derived lexemes (which include stems, in languages with inflectional processes). In Mohawk, lexemes are usually stems or derived stems. However, nominalizations that have been zero-derived from inflected verbs must also be listed in the lexicon when their meaning is not predictable. For example, kaya?tákeras 'goat' (from ka-ya?t-akera-s ZA-body-be smelly-hab) must be listed as a lexeme. This is more fully discussed in the section on nominalizations (Section 3.3).

Words are constructed in layers, which results in an intrinsic, principled ordering of the rules. When a root or stem combines with derivational affixes, morphophonemic (MP) rules of distribution apply. The output of the lexicon--stems, derived stems, deverbal nominalizations, and particles--is inserted into syntactic markers. Inflectional rules now apply. In Mohawk, these rules add affixes to the derived stems, also by means of MP (distributional) rules.

A subset of the MP rules--internal sandhi rules--apply to the fully concatenated forms, i.e., words. Internal sandhi rules are quasi-phonological rules that are conditioned by a stem (#) or formative (+) boundary, but require no other "morphological" information. Then, the phonological (P) rules apply: Each word undergoes

syllabification; the stress rules, which depend on syllable structure, apply; and finally, all the other automatic phonological rules apply, giving the surface phonetic form.

This division of rules into types based on their domain of application produces a kind of rule ordering. However, unlike extrinsic rule ordering, which is unprincipled and allows abstract underlying forms that can be manipulated in numerous ways to produce the attested surface forms, the rules of NGP are based on the assumption that speakers have access only to surface forms and that all rules must be generalizations from surface facts. There are no intermediate stages, only layers of construction based on the components of a (presumably internalized) grammar--the lexicon, the rules of distribution, the rules determining syntactic structure, and the phonological rules.

This chapter describes (1) the phonological (P) rules, (2) two internal sandhi rules, and (3) three morphophonemic (MP) rules in Mohawk. Since much work has been published on this subject, the treatment here will focus on new analyses, using an NGP approach, of problematic areas of the morphology and phonology. In section 2.1, the phonological rules are summarized, and an example of the operation of each rule is given. The status of the sequence kw in Mohawk, which has been much

discussed in the literature, will then be addressed within the NGP framework. Previous analyses (Postal, 1968; Michelson, 1983) have used extrinsic rule ordering to obtain the correct surface forms. The NGP approach provides a solution that does not rely on rule ordering or abstract underlying segments.

In section 2.2, new analyses for two problems of internal sandhi in Mohawk will be given: (1) a rule of vowel syncope based on a language-particular strength scale for vowels, which has repercussions in several areas of the morphophonemics, and (2) an approach to vowel epenthesis that treats many previously labeled epenthetic vowels as underlying. This treatment of epenthetic vowels necessitates more complex versions of the stress and length rules; however, it eliminates rule ordering and relies instead on the more natural explanation of stress and length rules conditioned by weak versus strong syllables.

Section 2.3 describes three morphophonemic (MP) rules: (1) insertion of the so-called joiner vowel, (2) distribution of the alloforms of the singular masculine pronominal prefix, and (3) fusion in the pre-pronominal prefix system. The discussion will show that the framework of natural generative phonology facilitates solutions to these problematic areas of the morphophonemics.

2.1 Phonological Rules (P Rules)

In NGP, there is no level in the grammar where linguistic units are given in phonemic form--i.e., there is no "phonemic level" that is transformed into a "phonetic level" by a set of rules. Underlying representations of roots and affixes in the lexicon are given in an archisegmental form: all totally redundant phonological features are removed, to be added later by the P rules, which include allophonic rules. However, it is assumed that speakers can extrapolate from the P rules a subset of phonological segments that are in surface contrast--the phonemes. Writing systems typically reflect this knowledge that speakers have of the contrasting segments in their language. The orthographic system used by most Mohawk speakers is a version of one devised by French Jesuit missionaries in the 17th century. It has also been influenced by English orthography (e.g., the Jesuits wrote "8" for "w" since French has no "w"; modern Mohawks use "w"). The modern writing system is phonemic except for its treatment of h and ?, which are often not written. Stress and length are predictable in Mohawk and are not written [1].

In this thesis, forms will be written using symbols in Chart 2.1 below.

Chart 2.1

Consonants

	Alveolar	Palatal	Velar	Labio-velar	Laryngeal
Stops	t		k	k^w	?
Continuants	s				h
Affricate	t^s				
Nasal	n				
Liquid	r				
Glides		y		w	

Vowels

	Front		Back
High	i		u
Mid	e	v	o
Low			a

The vowels u and v are nasal ([$\tilde{u}$] and [$\tilde{\wedge}$], respectively); since they do not contrast with nonnasal vowels in the same place of articulation, they will be written u and v throughout.

The above charts for consonants and vowels represent the surface contrasts in Mohawk. In addition to these symbols, length and stress will also be marked, even though they are predictable (for the most part--see note 1). These charts are not assumed to represent a level of the underlying grammar of speakers. Rather, they are an

extrapolation from the P rules, which include not only rules governing a segment's features in particular environments, but also rules that specify the permissible combinations of segments and affect the shape of formatives when they are combined (i.e., the "automatic alternations").

2.1.1 General Rules

The segments given in the charts above show the following variation:

The stops t and k are aspirated before an obstruent or a pause; they are voiced intervocalically and word-initially before a vowel, and they are unvoiced and unaspirated elsewhere (i.e., between an obstruent or h and a vowel), except that k is also voiced between a vowel and w. The sequences kn, kr, tw, tr, and tn do not occur formative-internally and undergo epenthesis at a formative boundary [2]; t and k are palatalized before y (see rule (2.9) below).

The continuant s is aspirated when it is preceded by h or followed by an obstruent or pause; it is also aspirated when it is followed by n or w (sn and sw, but not sr, occur only formative-internally; at a formative boundary, sn, sw, and sr sequences undergo e-epenthesis) [2]. s is voiced intervocalically and word-initially

before a vowel; elsewhere (i.e., between an obstruent and a vowel), it is unvoiced and unaspirated.

The resonants n and r are voiceless when they occur in the environments h _ h and ? _ ##, where ## is a pause (word boundary). Elsewhere, they are voiced.

The nasal vowels u and v tend to lose their nasality in closed syllables. When u occurs in a syllable that is followed by an h or pause, it may become [ũm] [3]. i and e are lax when they occur in unstressed, closed syllables. All vowels are lengthened when they occur in stressed open syllables.

The laryngeals h and ? do not appear in utterance-initial position, although ? occurs phonetically (nondistinctively) before all word-initial vowels.

The glide y vocalizes to i before a consonant or a pause--that is, when it is in nucleus position in a syllable. The Mohawks themselves do not distinguish i and y in their orthography, writing i for both.

The glide w is [f] when it precedes h. It vocalizes before a consonant or a pause, except when it occurs after ? and, in some instances, k. This variation requires further explanation, and will be addressed fully in Section 2.1.2 below.

In addition to the segment distribution rules just given, the set of P rules includes syllable structure rules, stress rules, and unordered automatic P rules that apply across formative boundaries. An example is given for each rule below; ### = word boundary; $ = syllable boundary [4]. The abbreviations used in formative segmentations below are explained in Chapter 1 (Section 1.4).

Syllable structure rules will not be given here. It is assumed that after all formatives (including inflections) are concatenated, the phonological domain "word" is syllabified, in accord with both universal principles of syllabification (e.g., the preferred status of CV syllables) and language-particular constraints (e.g., rules specifying permissible onsets). Stress rules often depend on syllable structure. In Mohawk, stress is on the penultimate syllable (with a regular set of "exceptions," to be given in the section on epenthesis, Section 2.2.2). Therefore, the stress rule cannot apply until the word is syllabified.

Specific P rules will now be given.

Stress. The stress rule given below is preliminary; it will be revised in the section on epenthesis (Section 2.2.2), where its interaction with the notion "weak syllable" is discussed. Stress is regularly penultimate in Mohawk, but skips certain epenthetic vowels, as will be

discussed in Section 2.2.2. The preliminary stress rule is:

(2.1) Preliminary Stress Rule

$$V \rightarrow [+stress] / \_\_\_ C_o\ V\ C_o\ \#\#$$

Ex.: vkyv́tho? 'I will plant (it)' v-k-yvtho-? fut-1A-plant-punc

Length. Stressed vowels are lengthened in open syllables. Length is not distinctive in Mohawk.

(2.2) Preliminary Length Rule

$$\acute{V} \rightarrow \acute{V}: / \_\_\_ \$$$

Ex. ká:yv 'it's there' ka-yv-ø ZA-be lying-stat

(Cf. the example after rule (2.1) above, where the stressed vowel is in a closed syllable.) The length rule will also be revised in the section on epenthesis.

A stressed vowel may also be lengthened and receive falling tone simultaneously before laryngeals in certain environments. The laryngeal is then deleted by rule (2.13) or (2.14) below.

(2.3) Length With Falling Tone

$$\acute{V} \rightarrow \grave{V}: / \_\_ \begin{Bmatrix} hR \\ ?C \end{Bmatrix}$$

Ex.:	okà:ra?	o-kahr-a?
	'eye'	ZP-eye-nsf
	wà:ku?	wa-a?-k-u-?
	'I gave it to her'	fact-H-1/Z-give-punc

Prothesis. All verbs must contain at least two syllables in Mohawk. If a verb only contains one syllable underlyingly, a rule of prothesis inserts an initial i to carry penultimate stress.

(2.4) $\emptyset \rightarrow i \;/\; \#\# \_\_\_ C_o V C_o]_{verb} \#\#$

Ex.:	íhshrv	hs-hrv-Ø
	'put it on!'	2A-put on-imp

Glides. The rules affecting glides are:

(2.5) $G \rightarrow [+voc] \;/\; \$C \_\_\_ \left\{ \begin{matrix} \#\# \\ C \end{matrix} \right\}$

In this rule, G stands for "glide"; G[+back] = w and G[-back] = y. That is, in underlying forms, a glide will be unspecified for vocalization. Rule (2.5) applies to both y and w. It applies at the time of syllabification, when the syllabic position of the glide is determined. If the glide is placed in nucleus position, it vocalizes and it then "counts" for the stress rule, which, as noted above, can only apply to syllabified forms. The operation of Rule (2.5) is seen in the following examples:

Ex.:	vkerú:ko? 'I will scrape it off'	v-ke-rukw-? [5] fut-1A-scrape off-punc
	sóho 'get in the water!'	hs-o-hw-ø 2A-be in water-caus-stat
	tvkté:ni 'I will change it'	t-v-k-teny-? du-fut-1A-change-punc

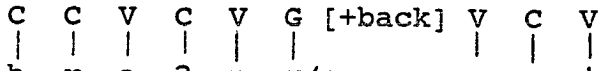
The following rule affects w when it is placed before a [+round] segment by combination of formatives. It can only apply after the glide has been placed in its syllabic position (see diagram for the first example following rule (2.6)).

(2.6)

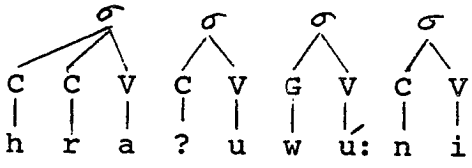
$$w \rightarrow \left\{ \begin{array}{l} y \,/\, \underset{[+\text{ round}]}{V} \;\_\_\_\; \underset{[+\text{ round}]}{V} \\ \emptyset \,/\, [-\text{ round}] \;\_\_\_\; \underset{[+\text{ round}]}{V} \end{array} \right\}$$

Ex.:	ra?uyú:ni 'he's making a bowl'	hra-?uw-uni-ø MA-bowl-make-stat

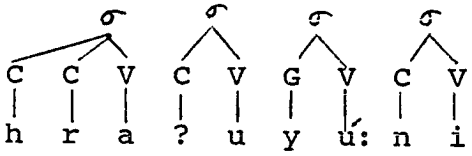
Diagrammatically:



--> (by rule (2.5), stress, and length rules)



--> (by rule (2.6))

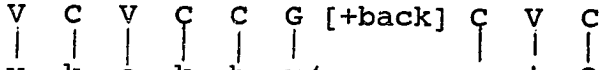


(c.f.: ka?uwí:yo 'the bowl is good' ka-?uw-iyo-ø ZA-bowl-be good-stat)

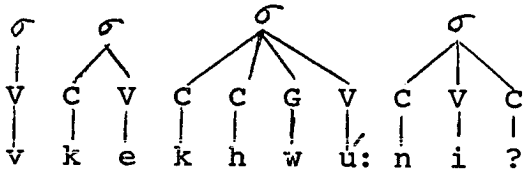
A form showing deletion of the w before a round vowel is:

Ex. vkekhú:ni? 'I will cook' v-ke-khw-uni-? fut-1A-food-make-punc

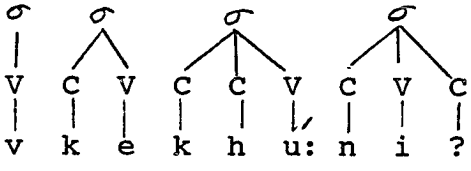
Diagrammatically:



--> (by rule (2.5), stress, and length rules)



--> (by rule (2.6))



(c.f: kákhwa? 'food' ka-khw-a? ZA-food-nsf)

Other rules affecting glides are:

(2.7) y -→ ø / ? ___

Ex.: wa?ákwake? 'we ate it' wa-a?-yakwa-k-? fact-H-1expA-eat-punc

In this example, the final e is epenthetic. It is added by rule (2.16) below.

(2.8) y -→ ? / ___ i

Ex.: kanv?í:yo [6] 'nice stone' ka-nvy-iyo-ø ZA-stone-be good, nice=stat

(2.9) {ty, ky} -→ [ǰ]

Ex.: tákyeste? [dáǰɛsde?] 'I might mix it' t-a-k-yest-? du-opt-1A-mix-punc

vtyéhawe? [ʌ̃ǰéhawe?] 'she will bring it' v-t-ye-haw-? fut-cis-FA-bring-punc

(2.10) sy -→ [š] / h ___ V

Ex.: rotawvhsyu [rodawʌ̃hšu] 'he already finished swimming' hro-at-awv-hsy-u MP-srf-swim-un-stat

(2.11) thy -> [č]

Ex.: thya?tewvhniserá:ke [ča?dewʌhnizera:ge]
'every day'

th-y-a?-te-(ya)w-vhniser-a-ke
contr-trans-H-du-ZP-day-J-pl

Laryngeals. The P rules affecting laryngeals are:

(2.12) h -> ø / ## ___

Ex.: serú:ko
'scrape it off'
hse-rukw-ø
2A-scrape off-imp

(2.13) h -> ø / V̀: ___ R where R = r, n, w, y [7]

This rule (and rule (2.14) below) can only apply after the rules of stress and length with falling tone have applied, because they create the environment for the rule (i.e., they create the stressed, lengthened vowel).

Ex.: okà:ra?
'eye'
o-kahr-a?
ZP-eye-nsf

(2.14) ? -> ø / V̀: __ C [7]

Ex.: wà:ku?
'I gave it to her'
wa-a?-k-u-?
fact-H-1/F-give-punc

(2.15) ? -> ø / ___ h

Ex.: waható:ko?
'he got out of the water'
wa-a?-ha-at-o-kw-?
fact-H-MA-srf-be in water-un-punc

(2.16) $\emptyset \rightarrow e \;/\; C \_\_ \; ? \; \#\#$

Ex.:	tákyeste? 'I might mix it'	t-a-k-yest-? du-opt-1A-mix-punc

2.1.2 The Status of /kw/ Sequences

In most cases, the glide w vocalizes to o before a consonant or a pause as described in rule (2.5). However, in the following environments, it does not vocalize [8]:

(i) $? \_\_\_ \left\{ \begin{matrix} C \\ \#\# \end{matrix} \right\}$

(ii) in some instances of $k \_\_\_ \left\{ \begin{matrix} C \\ \#\# \end{matrix} \right\}$

An example of the first situation is:

(2.17)	sv́:ta? 'sleep!'	sa-ita?w-ø 2P-sleep-imp
(2.18)	vkí:ta?we? 'I will sleep'	v-k-ita?w-? fut-1A-sleep-punc

In (2.18), an e is epended after the w by a regular rule (see rule (2.16) above) epending e in the environment C_?##. The w does not vocalize, even though it is followed by a consonant. In (2.17), the word-final w deletes. Note that it does not vocalize by rule (2.5).

An explanation for this behavior can be found in syllable structure. For both y and w, vocalization occurs when the glide is in the nucleus position of a syllable. Therefore, the feature for vocalization can be filled in by a P rule; the underlying (archisegmental) form for lexical items containing glides will have a glide (G), unspecified for vocalization. After the formatives are concatenated and the syllable structure rules apply, those glides that are in nucleus position will vocalize.

Since ?w is not a permissible syllable onset in Mohawk, the ? in such sequences will always syllabify as the coda of the preceding syllable. This leaves the w in onset position for the following syllable, and therefore it does not vocalize, even if it is followed by a pause or another consonant. In actual examples, the only consonant that appears after ?w is ?. In the sequence ?w?, the first ? syllabifies as the coda of the preceding syllable, giving ?$w? (where $ = syllable boundary), which becomes ?$we? by the automatic rule (2.16) above, which epends e in the environment C_?. This explains the lack of vocalization and the antepenultimate stress in (2.18). In (2.17), the ? syllabifies as the coda of the preceding syllable: sv:$ta?$w. This leaves the w stranded. It does not meet the structural description for glide vocalization (rule (2.5)), and therefore is available for a rule that simplifies certain word-final clusters [9].

The exceptional behavior of w after k requires more than syllable structure as explanation, since kw is a possible onset in Mohawk. The behavior of kw sequences in Mohawk has received much attention, mainly due to Postal's (1968) analysis. Postal used counterbleeding and counterfeeding orders to explain the failure of some kw sequences to undergo certain phonological rules. His analysis, in turn, was used by other linguists (e.g., King, 1969 [10], 1973, and Kiparsky, 1973) to support the claim that rules involving phonological changes could be inserted in a list of ordered rules at places other than the surface level. Since rule ordering is not used in NGP, an alternative analysis to the variable behavior of kw sequences must be found. I will argue below that the NGP alternative is superior to the abstract analysis of Postal. The details of the problem follow.

In Mohawk, kw sequences interact with two phonological rules--the length rule and the rule of glide vocalization--in two different ways. The interaction of kw with the length rule will be discussed first. Compare (2.19a-d), where the stressed vowel is long, with (2.20a-b), where the stressed vowel is short:

(2.19a)	rú:kwe? 'man'	ra-ukwe-? MA-man-nsf
(2.19b)	oneró:kwa? 'vest'	o-nerokw-a? ZP-vest-nsf

(2.19c)	tsó:kwaris 'blackbird'	
(2.19d)	kayv́:kwire? 'arrow'	ka-yvkwir-? ZA-arrow-nsf
(2.20a)	kayvtákwas 'she's picking up wood'	ka-yvt-a-kw-as ZA-wood-J-pick up-hab
(2.20b)	kerúkwas 'I'm scraping it off'	ke-rukw-as 1A-scrape off-hab

Stressed vowels in open syllables are lengthened in Mohawk (see rule (2.2) above), whereas stressed vowels in closed syllables are not lengthened. The stressed vowels in examples (2.19a-d) behave as if they were in open syllables, whereas those in (2.20a-b) behave as if the k closed the stressed syllable. The vowels preceding and following the kw sequences in the two sets of words are similar and are not a conditioning factor [11].

Postal (1958) proposed that the kw sequence in such words as (2.19a-d) was actually p underlyingly, and that a rule of absolute neutralization (p -> kw) applied after the length rule. He cited historical justification for his analysis from the work of Chafe (1964), who proposed a possible Proto-Siouan-Iroquoian /*p/ that became [kw] in Seneca and remained [p] in Siouan.

Postal's ordering of the absolute neutralization rule p -> kw after the length rule is not allowed in NGP because it uses extrinsic (in this case, "counterbleeding") rule ordering. If the rule p -> kw applied before the length rule, it would "bleed" the length rule by creating a closed syllable. For example, the derivation for rú:kwe? 'man' would be:

(2.21)	Underlying:	ra + upe + ?
	Vowel Syncope (discussed below):	rupe?
	p -> kw:	rukwe?
	Stress:	rúkwe?
	Length:	---
	Surface form:	*rúkwe?

In (2.21), the rule p -> kw bleeds the length rule, since the length rule only applies in open syllables. The correct derivation, according to Postal, is:

(2.22)	Underlying:	ra + upe + ?
	Vowel Syncope:	rupe?
	Stress:	rúpe?
	Length:	rú:pe?
	p -> kw:	rú:kwe?
	Surface form:	rú:kwe?

In this derivation, the abstract segment p actually creates the condition for vowel length and then is erased

by the rule p -> kw. In this way, a surface anomalie (length before kw) is made to conform to a general rule of length.

Postal also ordered the rule p -> kw after the epenthesis rule in Mohawk, which inserts an e in some C_R sequences, where R = n, r, w (see discussion in Section 2.2.2). Therefore, kw's that were derived from underlying p would not undergo e-epenthesis because they would be p at the point where the epenthesis rule inserted e in C_R sequences. However, as Chafe (1970) and Michelson (1983) have pointed out, the e-epenthesis rule in Mohawk is irrelevant to the problem of kw sequences because the conditioning environment for e-epenthesis in kw sequences is morphological--it requires a formative boundary between the k and w. (In fact, I will argue below that the conditioning environment for e-epenthesis is always morphological, except when it breaks up C? clusters. See discussion on epenthesis in Section 2.2.2.)

Postal's ordering of the rule p -> kw after the e-epenthesis rule is an example of counterfeeding, since the rule creating new kw sequences would "feed" Postal's version of the epenthesis rule if it were allowed to apply before epenthesis. The derivation of rú:kwe? 'man' shows the counterfeeding order of Postal's rules of epenthesis and p -> kw:

(2.23)	Underlying:	ra + upe + ?
	Vowel Syncope:	rupe?
	ø -→ e / C__R:	---
	Stress:	rúpe?
	Length:	rú:pe?
	p -→ kw	rú:kwe?
	Surface form:	rú:kwe?

If e-epenthesis were to be ordered after the rule p -→ kw, the latter rule would "feed" the epenthesis rule, resulting in the incorrect surface form:

(2.24)	Underlying:	ra + upe + ?
	Vowel Syncope:	rupe?
	Stress:	rúpe?
	Length:	rú:pe?
	p -→ kw:	rú:kwe?
	ø -→ e/C__R:	rú:kewe?
	Surface form:	*rú:kewe?

Therefore, in Postal's analysis, extrinsic rule ordering, as well as a rule of absolute neutralization, is essential to ensure that the correct surface form is obtained. However, if the e-epenthesis rule is morphologically conditioned by a formative boundary in C_R sequences, the problem of rule ordering does not arise. The formative-internal kw's (as in examples (2.19) and (2.20)) will not meet the structural description for the

e-epenthesis rule. Therefore, the epenthesis rule does not present a problem for kw sequences.

However, a solution to the problem of length before some kw sequences, using the constraints of NGP, must still be given. One possibility is to propose a surface segment k^w in addition to the sequence kw. If length before kw only occurred in a few words, these words could be listed in the lexicon as lexicalized exceptions--relics of an earlier, no longer productive contrast between kw and k^w. (Under a strict NGP analysis, however, this would make the length rule nonpredictable.) However, as mentioned above, kw sequences also behave in two different ways in relation to the rule of glide vocalization. These data show that k^w must be postulated not only after certain stressed vowels in particular lexemes, but also after h in certain stems. For example:

(2.25a)	tehsenúnyahk^w 'dance!'	te-hse-nuny-a-hk^w -ø du-2A-dance-J-lift-imp
(2.25b)	tekenunyáhkhwa? 'I'm dancing'	te-ke-nuny-a-hk^w -ha? [12] du-1A-dance-J-lift-hab
(2.25c)	tvkenúnyahk^{w}e? 'I will dance'	t-v-ke-nuny-a-hk^w -? du-fut-1A-dance-J-lift-punc
(2.25d)	tewakenunyáhk^{w}v 'I did dance'	te-wake-nuny-a-hk^w -v du-1P-dance-J-lift-stat

The reason that k^w must be used here instead of kw is that the rule of glide vocalization, which is otherwise

perfectly regular, has not applied to (2.25a) and (2.25c). Compare the following verb, where glide vocalization does occur before a consonant or a pause (see rule (2.5 above):

(2.26a)	serú:ko 'scrape it off!'	hse-rukw-Ø 2A-scrape off-imp
(2.26b)	kerúkwas 'I'm scraping it off'	ke-rukw-as 1A-scrape off-hab
(2.26c)	vkerú:ko? 'I'll scrape it off'	v-ke-rukw-? fut-1A-scrape off-punc
(2.26d)	wakerúkwv 'I did scrape it off'	wake-rukw-v 1P-scrape off-stat

The rule of glide vocalization, given above, is repeated here:

(2.27) = (2.5) G → [+voc] / $C __ $\left\{\begin{matrix}\#\# \\ C\end{matrix}\right\}$

This is a P rule and therefore should apply without exception. Yet it does not apply to (2.25a) and (2.25c). In (2.25c), instead of glide vocalization, a different rule applies: an automatic rule epending e in C? clusters (rule (2.16) given above). This rule also applies to the past formative, as shown by the following example:

(2.28) rowá:kuhk^{w}e? 'he was shaking it'
hro-awak-u-hk^{w} ?
MP-shake-stat-FP

If the k^{w} in (2.28) were actually kw, then the w should undergo glide vocalization, since it occurs in the environment $C_C. (The e cannot be underlying because it does not count for penultimate stress and conforms to other instances of e-epenthesis in C? clusters.) Within the NGP analysis, redundancies are removed from the underlying forms. In this case, the underlying (archisegmental) formative for the former past is hk^{w}?, although on the surface it will always be hk^{w}e?, with the e added by rule (2.16), an automatic rule inserting e in C? clusters.

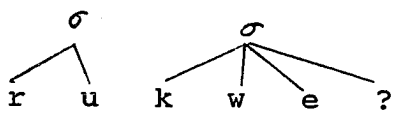
The NGP analysis forces an underlying contrast of k^{w} and kw if there is a surface contrast. The examples above show k^{w} and kw behaving differently with regard to the length and glide vocalization rules. However, actual contrast in the same environment can be shown. The following examples establish the contrast: First, kw and k^{w} contrast after a stressed vowel and before a following a:

(2.29) tsó:kwaris 'blackbird'

(2.30) onero:kwa? 'vest'

(2.31) kerúkwas — ke-rukw-as
'I'm scraping it off' — 1A-scrape off-hab

The contrast contradicts the analysis given by Michelson (1983) that kw before e or i is tautosyllabic, yielding, for example:

(2.32) 

→ rú:kwe? 'man'

In (2.32), the u is in an open syllable and hence is lengthened. However, the fact that a can follow kw's that do not block length (as in (2.29) and (2.30)), as well as kw's that do block length (as in (2.31) above), shows that the tautosyllabic analysis will not work.

Also, the tautosyllabic analysis does not explain the contrasting behavior of kw sequences with regard to the rule of glide vocalization. This contrast of k^{w} and kw is shown between h and a consonant. Compare:

(2.33) ktsihkotákwas — k-tsihkw-takw-as
'I'm unbuttoning it' — 1A-button-undo-hab

and

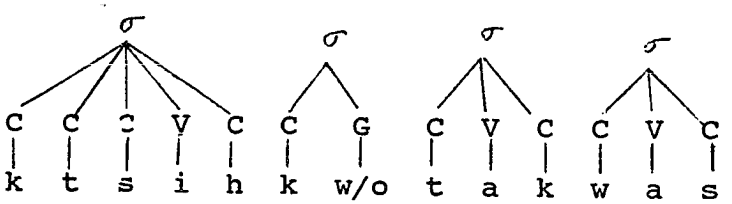
(2.34) tvkenúnyahk^{w}e? — t-v-ke-nuny-a-hk^{w}-?
'I will dance' — du-fut-1A-dance-J-lift-punc

In (2.33), the glide in the incorporated noun root -tshihkw- 'button' vocalizes because it is a syllabic

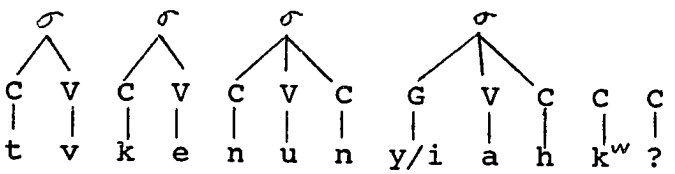
nucleus; in (2.34), it does not vocalize and an epenthetic e is inserted before the glottal stop.

Diagrammatically, these two words can be represented as follows:

(2.35)



(2.36)



In (2.35), the glide, represented by G on the second tier, is in nucleus position and hence vocalizes. In (2.36), the stranded k^w? sequence does not form a syllable with w as the nucleus; i.e., it does not become ko?. Instead, the P rule (2.16) epends and e between k^w and ?.

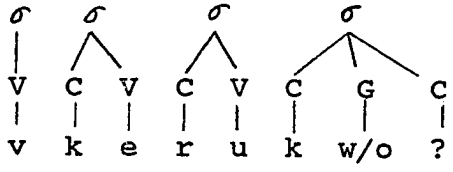
From the foregoing data, it might be concluded that there is a separate phoneme k^w in modern Mohawk that contrasts with kw sequences in certain environments. The k^w would function as a single consonant, and therefore, would not block the length rule in examples like rú:k^we? 'man'. In addition, k^w would not alternate with ko, in contrast to the behavior of true kw sequences, which contain separate glides. However, in NGP, as described

above, there is no phonemic level in the grammatical description. Underlying representations are given in archisegmental form with redundancies removed. The contrast between k͡w and kw, since it exists in surface forms, must be given in the underlying forms by the constraints of NGP--i.e., it is not redundant or predictable. Therefore, although k͡w will not be called a "phoneme" in the analysis given here, it is necessary to postulate it as an underlying as well as surface segment. Mohawk speakers do not code this difference in their writing system. Both types of kw are written kw. However, the contrasts that exist show that, at least for the relevant positions in certain lexical items, the historical contrast is still active, whether or not speakers choose to signal the contrast in their orthography. In the examples in this thesis, k͡w will be written where it is in contrast with kw. In indeterminate cases (i.e., kw's that never are placed in a position where they would be subject to vocalization or could block length), kw will be written. The contrast between k͡w and kw occurs only in certain environments synchronically. In phonemic terms, k͡w has a limited distribution.

One final issue concerning rule interaction with kw sequences must still be considered. In example (2.26c) above, vkerú:ko?, the length on the stressed vowel indicates that the w must already have vocalized at the point when the length rule applies. This fact has caused

previous researchers (Postal 1968, Michelson, 1983) to use rule ordering to place the stressed vowel in an open syllable. Also, in order for the u to receive stress at all, it must be the penultimate vowel, which means the glide vocalization rule must be ordered before the stress rule. However, it is possible to avoid rule ordering to explain this interaction. Assuming, as above, that glides in Mohawk are underlyingly unspecified for vocalization, the glide will only vocalize at the time of syllabification if it is positioned as the nucleus of a syllable. For example, vkerú:ko? would be underlyingly vkerukG[+back]?. Syllabification would yield:

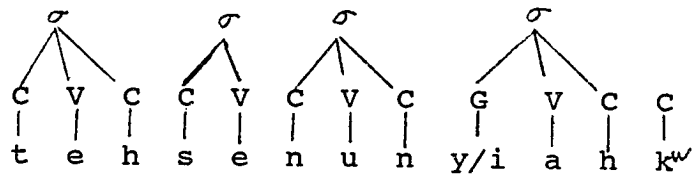
(2.37)



Since the glide is in nucleus position, it vocalizes; the stress rule applies to the syllabified form, stressing the penultimate vowel, u. Since this vowel is in an open syllable, it is lengthened by the length rule (which requires information about syllable structure in its structural description). Therefore, glide vocalization and the length rule are intrinsically rather than extrinsically ordered.

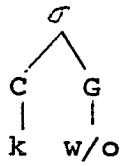
In contrast, a form with $\underline{k}^{w}$ does not have an underlying glide. For example, (2.25a) tehsenúnyahk^{w} 'dance!' is syllabified as:

(2.38)



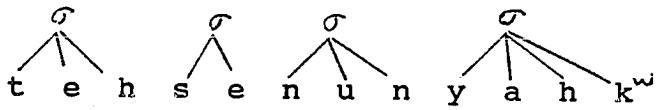
The $\underline{k}^{w}$ is stranded at the end of the word, but it does not vocalize to form a syllable ko, as it would if it were underlyingly the sequence:

(2.39)



Rather, it is suggested here, the $\underline{k}^{w}$ attaches to the final syllable as a permissible coda in Mohawk, giving:

(2.40)



The stress rule applies, stressing the u, which is in a closed syllable and, hence, does not undergo lengthening.

2.2 Internal Sandhi Rules

2.2.1 Vowel Syncope

As mentioned in Chapter 1, some rules are phonologically conditioned except for the fact that they refer to a grammatical boundary, like stem or formative. In Mohawk, the rule of vowel syncope refers to a formative boundary, as does the rule of e-epenthesis, which will be described in the next section. The analysis of vowel syncope given here is summarized from a fuller account given in Hopkins (1987). The general rule of vowel syncope is preceded by a specific rule referring to a particular vowel combination:

(2.41) a + i --→ v

Ex.: kv́tskare? 'rug, mat' ka-itskar-e? ZA-mat-nsf

The general rule of vowel syncope is:

(2.42) $V_{[m\ \text{strength}]} \rightarrow \emptyset \ / \ V_{[n\ \text{strength}]} +$

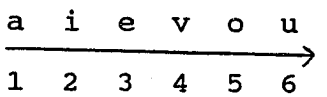
where $1 \leq m \leq n$

Rule (2.42) is a mirror-image rule--that is, there is no line in the environment of the rule to indicate where the structural change is made because a line is assumed on either side of the environment. This means that in rule

(2.42), a vowel of [m strength] will delete when it is next to a vowel of [n strength]; it does not matter whether the [m strength] vowel is to the right or to the left of the [n strength] vowel.

Rules (2.41) and (2.42) eliminate vowel sequences at formative boundaries. Rule (2.41), being more specific, will apply before the more general rule. Rule (2.42) depends on a strength scale for vowels. Based on the pattern of vowel syncope in Mohawk, the strength scale is:

(2.43) Strength Scale for Mohawk Vowels



where a is the weakest and u the strongest vowel.

Some examples of the application of rule (2.42) follow:

(2.44)	réhsaks 'he's looking for it'	hra-ehsak-s MA-look for-hab
(2.45)	royvthu 'he planted'	hro-yvtho-u MP-plant-stat
(2.46)	tehnú:kʷe 'two men'	te-hni-ukʷe du-MdA-person
(2.47)	rvtórha? 'he's lazy'	hra-vtor-ha? MA-be lazy-hab
(2.48)	senvtórha? 'you(two) are lazy'	seni-vtor-ha? 2dA-be lazy-hab
(2.49)	ró?kwats [13] 'he's digging'	hra-o?kwat-s MA-dig-hab

(2.50)	rotá:wv 'he swam'	hro-at-awv-ø MP-srf-swim-stat
(2.51)	o?túhkwa? 'flame'	yo-i?tuhkw-a? ZP-flame-nsf
(2.52)	yè:teru 'she lives, resides'	ye-i?teru-ø FA-live,reside-stat

In each of the above examples, the "weaker" vowel, as defined by the strength scale, deletes. I have found no counterexamples to rule (2.42) in my data.

However, surface two-vowel sequences do occur. These are either:

(i) formative-internal,

(ii) part of the third person singular patient allomorphy, or

(iii) the result of fusion in the pre-pronominal prefix system.

Each of these cases will be explained below.

(i) Formative-internal two-vowel sequences occur in a very few formatives. One is the optative prefix aa-. In the Caughnawaga dialect of Mohawk, this formative never appears on the surface as aa-; it is either (1) a...a, i.e., discontinuous, due to the co-occurrence of the cislocative or repetitive formatives, (2) a, due to the deletion of one of the a's, or (3) ae-, due to the

co-occurrence of certain second-person pronominal prefixes. This third instance of the optative results in a surface two-vowel sequence, as in:

(2.53)	aesewatá:wv?	ae-sewa-at-awv-?
	'you(pl) should swim'	opt-2pA-srf-swim-punc

Since the sequence ae is not interrupted by a formative boundary, rule (2.42) cannot apply.

Other formative-internal two-vowel sequences occur in possessive pronominal prefixes:

(2.54)	hrao-	masc. sing. poss. prefix
	hraoti-	masc. pl. poss. prefix
	yao-	fem/zoic-neuter sing. poss. prefix
	yaoti-	fem/zoic-neuter pl. poss. prefix
	hraon-	masc. pl. poss. prefix before a-stems
	yaon-	fem/zoic-neuter pl. poss. prefix before a-stems

Although these forms are clearly related to the masculine, feminine, and zoic-neuter pronominal prefixes plus an objective marker o-, it will be proposed here that they have been reanalyzed in the synchronic grammar as single formatives and, thus, are not susceptible to vowel syncope.

(ii) Third-person singular patient pronominal prefixes show an alloformic pattern that pairs verb stems beginning with the two strongest vowels (u and o), those beginning with the two middle-strength vowels (v and e), and those

beginning with the two weakest vowels (i and a). Hankamer and Aissen (1974) stated that using a strength scale entails certain predictions about how morphophonological rules will refer to subparts of the scale. Adjacent segments on a strength scale should group together into classes that undergo rules together, and no rule should apply only to nonadjacent segments of the scale. This is borne out by the alloformic patterning of Mohawk masculine singular patient prefixes. These prefixes consist of a person/gender formative plus an objective (patient) formative. The latter is a glide w that alternates with o. Underlyingly, glides will be assumed to be unspecified for vocalization (see discussion in Section 2.1.2 above). However, in the third person pronominal objective formative, the w/o alternation must be stated as an MP rule, since it is not automatic. The allomorphy rule for the third person objective (patient) morpheme is:

$$(2.55) \quad o/w \rightarrow \begin{cases} o \;/\; \underline{\quad} \begin{Bmatrix} c \\ a \\ i \end{Bmatrix} \\ w \;/\; \text{elsewhere} \end{cases}$$

As this rule shows, i- and a-stems (i.e., stems beginning with a weak vowel) pattern like consonant-initial stems. The i or a deletes by the vowel syncope rule (2.42). For example:

(2.56) róweru 'he spilled it' hra-o-aweru-Ø M-P-spill-stat

In (2.56), the vowel syncope rule applies twice, deleting the weak a's on either side of the strong o.

For e- and v-initial stems, the w alloform occurs, as in:

(2.57) rawé:ka?s 'he finds it tasty' hra-w-eka?-s M-P-find tasty-hab

Finally, for o- and u-initial stems, another rule must be mentioned. One of the automatic alternations found in Mohawk deletes a w between a nonround segment and a round vowel (see rule (2.6) above). When the patient morpheme w is concatenated with an o- or u-initial stem, this rule applies, giving, e.g.,

(2.58) rao?kwá:tu 'he dug' hra-w-o?kwat-u M-P-dig-stat

The deletion of the w leaves a two-vowel sequence on the surface. This sequence is not susceptible to the rule of vowel syncope because the sequence is created as a result of a P rule. In the model of NGP, P rules apply after all rules of distribution (MP rules), including internal sandhi rules like vowel syncope. The sequences awu and awo are pronounced [au] and [ao], respectively

(see rule (2.6) above). Example (2.58) shows how extrinsic rule ordering is avoided by recognizing that rules of different types apply at different points in the derivation. The MP rule of distribution (2.55) applies first, choosing the w alloform; the internal sandhi rule of vowel syncope, cannot apply in example (2.58) since its structural description is not met; finally, the P rules apply, including rule (2.6), which eliminates [w] in the sequence [wo].

(iii) Fusion in the pre-pronominal prefix system provides the final example of surface two-vowel sequences. In (2.59), the optative combines with the first person singular patient prefix to form a fused "portmanteau" morph, to use Hockett's (1947) term:

(2.59)	aukí:ta?we?	aa-wak-ita?w-?
	'I should sleep'	opt-1P-sleep-punc

Lounsbury (1953) provided a morphologically conditioned rule for Oneida that applies in such examples as (2.59):

(2.60) (w) a (?) + w a --> u

Another example of a fused formative is found in:

(2.61)	ausakahtv́:ti?	a-us-a-k-ahtvty-?
	'I should leave'	opt-rep-1A-leave-punc

Here, the optative is discontinuous (a...a) and the

repetitive has the alloform -us- (see Section 3.1.1 in Chapter 3). If ausa- is treated as a fused unit representing the optative and repetitive, the failure of vowel syncope to apply to the au sequence is explained. (A similar situation is found with the optative and the cislocative, a combination that produces -auta-.) The interaction of fusion with vowel syncope is further discussed in Section 2.3.3 below.

Summary of Vowel Syncope Rule. The advantage of this analysis of vowel syncope over those previously proposed (see, e.g., Postal, 1963; Michelson, 1983) is that the vowel hierarchy not only accounts for vowel syncope in Mohawk with one rather simple rule, but also is consistent with (1) the alloformic patterning of the third person singular patient prefixes, and (2) the use of the weak vowels a, i, and e as epenthetic vowels in Mohawk [14]. The strong vowels (v, o, and u) are not used for epenthesis. The vowel hierarchy, then, has repercussions in several areas of the morphophonemics of Mohawk and proides a more general explanation for the existing patterns than previous accounts.

2.2.2 Epenthesis

The stress and length rules in Mohawk, as given above, apply regularly, except that they "skip" certain

epenthetic vowels. These skipped vowels were termed "weightless" by Lounsbury [15] in describing a similar phenomenon in Oneida. In Mohawk, a and e can both be weightless under certain circumstances. In this section, weightless e will be discussed; Section 2.3.1 will describe weightless a.

Michelson (1983) has given a comprehensive description of e-epenthesis in Mohawk; the analysis given below relies on many of her insights, although it uses a different solution, consistent with natural generative phonology, to account for the interaction of the stress and length rules with epenthesis.

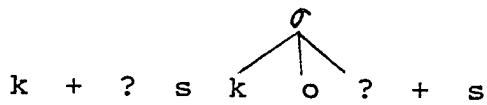
Michelson noted that epenthetic e's in Mohawk are counted in assigning penultimate stress if they are in closed syllables. Otherwise (i.e., if they occur in open syllables), they are not counted--to use Lounsbury's term, they are "weightless." This fact makes an analysis of epenthesis based on syllable structure an attractive possibility. Michelson proposes that epenthetic e's are inserted before certain "extrasyllabic" consonants at a morpheme boundary. These e's will necessarily be in closed syllables and hence will count for stress. One of her examples is:

(2.62)

ke:sko?s	k-?sko?-s
'I'm getting my feet wet'	1A-get one's feet wet-hab

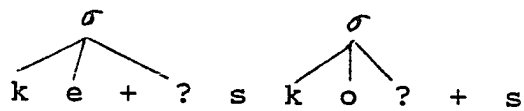
When Michelson's rules of syllabification apply to the underlying form, there are extrasyllabic consonants:

(2.63)



Michelson's rule of "Pre-stress E-epenthesis" (there is also a rule of "Post-stress E-epenthesis" in her analysis), inserts an epenthetic e before an extrasyllabic consonant at a morpheme boundary (in this case, before the ?). The resulting syllabification is:

(2.64)



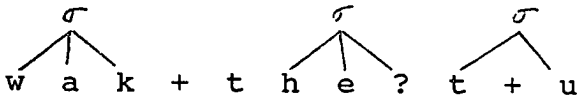
The e is the penultimate vowel and hence is stressed by the stress rule. It is in a closed syllable and therefore does not undergo the length rule (rule (2.2) above). The glottal stop deletes by rule (2.14), after falling tone and length have been placed on the stressed vowel (see rule (2.3)).

Michelson's analysis uses both syllable structure and morpheme boundary as conditioning factors. Although she does not specifically point this out, syllable structure alone is not enough to condition the rule because there are other places in the morphology where the same consonant clusters occur without epenthesis. For example, compare (2.65a,b) with (2.66a,b):

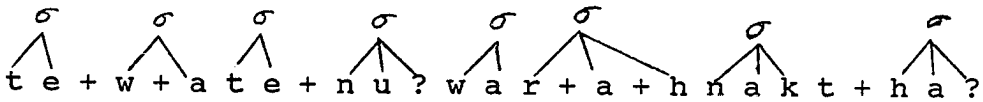
(2.65a)	wakethè:tu 'I ground it'	wak-the?t-u 1P-grind-stat
(2.65b)	sekhú:ni 'cook!'	hs-khw-uni-ø 2A-food-make-imp
(2.66a)	tewatenu?warahnáktha? 'headband' [16]	
	te-w-ate-nu?war-a-hnakt-ha? du-ZA-srf-head-J-go around-hab	
(2.66b)	teka?khá:rake [17] 'two skirts'	te-ka-?khar-a-ke du-ZA-skirt-J-pl

Both (2.65a) and (2.66a) contain the underlying cluster -kth-. If the k is considered a coda on the preceding syllable, this leaves an extrasyllabic t in both examples, by Michelson's rules of syllabification:

(2.67)



(2.68)



The only difference between the two kth sequences is the placement of the morpheme boundary. A similar situation arises in (2.65b) and (2.66b), the consonant clusters being s+kh and +?kh, respectively. Therefore, Michelson's rule of pre-stress e-epenthesis needs to mention the morpheme boundary (as it does) in order to work.

It seems odd that epenthesis would be conditioned both by a purely phonological fact (syllable structure) and by morphological information (morpheme boundary). Since, as shown above, it cannot be conditioned by syllable structure alone, perhaps it is not conditioned by syllable structure at all--i.e., perhaps only the morpheme boundary is relevant. In my analysis, given below, syllable structure is not used as a conditioning factor for e-epenthesis. Rather, formative boundary is the conditioning factor. Thus, in my analysis, the rule of epenthesis belcngs to the set of internal sandhi rules, not to the set of phonological (P) rules. This will be described in greater detail below.

Another difference between my analysis and Michelson's is that formative-internal weightless e's (see examples (2.69)-(2.72) below) will be considered to be underlying in my analysis. The stress and length rules will be changed to account for the fact that they skip weightless vowels. In this way, in contrast to Michelson's analysis, no extrinsic rule ordering is needed, and no abstract underlying representations are used for stems that never appear in that form on the surface. The various environments for e-epenthesis will now be given, starting with so-called formative-internal epenthesis.

Formative-internal "epenthesis". Many words in Mohawk contain a formative-internal e that is weightless--i.e., does not count for the stress and length rules. For example:

(2.69)	wákeras 'it smells'	w-akera-s ZA-be smelly-hab
(2.70)	owistóhsera? 'butter'	o-wisto-hser-a? ZP-be cold-nom-nsf
(2.71)	óweya? 'wing'	o-wey-a? ZP-wing-nsf
(2.72)	thóweru 'he poured it'	t-ho-aweru-ø cis-MP-spill-stat

In these examples, the e occurs before an r or y; there are no formative-internal Cr or wy clusters in Mohawk (Michelson, 1983), although some other consonant-resonant clusters do exist formative-internally--namely, kw, sn, and sw. Note that in examples (2.69)-(2.72), the stressed vowel is not lengthened by the length rule; i.e., it behaves as if it were in a closed syllable--in other words, as if the e in the following syllable were not there.

Michelson accounts for these weightless e's by epending them after the stress and length rules have applied (i.e., they are inserted by her "Post-stress E-epenthesis" rule). However, in keeping with the constraints of the framework being used here--i.e., natural generative phonology--I will propose that these e's are underlying, since the stems containing them never appear on the surface without the e's, and the surface forms cannot be derived from an underlying form without the e by an automatic P rule ("Post-stress E-epenthesis" refers to a morpheme boundary.) What changes in the surface forms is not the presence or absence of an e in the stem, but, rather, whether or not the e "counts" for stress, and that depends on its syllabic position. For example, the following examples, taken from Michelson (1983), illustrate how the same e can be either weightless or weighted, depending on its position:

(2.73a)	tekahsutérha?	te-k-ahsuter-ha?
	'I'm splicing it'	du-1A-splice-hab
(2.73b)	tvkahsúterv?	t-v-k-ahsuterv-?
	'I will splice it'	du-fut-1A-splice-punc

In (2.73a), the e of the stem is in a closed syllable and hence counts for penultimate stress assignment. In (2.73b), however, the same e is in an open syllable and is skipped over in assigning stress. The length rule also ignores the presence of this e, since the stressed vowel u in (2.73b) is treated as if it were in a closed syllable--i.e., it is not lengthened. For Michelson, the underlying stem of this verb is -ahsutr-, with the stem-internal e in (2.73a) being added by a pre-stress epenthesis rule that does not refer to a formative boundary, and the stem-internal e in (2.73b) being added by the post-stress epenthesis rule, which must refer to a formative boundary.

In my analysis, on the other hand, the e is underlying in -ahsuter-. (Note that in the punctual aspect, the stem is -ahsuterv-; see Section 3.2 for discussion of stem vowels.) However, to account for the stress patterns in (2.73a) and (2.73b), the stress and length rules must be revised so that they will skip weightless e's.

Revised Stress and Length Rules. Michelson (1983) actually proposes such a revision of these rules, but then rejects this analysis in favor of three extrinsically ordered epenthesis rules, as described above. The revised stress rule given (and rejected) by Michelson is:

(2.74) Revised Stress Rule

$V \rightarrow$ [+stress] / ___ C_o (e R) V C_o##

where R = w, y, n, r, and ## = word boundary

Her revised length rule is:

(2.75) Revised Length Rule

$\acute{V} \rightarrow \acute{V}:$ / ___ $

Condition: next syllable ≠ CeRV

These rules will be adopted here (although the stress rule will be revised further in Section 3.1 to account for weightless a's, known as "joiner vowels").

What is being proposed here is that the stress and length rules are sensitive to a specific aspect of syllable structure--the presence of a weightless syllable, defined as Ce before RV. This is typical behavior for stress rules; for example, the stress rule in Latin skips an open (weak) penultimate syllable:

(2.76) Latin Stress Rule

$$\$ \rightarrow [+\text{stress}] \; / \; \_\_\_ \left(\left[\begin{matrix} \$ \\ \text{weak} \end{matrix} \right] \right) \; \$ \; \# \;]$$

This version of the Latin stress rule is taken from Hooper (1976:58). The disjunctive ordering in this rule designates that the penultimate syllable will be stressed unless it is weak. If it is weak, the antepenultimate syllable will be stressed. Examples (taken from Hooper) are: fámilĭa 'family' and inútĭlis 'useless', in contrast with tribūnus 'tribune' and porténtum 'portent'. Weak syllables are defined as those containing a short vowel in an open syllable; heavy syllables contain either long vowels or are closed. The stress rule for Mohawk (rule (2.74)) also involves predictably skipping certain syllables. If the notion "weak syllable" is extended to include the possibility of weakness defined language-specifically, then the Mohawk rule could be described as similar to the Latin rule. That is, in Mohawk a syllable of the shape Cę is considered weak ('weightless') in terms of the stress rule if it is followed by a syllable of the form RV, where R = n, r, w, or y. Including this information in the stress rule predicts that speakers systematically treat these syllables differently from other syllables, i.e., that this is part of their internalized knowledge about their language.

Other Weightless e's. The advantage of this analysis is that once the stress and length rules have been revised to account for formative-internal e's, it is clear that they can account for all weightless e's, including the following, which are added by an internal sandhi rule:

(2.77)	vkerihte?	v-k-ri-ht-?
	'I'll cook'	fut-1A-be ripe-caus-punc
(2.78)	tékeriks [18]	te-k-riks-s
	'I put them side by side'	du-1A-put side by side-hab
(2.79)	tákenut	tak-nut-Ø
	'feed me!'	2/1-feed-imp

In (2.77), the final e is added by the rule that epends e in the environment C_?## (rule (2.16) above). This situation also arises when the punctual aspect follows a consonant-final noun stem, as in áhsire? 'blanket' (ahsir-?, blanket-nsf). This e also does not count for stress. It is like weightless e's in this respect; however, unlike other weightless e's, it is in a closed syllable. Therefore, e in C_?## will be added by a phonological rule; that is, there is a phonotactic constraint that prohibits C? clusters on the surface in Mohawk. Since it is a phonological rule, it applies after MP rules and rules of syllabification, stress, and length. Therefore, this e does not count for stress because it is not present when the stress rule applies.

The first e in vkerihte, however, is present before the stress rule applies since it is added by an internal sandhi rule governing the shape of formatives when they combine. It will be counted or not counted, depending on whether it is in an open or closed syllable. The internal sandhi rule is described in the next section.

Internal Sandhi Rule of Epenthesis. The rule adding e in (2.77)-(2.79) above, as well as in (2.62), where the e is in a closed syllable, is called an internal sandhi rule here because it refers to a formative boundary. As described on p 83, an e is epended before certain consonant clusters when these occur at a formative boundary. The formatives that are affected include the pronominal prefixes wak, first person singular patient; k, first person singular agent; hs, second person singular agent; hrak, he/me; tak, you/me; yuk, she/me; and yutat, she/her; the semireflexive at; the reflexive atat; and the cislocative t and the repetitive s. Each of these has a final e when followed by certain consonant clusters (to be given in rule 2.91 below), or when followed by the resonant n, r, or w (but not y). For example,

(2.80)	kewístos 'I'm cold'	k-wisto-s 1A-be cold-hab
(2.81)	satervnó:tv 'sing!'	hs-at-rvn-otv-Ø 2A-srf-song-be there-imp
(2.82)	wakenóhare? 'I washed it'	wak-n-ohare-? 1P-nf-wash-stat

(2.83)	kérhos	k-rho-s
	'I'm coating it'	1A-coat-hab
(2.84)	vhséthe?te?	v-hs-the?t-?
	'I will grind it'	fut-2A-grind-punc
(2.85)	vhákenute?	v-hak-nut-?
	'he will feed me'	fut-3/1-feed-Punc
(2.86)	ratétsv?ts	hra-at-tsv?t-s
	'he's a doctor'	MA-srf-cure-hab
(2.87)	rutate?kv́:?a	ru-atat-?kv-?a
	'they are brothers'	MPp-ref-be a sibling-dim
(2.88)	vtekhé:yu?	v-t-khey-u-?
	'I will give it it to her'	fut-cis-1/F-give-punc
(2.89)	ke?níkhus	k-?nikhu-s
	'I'm sewing'	1A-sew-hab
(2.90)	wakekhú:ni	wak-khw-uni-ø
	'I'm cooking'	1P-food-make-stat

As explained above, we know that the formative boundary conditions the rule because when these clusters occur without a formative boundary, epenthesis does not occur (see examples (2.66a,b)). The internal sandhi rule can be written:

(2.91)

$$\emptyset \longrightarrow e \;/\; C\_\_ + \begin{Bmatrix} ts \\ ?C \\ R \\ t \\ k \\ t \end{Bmatrix} \begin{Bmatrix} \\ \\ \\ \\ \{h\} \\ \\ \end{Bmatrix}$$

where + = formative boundary
and R = n, w, r

Clusters other than those given in rule (2.91) do not

condition epenthesis at this formative boundary. For example, the following clusters are permissible:

(2.92)	vkkwatá:ko 'I will fix it'	v-k-kwatakw-? fut-1A-fix-punc
(2.93)	wa?khró:ri 'I told her'	wa-a?-k-hrori-? fact-H-1A-tell-punc
(2.94)	kstathà:tha? 'I'm drying it'	k-st-ath-a-?t-ha? 1A-nf-be dry-J-caus-hab
(2.95)	shní:nu 'buy it!'	hs-hninu-ø 2A-buy-imp
(2.96)	wakhní:nu 'I bought it'	wak-hninu-? 1P-buy-stat
(2.97)	tehotskà:hu 'he ate'	te-ho-at-ska?hu-ø du-MP-srf-eat-stat

In examples (2.92)-(2.97), the formatives k, hs, wak, and at appear before consonant clusters, but no epenthesis takes place because these clusters are not part of rule (2.91).

Summary of e-Epenthesis. In summary, there are weightless e's in Mohawk that do not count for the stress and length rules. Some of these are formative-internal and therefore are considered to be underlying in this analysis. These include weightless e's found in stems, as in wákeras 'it smells' (stem: -akera-) and weightless e's found formative-internally in some prefixes, as in:

(2.98)	ítenehre? 'you and I want'	teni-ehr-? 1exdA-want-stat
(2.99)	ísewehre? 'you(pl) want'	sewa-ehr-? 2pA-want-stat

Note that the "weak" vowels i and a in these examples are deleted by the internal sandhi rule of vowel syncope (rule (2.42) given above). They are therefore not available for the penultimate stress rule, which, being a P rule, applies to the whole form after internal sandhi rules have applied. The formatives teni and sewa never appear on the surface without the e. The e is weightless because it is in an open syllable followed by RV (see stress rule (2.74) above).

The stress and length rules were revised so that they skip these formative-internal weightless e's. Once that step was taken (see rules (2.74) and (2.75)), then other weightless e's--those arising as part of the internal sandhi rule inserting e's at certain formative boundaries--would also be skipped, as in (2.79), repeated here:

(2.100)=(2.79)	tákenut 'feed me'	tak-nut-ø 2/1-feed-stat

These formative-boundary weightless e's all occur in the environment C_RV, where R = n, w, r (but not y). Note that since sn, kw, and sw occur formative-internally but

not across a formative boundary, the rule epending e in C_R must be sensitive to the formative boundary (+), as rule (2.91) is.

The internal sandhi rule (2.91) also inserts an e before certain consonant clusters at a formative boundary. These e's will always be in closed syllables and will count for stress, as we have seen (see examples (2.83), (2.84), and (2.86).

The revised stress and length rules, along with the internal sandhi rule, account for all instances of e-epenthesis, except one: the e that occurs in the environment C_?###, as in example (2.77), vkerihte?. This e is added by a phonological rule (rule (2.16) above). Thus, example (2.77), vkerihte? 'I will cook', is derived as follows:

(2.101)	Underlying:	v+k+ri+ht+?
	Internal sandhi rule (2.91):	vkeriht?
	P rules (stress, length, epenthesis rule (2.16):	vkerihte?

Exceptions. There are some cases where a formative-internal e before a resonant in an open syllable does count for stress. Michelson (1983) gives the following examples:

(2.102)	ohté:ra? 'root'	o-hter-a? ZP-root-nsf
(2.103)	kahuwé:ya? 'boat'	ka-huwey-a? ZP-boat-nsf

There are very few words that show this exceptional behavior, and like all exceptions, they must be listed in the lexicon. That is, these words are learned by speakers as exceptions to the stress and length rules [19].

Evolution of e-Epenthesis in Mohawk. According to Michelson (1981), an examination of 17th and 18th century scholarly work on Mohawk shows that e was epended at a formative boundary before certain consonant clusters in the earliest accounts. However, e before a resonant followed by a vowel at a formative boundary did not occur until the 18th century. Michelson cites Ives Goddard as suggesting that this latter epenthesis was possibly a generalization of a rule affecting utterance-final forms, where e was epended in the environment C_RV##, if the word was utterance final. (Lounsbury (1953) described a distinction between utterance-medial and utterance-final forms in this respect in modern Oneida, which is closely related to Mohawk.)

The formative-internal weightless e's before a resonant followed by a vowel, as in wákeras 'it smells' and óweya? 'wing', were probably also added as a generalization of utterance-final forms, according to

Michelson (1981). Some of these formative-internal e's appear in the 17th century account and others do not; perhaps this is evidence of a process that was still evolving at that time. In modern Mohawk, these e's are still weightless and they occur formative-internally in all C_R clusters except sn, sw, and kw. I have analyzed them as underlying since alternates without these e's never occur on the surface.

E-epenthesis, then, in the terms of the analysis given in this thesis, existed as an internal sandhi rule before consonant clusters at a formative boundary in the earliest accounts of Mohawk. Utterance-finally, there was apparently also epenthesis in C_RV##. When this was generalized to non-utterance-final C_R clusters, some of the affected clusters occurred at formative boundary (e.g., kewístos 'I'm cold', from k+wisto+s). This then became part of an expanded internal sandhi rule. Formative-internal CR clusters were also affected by the rule generalization, but this occurred variably, as the 17th century account of Bruyas, described in Michelson (1981), shows. Therefore, the rule did not become an automatic P rule; the formative-internal clusters kw, sn, and sw have not undergone epenthesis, at least in stems. However, in pronominal prefixes, an e was epended in sn and sw clusters: seni '2nd person dual agent/patient', and sewa '2nd person plural agent/patient'. These prefixes can be analyzed as containing two formatives:

s + ni = 2nd pers. + dual, and s + wa = 2nd pers. + plural. The e in seni and sewa is considered to be underlying in my analysis, since these prefixes never occur without the e on the surface.

After the generalization of the epenthesis rule to the environment C_R (again, R = n, w, r), the stress and length rules became more complicated to account for the skipping of the resulting weightless e's--that is, e's in open syllables before a resonant.

2.3 Morphophonemic (MP) Rules

As discussed in Chapter 1, in the framework being used here--natural generative phonology--the underlying representation of a formative has redundant features removed. The underlying representation must be either: (1) one of the surface alternants of the formative, or (2) an archisegmental representation from which at least one surface alternant can be derived by P rules alone.

A complete description of the morphophonemic and phonological rules in Mohawk is given in Michelson (1983), although she does not divide the rules into these two categories. Three morphophonemic rules will be discussed here. These rules are chosen for discussion because they represent problematic areas of the morphology, where the NGP approach described in Chapter 1 facilitates a

solution.

2.3.1 The Joiner Vowel

In addition to epenthetic e's, which were discussed in Section 2.2.2, Mohawk has an epenthetic a, which has been called a "stem joiner" (see Michelson, 1983) because one of its occurrences is between an incorporated noun stem that ends in a consonant and a verb stem that begins in a consonant. It also separates two consonants at the boundary between a noun stem and a noun suffix and between a verb stem and a verb suffix. Rule (2.104) accounts for this morphologically conditioned epenthesis:

(2.104)

$$\emptyset \rightarrow a \;/\; \left\{ \begin{array}{ll} [C & [C \\ \text{noun} & \text{verb} \\ \text{stem} & \text{stem} \end{array} \right. \quad \left. \begin{array}{ll} [C & [C \\ \text{verb} & \text{verb} \\ \text{stem} & \text{suffix} \end{array} \right. \quad \left. \begin{array}{ll} [C & [C \\ \text{noun} & \text{noun} \\ \text{stem} & \text{suffix} \end{array} \right\}$$

Michelson points out that some joiner a's (those in closed syllables) "count" for penultimate stress, whereas others (those in open syllables) do not. Examples of the type that do not count (i.e., those in open syllables) are [20]:

(2.105)	tekaná:take 'two towns'	te-ka-nat-a-ke du-ZA-town-J-pl
(2.106)	kahéhtaku 'in the garden'	ka-heht-a-ku ZA-garden-J-in

In both (2.105) and (2.106), stress is antepenultimate; that is, the joiner vowel has been skipped.

Examples of joiner a's in closed syllables are:

(2.107)	kyvtákwas [21] 'I collect wood'	k-yvt-a-kw-as 1A-wood-J-pick up-hab
(2.108)	kenvstaks [21] 'I eat corn'	k-nvst-a-k-s 1A-corn-J-eat-hab
(2.109)	yutena?tarutáhkhwa? 'oven'(= 'one uses it to bake bread') yu-ate-na?tar-ut-a-hkw-ha? FA-srf-bread-bake-J-inst-hab	

In these examples, the joiner vowel is either stressed because it is penultimate (ex. (2.107) and (2.109)) or counted by the stress rule in determining penultimate stress (ex. (2.108)). Compare (2.107)-(2.109) with (2.110) below:

(2.110)	yehyatúhkhwa? 'pencil'	ye-hyatu-hkw-ha? FA-write-inst-hab

In (2.110), the verb root -hyatu- ends in a vowel, so the joiner a is not needed before the instrumental -hkw-, whereas in (2.109), the joiner a is needed before -hkw-.

Michelson (1983) handles this difference between joiner a's that count and those that do not count for stress by dividing joiner insertion into two rules: the rule for joiner insertion in closed syllables is ordered before the stress rule, whereas the rule for joiner insertion in open syllables is ordered after the stress rule.

Given the model adopted in this thesis, extrinsic rule ordering is not acceptable, and an alternate solution must be found. One possibility is to complicate the stress rule so that it is sensitive to (and thus skips over) the joiner vowel. All joiner a's (i.e., both those in open and those in closed syllables) would be added at the point of formative combination before any phonological rules have applied. The stress rule, already revised to skip epenthetic e's in open syllables (see rule (2.74)), now must be revised to also skip epenthetic a's that are in open syllables. This is difficult because a's in open syllables that are not joiner vowels are not skipped. For example,

(2.111)	oká:ra?	o-kar-a?
	'story'	ZP-story-nsf

The stress rule must be able to stress and lengthen the a in (2.111), but skip the a's in examples (2.105) and (2.106). One way to do this (and still have all joiner a's be added at the time of formative combination), is to

specifically mention joiner a's in the stress rule by a special symbol, e.g., "A". The length rule does not have to be changed, because, as can be seen in example (2.105), joiner a's in open syllables do not block the length rule from applying in the preceding syllable (in contrast with weightless e's).

The revised (final) stress rule is:

(2.112) Final Revised Stress Rule

$$V \dashrightarrow [+\text{stress}] \;/\; \_\_\_\; C_0 \left(\begin{Bmatrix} AC \\ eR \end{Bmatrix} \right) \; V \; C_0 \; \#\#$$

where A = joiner vowel, and R = w, y, n, r

The form of this rule implies that speakers are aware of joiner vowels and treat them differently from ordinary a's. Since joiner vowels occur after a noun stem or verb stem boundary, this does not seem like an unreasonable assumption.

The revised stress rule, as given in (2.112), states that speakers skip certain types of syllables in determining the stress for a word. These syllables might be compared to weak syllables in languages like Latin, as discussed above. Since the rule adding joiner a's is an MP rule (rule (2.104) above), it applies before the stress rule, which is a P rule. In NGP, P rules are purely phonological rules and do not have access to morphological information. It might be argued that the fact that

certain a's in open syllables are "joiner vowels" is morphological information and therefore does not belong in the stress rule. However, as has been apparent throughout this chapter, syllabification and stress rules must apply before the other P rules (e.g., prothesis applies before other P rules, like initial h deletion. Therefore, I suggest that a slight modification of NGP is needed. There seems to be a continuum rather than a sharp division between MP and P rules: MP rules are morphologically conditioned distribution rules; internal sandhi rules are midway between MP rules and P rules--they are primarily phonologically conditioned, but they only apply at certain morphologically defined boundaries, like formative or stem. Similarly, I propose that stress rules, while usually referring only to phonological information, may, in some cases, reflect speaker awareness of a grammatical boundary; that is, they are not true P rules in all languages. The alternative to this view--the extrinsic ordering of two different types of joiner vowel epenthesis, one before and one after the stress rule--implies an internalized grammar that is far more difficult to justify in terms of psychological reality and far less constrained in principle. Therefore, I think that the NGP model, with this modification, is preferable.

2.3.2 Masculine Pronominal Prefixes

Another problematic area of the morphophonemics of Mohawk is the alternation of certain formatives. For example, it is not possible to choose one of the surface alternants of the singular masculine pronominal prefixes in Mohawk to serve as the base form from which the other surface forms can be derived.

Masculine Agent Prefixes. The surface forms of the singular masculine agent pronominal prefix are ha, ra, and hr. The logical choice for an underlying form, hra, does not ever appear on the surface in that form. However, one of the surface forms--ra--can be derived from an underlying hra solely by the application of a P rule (rule (2.12), which deletes word-initial h). Therefore, by the framework of NGP used here, hra can serve as the underlying form for the masculine singular agent prefix. The rule of distribution affecting this prefix is then:

(2.113)

$$\text{hra} \dashrightarrow \begin{cases} \text{ha} \;/\; \begin{Bmatrix} C \\ V \end{Bmatrix} \_\_ \begin{Bmatrix} C \\ i \\ a \end{Bmatrix} \\ \text{hra} \;/\; \text{elsewhere} \end{cases}$$

This rule states that the r of the prefix is not present when (1) there is a segment preceding the hra, and (2) a stem beginning with C, i, or a follows hra. Elsewhere, the formative will be hra; however, if it is word-initial,

the h will delete, giving ra. When the prefix precedes a stem beginning with e, v, o, or u, the a of the prefix will delete by the vowel syncope rule (rule (2.42)), since these vowels are stronger than a. When hra precedes a stem beginning with i, the internal sandhi rule (2.41) applies: a + i --> v. Some examples of this prefix are:

(2.114)	wahahní:nu? 'he bought it'	wa-a?-hra-hninu-? fact-H-MA-buy-punc
(2.115)	wahathethú:ni? 'he made a garden'	wa-a?-hra-at-heht-uni-? fact-H-MA-srf-garden-make-punc
(2.116)	rahní:nus 'he's buying it'	hra-hninu-s MA-buy-hab
(2.117)	wahró?kwate? 'he dug'	wa-a?-hra-o?kwat-? [13] fact-H-MA-dig-punc
(2.118)	vhrvtó:rv? 'he will get lazy'	v-hra-vtorv-? fut-MA-be lazy-punc
(2.119)	rv̀:tvhre? [22] 'he pities'	hra-i?tvhr-? MA-pity-hab
(2.120)	wahv̀:tvhre? [22] 'he pitied'	wa-a?-hra-i?tvhr-? fact-H-MA-pity-punc

The distribution of this prefix shows that purely morphologically conditioned alternations (like rule (2.113)) must precede internal sandhi rules like vowel syncope. Rule ordering is not needed, because vowel syncope can only apply when its structural description is met. In the case of the masculine singular agent, when hra is prefixed to a stem beginning with o, u, e, or v, vowel syncope applies, leaving hr; if the prefix is also

word-initial, the P rule of initial h deletion will also apply, leaving r.

Masculine Patient Prefixes. The singular masculine patient prefix hra + o/w shows a slightly different alternation. In contrast to the masculine agent prefix, the masculine patient prefix does not retain the r when it precedes an e-, v-, o-, or u-initial stem. Instead, the r is present only when the prefix is word-initial, no matter what vowel the stem begins with. Therefore, the masculine patient prefix alternation cannot be described by merely adding an objective formative o/w to the agent prefix hra. Rather, a distribution (MP) rule for the entire masculine patient prefix must be written.

In Section 2.2.1, the rule alternation of the objective formative o/w was given (rule (2.55)). This is now combined with an alternation for the masculine formative (hra/na/ra), which depends on whether the pronominal prefix is word-initial or not. The complete rule is:

(2.121)

$$\text{hra + o/w} \dashrightarrow \text{h<r>a + } \left\{ \begin{array}{l} \text{o / } \_\_ \left\{ \begin{array}{l} \text{C} \\ \text{i} \\ \text{a} \end{array} \right\} \\ \text{w / elsewhere} \end{array} \right\} \text{ / } \left\{ \begin{array}{l} \text{C} \\ \text{V} \\ \text{<\#\#>} \end{array} \right\} \_\_$$

That is, the r is present when the formative is word-initial; otherwise, the r does not occur. When the prefix is word-initial, the h is deleted by the P rule

(2.12). Thus, this formative is always either ho, ro, haw, raw, ra, or ha on the surface. It is ho or ro before consonant-initial and i- or a-initial stems; it is haw or raw before e- and v-initial stems; and it is ha or ra before o- or u-initial stems (because the w deletes before o or u by the P rule given in (2.6) above).

Advantages of NGP Approach. The advantages of the NGP approach to the morphophonemic alternation of this formative become clear when examples that might otherwise require rule ordering are examined. For example:

(2.122)	ì:rate?	hra-t-?
	'he is standing'	MA-be standing-stat

The falling tone on the stressed prothetic vowel i shows that the h has deleted by rule (2.13). Therefore, the automatic rule of h-initial deletion (rule (2.12)) has not applied to this form. Prothesis (the epending of an initial stress-bearing i in verbs with only one underlying vowel--see rule (2.4)) must therefore apply before the P rule deleting initial h (rule (2.12)). If it applied after initial h deletion, there would be no h left to undergo rule (2.13) and hence there would be no falling tone on the i. Since prothesis is a syllabification rule (it enables the form to be syllabified), it does apply before other P rules in the modification of NGP being used here (see discussion in Section 2.3.1 above). Therefore, it is intrinsically ordered before initial h deletion.

On the other hand, the MP rule designating that the formative hra has the shape ha when preceded by a segment (rule (2.113)) must apply before prothesis has added a segment (i) before the masculine agent formative. If the MP rule applied after prothesis had added an i, then the alternant ha would be chosen; however, as can be seen from the surface form of (2.122), the alternant hra was chosen. This is also predicted by the NGP model, in which MP rules apply at the time of formative combination, since they are distribution rules. Syllabification and stress rules only apply to fully concatenated words. Therefore, prothesis (a syllabification rule) applies after the MP rule has chosen the alternant. In an approach using extrinsic rule ordering, such as Michelson (1983), the three rules of prothesis, initial h deletion, and choice of masculine prefix alternant must be extrinsically ordered to obtain the correct results.

In an NGP analysis, the rules do not have to be extrinsically ordered. When the underlying formatives of example (2.122) are combined, the alternant hra is chosen by the MP rule (2.113) because there is no segment preceding the formative. Syllabification and stress rules apply to fully formed words, and since there is only one vowel in the sequence hra + t + ?, penultimate stress cannot apply. The structural description for the rule of prothesis (rule (2.4)) is met, and hence prothesis applies, giving i + hra + t + ?. The penultimate vowel

(i) is now stressed by the stress rule; the rule of "length with falling tone" (rule (2.3)) also applies because the stressed vowel precedes an hR sequence. Automatic P rules now apply to the stressed form. Initial h deletion is one of these rules; however, the h of hra is no longer initial, so it does not delete by this rule and is available for a different P rule of h deletion: rule (2.13), which deletes an h before a resonant when the h is preceded by a stressed lengthened vowel with falling tone. Another P rule (rule (2.16)) epends e in the environment C_? ### to give the final form i:rate?.

What is being suggested here is that words are constructed in layers--first the formatives are concatenated and the alternants are chosen by MP rules; next, stress and length rules based on syllabification of the form apply; finally, the automatic P rules apply to the form. This construction process, based on a traditional separation of MP and P rules, provides an intrinsic ordering and eliminates unnecessary (and unconstrained) extrinsic rule ordering.

2.3.3 Modal Fusion

The third morphophonemic problem examined here will be the fusion of certain modal prefixes with other formatives. Certain combinations of formatives in the prepronominal

and pronominal prefix systems in Mohawk result in complete overlapping or a "portmanteau," to use Hockett's (1947) term. Lounsbury (1953) used an example of this fusion (which is the same in Oneida and Mohawk) in his discussion of the merits of different approaches to morphemic analysis. He gives the following rule:

(2.123) (w) a (?) + w a --> u

where the segments are part ofthe pre-pronominal and pronominal prefixes. The example he uses from Oneida--útkátho? 'she saw it'-- can be segmented if one assumes, by the method of internal reconstruction, that the formatives for the factual and the feminine-zoic (w-a? and wa, respectively [23]), are present and, when combined with the a-initial verb stem -atkatho-, undergo rule (2.123) above. Thus, w-a? + wa + atkatho + ? --> utkátho?. Presumably, the a of the verb stem deletes by vowel syncope in Lounsbury's analysis.

Alternatively, Lounsbury states, one could segment the surface form u as representing either the factual or the feminine-zoic, with the other formative represented by zero; or one could identify the u as an allomorph of both the factual and the feminine-zoic, which when combined, become the portmanteau [u]. Lounsbury chooses the latter solution, concluding, "it is the occurrence of the morph u- with which both meanings are associated."

One objection to the portmanteau solution is that it might be argued that the feminine-zoic is actually w- not wa-, and that the second a conditioning the presence of u is the initial a of the verb stem atkatho. There is no reason to assume that the feminine-zoic is wa, since it never appears as wa. In watkáthos 'she sees it' (Oneida), the a can, again, be analyzed as part of the verb stem, which contains the semireflexive -at- plus the verb root -katho-. Before other verb stems, the feminine-zoic agent is either ka (before consonant-initial and i-initial stems), or w (before e- and v-initial stems), or y- (before o- and u-initial stems). The y alloform can be explained in part by the phonotactic constraint prohibiting *wo and *wu sequences in both Oneida and Mohawk. Since wa only occurs before a-initial stems, necessitating the deletion of one of the a's, there is no evidence that the a of wa- was ever there. Therefore, the portmanteau solution should include the initial a of the verb stem. That is, the portmanteau [u] would contain not only the meanings "feminine-zoic" and "factual" but somehow part of the verb stem. The verb stem -atkatho- would have to have an allomorph -utkatho- with partial overlapping of the u with the completely overlapped feminine-zoic allomorph u and the factual allomorph u. I think this example shows clearly that the method of morpheme alternants based solely on surface segmentation does not account economically for examples of fusion.

Michelson (1983) analyzes the same verb in Mohawk (where the root is -kahtho-), using w- as the underlying feminine-zoic: w + atkahtho + s for 'she sees it'. I would agree with this segmentation. For 'she saw it', I would use the segmentation:

(2.124) wa-a?-w-atkahtho-?
fact-H-ZA-srf-look at-punc

resulting in the surface form utkáhtho?. Michelson gives the rule as (w) a (?) + w a --> u, which is identical to Lounsbury's internally reconstructed rule, although this does not match her segmentations (there should be another "+" boundary after the second w in the rule). Her rule must be extrinsically ordered with other rules in her analysis. She lists the other formatives in the pre-pronominal and pronominal prefix systems that trigger the presence of u. The complete list is:

(1) factual + feminine-zoic + a-stem

(2) factual + first person patient

(3) optative + first person patient

(4) optative + feminine-zoic + a-stem

An example of each follows:

(2.125)	utkáhtho? 'she looked at it'	wa-a?-w-at-kahtho-? fact-H-ZA-srf-look at-punc
(2.126)	ukenuhwáktv? 'I got sick'	wa-a?-wake-nuhwakt-v-? fact-H-1P-be sick-dat-punc
(2.127)	autúkha? 'I would have brought it'	a-ut-a-wak-ha--ø opt-cis-opt-1P-bring-stat
(2.128)	autawvhu 'to have gone swimming'	aa-w-at-awv-ha-u opt-ZA-srf-swim-purp-stat

Note that the optative is discontinuous in example (2.127); this will be discussed further in Chapter 3, where the use of "H" for "hinge" will also be explained.

To account for the combinations in examples (2.125)-(2.128), I will use Lounsbury's rule (w) a (?) + w a --> u, except that the "+" will be removed. The rule is an MP rule--that is, it is a morphologically conditioned distribution rule and applies when formatives combine. In other places in the morphology, the combination (w)a(?)wa does not result in u. For example,

(2.129)	vká:wake? 'I will shake it'	v-k-awak-? fut-1A-shake-punc

In addition to the four environments listed by Michelson, I have also found that this fusion occurs without the factual or optative. For example:

(2.130) ísi núhskwati
'on the other side of the bridge'

ísi n-a?-w-ahskw-a-ti-ø
there part-H-ZA-bridge-J-be on one side-stat

(2.131) ísi nute?v̀:rati
'on the other side of the fence'

isi n-a?-w-ate?vhr-a-ti-ø
there part-H-ZA-fence-J-be on one side-stat

Compare:

(2.132) ísi na?kanúhsati
'on the other side of the house'

isi n-a?-ka-nuhs-a-ti-ø
there part-H-ZA-house-J-be on one side-stat

The "H" in these segmentations stands for "hinge"; it is explained in Section 3.1.1 in Chapter 3.

The MP rule, then, must refer to the morphological environment, but in a general way. I suggest:

(2.133) (w) a (?) w a --> u, where at least two of the segments precede the verb base

The interaction of this fusion rule with vowel syncope (see rule (2.42)) shows again the value of dividing rules into types. The internal sandhi rules, of which vowel syncope is one, apply after the MP rules, since the MP rules are actually formative distribution rules (that is, they do the work of "morpheme alternants" in analyses that use that approach). The internal sandhi

rules, on the other hand, as defined here, are quasi-phonological rules. They occur automatically, but they refer to a morphological boundary. They do not refer to particular formatives as MP rules do; however, since they refer to a boundary, they are not true P rules, either.

An example of the interaction of the vowel syncope rule with the MP rule of fusion (rule (2.130)) was given in Section 2.2.1 and is repeated here:

(2.134)	auki:ta?we?	aa-wak-ita?w-?
	'I should sleep'	opt-1P-sleep-punc

Rule (2.130) fuses the two prefixes aa + wak into auk-, which can no longer be segmented into "optative" and "first person patient" because the u derives from both the second a of the optative and the wa of the first person patient. Since it is fused, there is no boundary within it. The vowel syncope rule (rule (2.42)) is an internal sandhi rule referring to a formative boundary. The vowel u is "stronger" than a and would cause the a to delete, if a formative boundary separated the two vowels. Since there is no boundary, however, the vowel syncope rule cannot apply and the surface form contains a two-vowel sequence, au.

A similar situation of fusion occurs when the cislocative or repetitive co-occurs with the optative, as in example (2.127) above. The optative is discontinuous in such cases (a...a) and the cislocative and repetitive, which are t and s, respectively, have the alloforms ut and us. The resulting forms are auta- and ausa-, and might be segmented as a...a + ut and a...a + us, respectively. However, the infixation of the cislocative and repetitive into the optative produces a fused unit on the surface--that is, a formative boundary is not discernible--and therefore vowel syncope, which refers to a formative boundary, cannot apply to these forms. The interaction of the cislocative and the repetitive with the optative is discussed more fully in Section 3.1.1 in Chapter 3.

The advantage of this analysis using NGP is that by recognizing that the fusion rule is an MP rule of distribution and that vowel syncope is an internal sandhi rule, the surface appearance of the two-vowel sequence au, in apparent contradiciton to the vowel syncope rule, can be explained. MP rules determine the choice of a formative alternant, based on morphological conditioning, whereas internal sandhi rules apply to the concatenated form to make phonological adjustments at certain boundaries. If the boundary is no longer there because of fusion of the formatives, the internal sandhi rule cannot apply.

Notes to Chapter 2

1. There are a few exceptions to the stress rule. The exceptional roots must be listed in the lexicon with their exceptional stress pattern (see Section 2.2.2 and note 19 below). Also, although vowels are regularly lengthened in open syllables, a vowel is usually not lengthened before an h followed by a vowel. Whether this seeming anomalie can be solved by further investigation of syllable structure in Mohawk (e.g., the h may be a coda on the preceding syllable, as Michelson (1983) has suggested) remains for further research.

2. Epenthesis is discussed in Section 2.2.2.

3. For example, raúha [raũmha] 'he (emphatic)', and kanúhsa? [ganũmhsa?] 'house'. This is more likely to occur in rapid speech and is variable across speakers.

4. Note that $ and ## are phonological boundaries (see Chapter 1) and therefore are permissible in P rules.

5. The first person singular agent is given here in the form chosen by an MP rule (an internal sandhi rule, discussed in Section 2.2.2), which applies before P rules.

6. Example from Michelson (1983:57).

7. Rules (2.13) and (2.14) are not exceptionless. There are a few stems that do not undergo these rules and that therefore must be listed as exceptional in the lexicon.

8. Mithun (1977) also contains two examples in the Ahkwesahsne dialect of Mohawk of w's that do not vocalize between h and either a consonant or a pause. These are será:kehw 'erase it!' and tsyá:kvhw 'take it out!' These will not be considered here, although in a comprehensive study of Mohawk phonology the similarities and differences between ?w, hw, and certain kw sequences would warrant further investigation.

9. I have not given a rule of final consonant cluster simplification in the list of phonological rules of this chapter. Although other final clusters also undergo simplification (e.g., -ht## → -t), I have not formalized rules for this process.

10. King's (1969) account of the kw problem in his textbook is actually a misstatement of Postal's analysis. For an accurate account of Postal's analysis, it is best to consult Postal (1968).

11. There are two interesting facts about the words that contain length before kw: (1) they are all nouns, and (2) the lengthened vowel is almost always o or u. Occasionally, it is v, as in kayv́:kwire? 'arrow'. These three vowels (o, u, and v) may be designated "strong" vowels, in contrast to the other three vowels (i, a, and e) in Mohawk. See section on vowel syncope (2.2.1).

12. In example (2.25b), the sequence hk + ha? becomes hkhwa? by a rule of metathesis.

13. The ? does not delete in this stem; since this contradicts rule (2.14), this stem must be idiosyncratically marked in the lexicon.

14. See Section 2.3.1 below for a discussion of a-epenthesis ("joiner" epenthesis); i-epenthesis (prothesis) is described by rule (2.4) in this chapter; e-epenthesis is discussed in Section 2.2.2.

15. Michelson (1983) states that this term was first used by Lounsbury in his 1942 University of Wisconsin master's thesis entitled Phonology of the Oneida Language.

16. This example is from Mithun (1977:38). The orthography has been regularized to that used in this thesis.

17. This example is from G. Michelson (1973:129).

18. This example is from Michelson (1983:85).

19. The stress and length rules were presented as P rules in Section 2.1.1. Therefore, under a strict NGP analysis, there should be no exceptions to these rules. However, I would like to suggest that the existence of a few exceptions to an otherwise automatic phonological rule should not disqualify the rule from the set of P rules, on the assumption that speakers are capable of maintaining an exceptional form or forms in their internalized lexicons--e.g., foreign words that might violate the otherwise automatic P rules of one's language.

20. There are also formative-internal a's in open syllables that are skipped by the stress rule--for example, onú:tara? 'soup'. These were probably historically joiner a's. See Section 3.3.1 for discussion.

21. Examples (2.107) and (2.108) are from Michelson (1983:107).

22. Examples (2.119) and (2.120) are from Michelson (1983:34). The segmentation of (2.120), using "H" for

"hinge" is, of course, not Michelson's segmentation. The use of "H" will be explained in Section 3.1.1 of Chapter 3.

23.The hyphen in w-a? was not used by Lounsbury. However, in his segmentations of the pre-pronominal prefixes, w is the factual (he uses the term "aorist") and a? is an "empty morph." See my discussion in Section 3.1.1 of Chapter 3.

CHAPTER 3

MOHAWK VERBAL AND NOMINAL STRUCTURE

In this chapter, the basic structure of Mohawk verbs and nouns will be given. Once again, much work has been published on this subject, and therefore the treatment here will focus on problematic areas that can be illuminated by the framework presented in Chapter 1.

Section 3.1 discusses verbal structure and presents an analysis of the pre-pronominal prefix system based on a distinction between derivational and inflectional prefixes. It will be argued that there are two basic pre-pronominal "derivational frames" for Mohawk verbs and that the choice of frame determines the positioning of the inflectional prefixes. This analysis accounts for certain anomalies of the position classes of the inflectional prefixes and serves to clarify the structure of the verb and its process of construction. Section 3.1 also contains a description of the way in which the pronominal prefixes are related to verbal suffixes to establish case roles of verbal arguments.

Section 3.2 contains an analysis of conjugation classes for Mohawk verbs based on phonological criteria. It will be shown that verb bases (the term "base" is explained in Section 3.2) exhibit a consistent patterning

in relation to the aspect suffixes: either (1) one verb base is used in all aspects, or (2) a verb base has one shape when it precedes the habitual or stative aspect and a different shape when it precedes the punctual or imperative.

Finally, Section 3.3 describes Mohawk nominal structure, focusing on the process of nominalization and the continuum (rather than discrete separation) of noun and verb structure.

3.1 Verbal Structure

Lounsbury's (1953) comprehensive monograph on Oneida verb structure has provided a model for all subsequent work on Iroquoian languages. Mohawk and Oneida are closely related languages; in fact, one study (Hickerson et al., 1952) has shown them to be over 80% mutually intelligible. Therefore, much of the structure that Lounsbury elucidated for Oneida also applies to Mohawk. For example, Lounsbury divided Oneida verbs into four major position classes: the pre-pronominal prefixes, the pronominal prefixes, the verb base, and the inflectional suffixes, occurring in the following order:

(3.1)

1	2	3	4
Pre-pronominal Prefixes	Pronominal Prefixes	Verb Base	Aspect Suffixes

Mohawk verbs also can be divided into these four position classes, and, as in Oneida, all verbs in Mohawk must contain at least one formative from positions 2, 3, and 4. The pre-pronominal prefixes are optional in the sense that every verb does not contain a formative from this position class.

Each of these four position classes, in turn, contains subpositions. The pre-pronominal prefix position contains the following subpositions:

(3.2) partitive
coincident
contrastive
negative
translocative
factual
dualic
future
optative
repetitive
cislocative

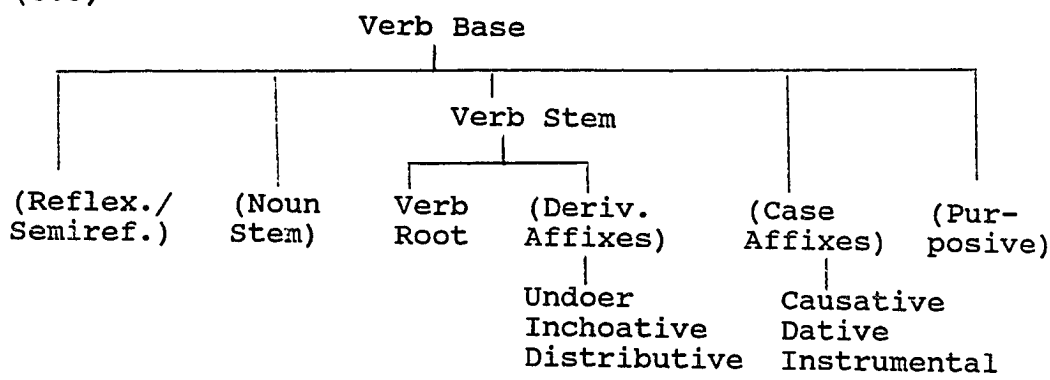
These subpositions exhibit complex patterning and co-occurrence restrictions that will be described below in Section 3.1.1, where it will be argued that the dualic, repetitive, translocative, and cislocative are derivational and form frames into which all the other pre-pronominal prefixes are inserted.

The second major position class--the pronominal prefixes--mark both agent and patient arguments of the verb; oblique arguments may also be referenced in the pronominal prefix, in conjunction with case suffixes on

the verb. This will be discussed in Section 3.1.2.

The third class--the verb base--consists minimally of a verb stem, which, in turn, can be further analyzed into a verb root and, optionally, derivational suffixes. The stem may be followed optionally by case suffixes and/or the "purposive" formative, indicating either intent to carry out an action or being in motion toward a goal. The verb stem may be preceded by an incorporated noun stem and/or a reflexive or semireflexive prefix. A diagram may help to clarify the complexity of the verb base; optional positions are in parentheses:

(3.3)



The verb base will be discussed in Section 3.1.3.

The final position class in the verb--the aspect suffixes--contains not only aspect suffixes, but also a past tense position and the imperative position, which is marked by 0 on the Mohawk verb; i.e., it is marked by the absence of an aspect suffix. The aspect suffixes are the

following:

(3.4) Punctual
Habitual
Stative
Modalizer (called "continuative" in other work)
Progressive [1]

Both the habitual and stative suffixes may be followed by an inflectional suffix marking past tense--either "remote past" (always follows the stative) or "former past" (follows either the habitual or the stative). Examples are given in Section 3.1.4 below.

Alternatively, the habitual and stative aspects may be followed by one of the other aspect suffixes: the habitual by the modalizer, and the stative by either the progressive or the modalizer. When either the progressive or modalizer occurs, it is followed, in turn, by a further aspect suffix: punctual for the modalizer; punctual, habitual, or stative for the progressive. For example, a verb base may be followed by combinations of suffixes like those in (3.5):

(3.5) ...verb base + stative + progressive + habitual
...verb base + habitual + modalizer + punctual
...verb base + stative + progressive + punctual

Lounsbury (1953) uses the terms "perfective stem" and "serial stem" to describe this phenomenon in Oneida (where his "perfective" = "stative" here and his "serial" = habitual). That is, the first aspect suffix is assumed to form a derived stem with the verb, which then is inflected by other aspect suffixes.

The aspect suffixes will not be discussed in detail in this thesis; however, in Section 3.2, a system of conjugation classes, based on the distribution of the stative, habitual, punctual, and imperative is given.

As can be seen from the above overview of verbal structure, Mohawk verbs can contain many affixes: five or six affixes on one verb root is not unusual. I will argue below that a division of the affixes into derivational and inflectional groupings facilitates an understanding of the use of these affixes: the derivational affixes extend the meaning of the verb root, whereas the inflectional affixes interact with each other and with elements outside the verb to provide the syntactic linkages necessary for semantic interpretation. The sections that follow will develop these notions for the four major position classes of the verb.

3.1.1 Pre-Pronominal Prefixes

The pre-pronominal prefixes, as mentioned above, are not an obligatory part of the verbal structure. When they do occur, they modify the meaning of the verb in a wide variety of ways.

Two systems can be discerned within the pre-pronominal prefix system: an inflectional system and a derivational system [2].

Inflectional Pre-Pronominal Prefixes. The inflectional pre-pronominal prefixes include the partitive, coincident, contrastive, and negative formatives, as well as the modal prefixes--the factual, optative, and future. The factual, optative, and future are used, respectively, to describe events that the speaker knows have occurred (or are occurring at the moment of speech), events that the speaker feels should or might occur, and events that the speaker believes will definitely occur. If one of the modal prefixes occurs on a verb, a punctual or stative aspect suffix must co-occur [3].

The modal prefixes are considered inflectional here even though they do not necessarily exhibit linkage with a formative external to the verb. Anderson (1982), in defining inflection as "what is relevant to the syntax," concluded that aspect and tense might not be

"inflectional" because they do not seem to participate in syntactic rules, unless one considers the rules affecting the node labeled "INFL" for "inflection" (meaning verbal inflection) in the Chomskyan government and binding theory, which differentiates tensed from nontensed clauses as separate types of syntactic domains (for movement rules, etc.). However, the Chomskyan position aside, I think one can argue that tense and aspect are inflectional on two other grounds. First, although productivity per se has been rejected here (see Chapter 1) as a criterion for differentiating inflectional and derivational processes, the notion of "paradigm" in the sense of a set of morphosyntactic processes with which all members of a form-class can co-occur is a valid one for recognizing inflectional affixes and processes. That is, it is the set of processes, rather than one particular process, that is productive. Individual derivational affixes may be productive with a form-class, but they do not form a set with other derivational affixes constituting a paradigm with which all members of a form-class can co-occur. Aspect and tense formatives, on the other hand, do form a paradigm in this sense, even though there may be "gaps" (i.e., a few individual members of a form-class that do not co-occur with every member in the paradigm).

Second, in complex sentences, the tense or aspect of the verbs of the two (or more) clauses may be constrained by their relation to each other, constituting a type of linkage. Thus, for example, *When I went to Philadelphia yesterday, I will see the Liberty Bell is ungrammatical. The modal prefixes in Mohawk are similarly constrained in complex sentences. Also, the modal prefixes always co-occur with an aspect suffix (usually the punctual). Therefore, they are "linked" within the verb even in utterances where there is no linkage to an external formative--i.e., another verb. The linking of the modal prefix and the aspect suffix, however, does not link two lexemes; and therefore these two formative positions may be better analyzed as constituting a discontinuous formative, rather than linked syntactically. However, whether the linkage constitutes one formative or two, I think they (or it) can be classified as inflectional based on the arguments given above--that is, that they are part of a paradigm of verbal inflections and their occurrence in complex sentences is constrained.

The other inflectional pre-pronominal prefixes--the partitive, coincident, contrastive, and negative formatives--all occur in the first position class of the verb and are mutually exclusive. By the criteria adopted in Chapter 1, these prefixes are classified as inflectional rather than derivational because they relate lexemes to each other rather than modifying the meaning of

a particular lexeme. Each one will be considered in turn.

In example (3.6) below, the partitive n- relates the external adjective orù:ya? 'blue' to the verb. In this context, the partitive has the meaning 'of that':

(3.6) orù:ya? na?tehakahrò:tvs
'he has blue eyes' (lit: blue of-that-his-eyes be a kind)

o-ruhy-a? n-a?-te-hra-kahr-o?tv-s
ZP-sky-nsf part-H-du-MA-eye-be a kind-hab [4]

Verbs cannot begin with the partitive formative unless there is a linkage to another lexeme outside the verb. This linkage satisfies the criteria for classification of the partitive as inflectional.

The coincident formative relates the action of a subordinate verb to a main verb. For example [5]:

(3.7) yowísto shiyórhu?ke sha?katkétsko?
'it was cold when I got up this morning.'

yo-wisto-Ø shi-yo-rhu-?ke
ZP-be cold-stat coin-ZP-be day-on

sh-a-a?-k-at-ketskw-?
coin-fact-H-1A-srf-get up-punc

The negative relates the verb to the negative particle yáh; it cannot appear without yáh:

(3.8) yáh tehnirihwanù:we?s
'they(two) don't like it'

yah te-hni-rihw-a-nuhwe?-s
not neg-MdA-matter-J-like-hab

The negative cannot co-occur with certain other formatives in the pre-pronominal prefix system, like the dualic. In such situations, the contrastive (th-) is used instead and is related to the external yah to signal negation:

(3.9) yáh tha?tethawé:nu
'he didn't come back'

yah th-a?-te-t-hraw-e-nu
not contr-H-du-cis-MA-go-stat

Derivational. The other system within the pre-pronominal prefixes is derivational and consists of formatives that express repetition of action or return to a previous point (the repetitive affix), direction of action (the cislocative and translocative affixes), and duality of action or movement involving two places, objects, or states (the dualic formative). These formatives do not relate two lexemes to each other; rather, they semantically expand the verb root. For example, the verb root -aweru- means 'spill.' When a locative--either the translocative (y), meaning, roughly, 'direction away from the speaker' or the cislocative (t), meaning, roughly, 'direction toward the speaker'--is added, the resulting verb means 'pour':

(3.10a)	wa?káweru?	wa-a?-k-aweru-ǿ
	'I spilled it'	fact-H-1A-spill-stat
(3.10b)	ya?sáweru	y-a?-hs-aweru-ǿ
	'pour it!'	trans-H-2A-spill-imp
(3.10c)	vtehsáweru?	v-te-hs-aweru-?
	'you will pour it'	fut-cis-2A-spill-punc

Similarly, the verb -ataweya?t- 'enter' is further specified for direction by the cislocative or translocative:

(3.11a)	tahatáweya?te?	t-a-hra-ataweya?t-?
	'he came in'	cis-fact-MA-enter-punc
(3.11b)	kanúhsku ya?katáweya?te?	
	'I went into the house.'	
	ka-nuhs-ku	y-a-a?-k-ataweya?t-?
	ZA-house-in	trans-fact-H-1A-enter-punc [4]

Abbott (1981) and Bonvillain (1981) give many examples of the semantic qualification of the verb root found with the cislocative and translocative.

When the verb root -ahtvhty- 'leave' occurs with the repetitive (s), roughly equivalent to the meanings of re- in English, the resulting verb means 'return home':

(3.12a)	yakohtvtyu	yako-ahtvty-u
	'she's left'	FP-leave-stat
(3.12b)	sakahtv́:ti?	s-a-k-ahtvty-?
	'I went home'	rep-fact-1A-leave-punc

The dualic is required by certain verbs. For example, the verb 'eat' -atska?hu- always appears with the dualic. Other examples are:

(3.13)	tvhsahkwatá:se? 'you will go all around it'	t-v-hs-ahkwatase-? du-fut-2A-go around-punc
(3.14)	tesowíha 'split it!'	te-hs-owiha-Ø du-2A-split-imp
(3.15)	tewakarahtathúhne 'I went there to run'	te-wak-ar-ahtat-ha-u-hne du-1P-srf-run-purp-stat-RP

Segmenting the Pre-Pronominal Prefix System. The inflectional and derivational formatives in the pre-pronominal prefix system are positionally interwoven in complex ways. The modal prefixes will be treated here as "infix-like"--i.e., they are inserted within the derived verb. It will be shown below that one derivational position (the cislocative/repetitive position) is pivotal in understanding the positioning of two of the modal prefixes.

It is possible to segment the pre-pronominal prefix system into discrete formatives; however, the segmentation will show certain anomalies. The two major anomalies are: (1) the factual does not seem to have a consistent position class, and (2) the sequence -a?-, found in many pre-pronominal prefixes cannot consistently be assigned to one formative.

The same anomalies exist in the pre-pronominal prefixes in Oneida. Lounsbury's (1953) solution was to assign the factual formative (which he termed "aorist") to two position classes and to consider -a?- to be an "empty" morph that occurs in certain morphologically conditioned environments. Lounsbury's chart is reproduced in Chart 3.1 below.

Chart 3.1. Lounsbury's Chart for Oneida Pre-Pronominal Prefixes

<table>
<tr><td>Partitive
n</td><td>Translocative
y(Vh)</td><td>Aorist I
w/--</td><td>Empty
a(?)</td><td>Dualic
t</td><td>Indefinite I
a/u</td><td>Empty
u</td><td rowspan="3">Iterative
s/j

Cislocative
t</td><td rowspan="3">Aorist I & Indef. II
a

Empty
e</td></tr>
<tr><td rowspan="2">Coincidents

ts</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td colspan="2">Future
v
Empty
e</td></tr>
<tr><td>Contrastive
th</td><td colspan="6">Empty
i</td></tr>
<tr><td colspan="8">Negative Auxiliary
te(?)</td></tr>
</table>

Chart 3.1 applies equally well to Mohawk, except that the indefinite I (termed "optative" in this thesis) is a not a/u in Mohawk, the coincident is sh not ts, and the iterative (termed "repetitive" in this thesis) is s/ts,

rather than s/j (the ts alternant occurs when the following formative begins with y). Aorist I and aorist II are mutually exclusive, whereas indefinite I and indefinite II are additive, although this is not evident from the chart. Also not evident from the chart are the conditions under which an "empty morph" occurs, which are quite complex. Lounsbury (1953) also provides a much larger chart showing all the combinatorial possibilities of these formatives.

The two anomalies mentioned above are actually related. That is, when the factual appears in Lounsbury's "aorist II" position, it is simply a; however, when it appears in the "aorist I" position, it is either w followed by the empty morph -a?-, or ∅ followed by the empty morph -a?- (depending on whether it is in word-initial position or preceded by other formatives, respectively). Adding to the problem is the fact that -a?- also occurs when the factual is not present. In these cases, the -a?- follows the partitive, coincident, contrastive, or translocative when they are, in turn, followed by the dualic (the dualic is usually assumed to be t underlyingly). Therefore, the dualic is always preceded by -a?- unless it is word-initial, in which case it is merely t (or te, depending on what follows). For example:

(3.16)	tvthre? 'he will come back'	t-v-t-hra-e-? du-fut-cis-MA-go-punc
(3.17)	ya?tvyakaú:ko? 'she's going to bump it'	y-a?-t-v-yakaw-ukw-? trans-?-du-fut-FP-bump-punc

It is tempting, therefore, to consider -a?- as part of the dualic formative, which deletes when the dualic is word-initial. However, as mentioned above, -a?- also occurs with the factual, whether or not the dualic is present:

(3.18)	wa?katkáhtho? 'I looked at it'	w-a?-k-at-kahtho-? fact-?-1A-srf-look at-punc

However, -a?- does not always occur with the factual. When the factual is preceded by the cislocative or repetitive, the -a?- is not present (this is Lounsbury's "aorist II" position):

(3.19)	sakahtv́:ti? 'I went back (home)'	s-a-k-ahtvty-? rep-fact-1A-leave-punc

Lounsbury's decision to segment -a?- as an empty morph that occurs in certain morphologically conditioned environments is presumably based on the distribution shown in such examples as (3.16)-(3.18) above.

The analysis that is presented below for Mohawk differs somewhat from Lounsbury's for Oneida. First, all instances of the factual (Lounsbury's aorist) will be

placed in one position class. However, one must still explain why the factual appears before the dualic if the dualic is the final formative in the pre-pronominal prefix system, but after the dualic if the cislocative or repetitive co-occurs. For example, in (3.20) the factual precedes the dualic, whereas in (3.21), it follows the dualic:

(3.20)	wa?tkyà:ya?ke? 'I'm going across'	w-a?-t-k-yahya?k-? fact-?-du-1A-go across-punc
(3.21)	tutá:ke? 'I came back'	t-ut-a-k-e-? du-cis-fact-1A-go-punc

The solution given here is based on the division of the pre-pronominal prefixes into inflectional and derivational formatives, as described above. Two derivational prefixes--the cislocative and repetitive--crucially determine the position class of certain of the inflectional prefixes. The derivational system of the pre-pronominal prefixes is:

<table>
<tr><td>translocative
y(e)</td><td>dualic
t(e)</td><td>cislocative
(u)t</td></tr>
<tr><td></td><td></td><td>repetitive
(u)s</td></tr>
</table>

Since the cislocative and repetitive are in the same position class, they are mutually exclusive. Lounsbury (1953) showed that in Oneida, if the speaker wishes to

express both repetition of action (usually expressed by the repetitive) and movement toward the speaker (usually expressed by the cislocative), then the dualic is used to express repetition instead of the repetitive. The same situation applies in Mohawk. Thus, the combination dualic-cislocative (tet-) is used in these situations, since cislocative-repetitive cannot be used.

The cislocative and repetitive have the alloforms ut and us, respectively, when they are both preceded and followed by other formatives in the pre-pronominal prefix system. This u takes precedence over any other vowel, in accord with the rule of vowel syncope given in Chapter 2 (rule (2.42)). Thus, the example above of a dualic-cislocative combination changes from tet- to tuta- when the cislocative is followed by the factual, represented by a here, since the cislocative is then both preceded and followed by a formative.

The translocative formative is ye- when it occurs before the repetitive or before a consonant-initial pronominal prefix (it cannot occur before the cislocative for semantic reasons--that is, the translocative expresses movement away from the speaker, whereas the cislocative expresses movement toward the speaker). When the translocative precedes the dualic, the sequence is ya?t(e), with the "empty morph" -a?- separating the two formatives.

The dualic occurs as te- before the cislocative, repetitive, or a consonant-initial pronominal prefix, with the restriction mentioned above that if the cislocative or repetitive is also followed by a formative, the u causes the e of the dualic to delete by vowel syncope.

Turning to the inflectional formatives of the pre-pronominal prefix system, these can be divided into two position classes. It will be argued here that they are inserted into the derived verb stem. The two position classes are:

Position Class 1	Position Class 2
partitive n(i)	future (v)
coincident sh(i)	factual (w)a
contrastive th(i)	optative a. . .a
negative te	

The partitive, coincident, and contrastive have the alloforms ni-, shi-, and thi-, respectively, before the cislocative, repetitive, or a consonant-initial pronominal prefix, except when, as mentioned above, the cislocative or repetitive is also followed by a formative (the factual or the optative), in which case the u of the cislocative or repetitive takes precedence over the i of the partitive, coincident, or contrastive.

The negative cannot co-occur with the dualic or the translocative (see Chart 3.1). If either of these two derivational prefixes is present, negation is expressed by the contrastive (th(i)-), rather than the negative formative. (The negative also cannot co-occur with the future, perhaps for semantic reasons.)

In my analysis, the factual is wa initially and a non-initially (rather than ∅ non-initially); the future is invariantly v; and the optative is discontinuous (a...a) when it co-occurs with the cislocative or repetitive. Otherwise, it is aa, which reduces to a phonetically.

As mentioned above, the partitive, coincident, contrastive, and negative (position class 1) always appear in first position in verbs and are mutually exclusive. The actual positions of the inflectional modal prefixes--the factual, future, and optative--which I have placed in position class 2, are more problematic. They will be treated here as infix-like formatives that are "dropped into" the derivational pre-pronominal prefix system. The future is always infixed in the same position: after the dualic and before the cislocative or repetitive (if one of these is present). The following diagram shows the position of the future in relation to the derivational formatives:

translocative	dualic	future v	cislocative
			repetitive

The optative is infixed as a discontinuous formative, if the cislocative or repetitive is present:

translocative	dualic	optative a. . .	cislocative	optative a
			repetitive	

Otherwise, the optative occurs in the same position as the future--after the dualic:

translocative	dualic	optative aa -> a [6]

The position of the factual also depends on the presence or absence of the cislocative and repetitive. If one of these derivational affixes is present, the factual follows it (in its non-initial alloform a):

translocative	dualic	cislocative	factual a
		repetitive	

However, if neither the cislocative nor the repetitive is present, the factual is infixed before the dualic:

translocative	factual a	dualic

If the factual is word-initial, its form is wa.

Thus, two separate derivational frames in the pre-pronominal prefix system interact differently with the inflectional affixes, depending on the presence or absence of the cislocative/repetitive. The total system of derivational and inflectional pre-pronominal prefixes can now be given. Two charts are needed: one with the cislocative/repetitive position filled, and one for all other cases. The derivational frame affixes are underlined:

Frame 1

partitive n(i) coincident sh(i) contrast. th(i)	translocative y(e)	hinge a?	dualic t(e)	future v optative a...	cislocative/repetitive (u)t repetitive (u)s	factual a optative a
negative te						

In Frame 1, the translocative, dualic, and cislocative/repetitive positions are the derivational "frame." The sequence -a?-, identified as a hinge, will be

discussed below. The modal infixes (future, optative, and factual) are mutually exclusive.

Frame 2

partitive n(i) coincident sh(i) contrastive th(i)	transloc. y(e)	factual (w)a	hinge a?	dualic t(e)	future v optative aa

In Frame 2, the translocative and dualic (underlined) constitute the derivational frame. As in Frame 1, the modal infixes (factual, future, optative) are mutually exclusive.

These charts are similar to Lounsbury's chart for Oneida (given above on p135), except that the modal affixes are treated as infixes here that are inserted into two different derivational frames. These frames are represented by the two charts, the crucial difference being the presence or absence of the cislocative/repetitive position. This analysis is consistent with the model developed in Chapter 1 because it shows the value of separating derivational formatives from inflectional formatives. Derivational formatives are added in the lexicon to create a derived stem. In the case of the pre-pronominal prefixes, the derived stem will either have the cislocative/repetitive position filled

(Frame 1) or empty (Frame 2). The derived stem now undergoes inflection in the syntactic component. The distribution (MP) rules affecting the position and shape of the inflectional affixes are sensitive to the derivation frame (Frame 1 or Frame 2).

The occurrence of the sequence -a?-, identified here as a "hinge" must still be explained. It occurs in a particular position of the pre-pronominal prefix system (immediately before the dualic position) under one of two conditions:

(1) if the dualic is preceded by any other formative in the pre-pronominal prefix system

(2) if the factual does not co-occur with the cislocative or repetitive; that is, the a?- appears after the factual when the factual is inserted in Frame 2, whether or not the dualic is present.

The sequence -a?- thus hinges two positions in the pre-pronominal prefix system. It hinges the dualic formative to any preceding formative, whether derivational or inflectional; and it hinges the factual to any following formative (either the dualic or a pronominal prefix), when tne factual has been inserted into Frame 2.

This analysis of the pre-pronominal prefix system is in accord with Lounsbury's (1953) analysis of Oneida, to which it obviously owes a great deal. The main difference is the separation of inflectional from derivational affixes and the treatment of the modal affixes as infix-like. Also, I have proposed that the presence or absence of the cislocative/repetitive formatives plays a pivotal role in the pre-pronominal prefix system. This is highlighted by the use of two frames. Further evidence for the two frames is that the negative formative, te, can occur only before the cislocative/repetitive position (i.e., in Frame 1) [7].

Another advantage of recognizing the classification of the pre-pronominal prefix system into derivational and inflectional affixes is that the affixes that can be identified as inflectional on the basis of their interaction with syntax (as described on p.[13]) appear in two position classes: They appear either (1) in the first position class of the verb--the partitive, coincident, contrastive, and negative--(an "outside" position, typical of inflectional affixes) or (2) in the case of the modal affixes (future, optative, and factual), in a position determined by their co-occurrence with two different derivational frames, depending on the presence or absence of the cislocative/repetitive. This dependence of the inflectional processes on the derivational is more typical than the reverse. It is difficult to imagine a

derivational affix or process varying its behavior based on the behavior of inflectional affixes or processes. However, if derivational processes occur in the lexicon to derive stems and if inflectional processes occur later or are "added to" derived stems, then the sensitivity of inflectional affixes to the presence of certain derivational affixes is not surprising.

Some examples of the various possible combinations of the derivational and inflectional affixes in the pre-pronominal prefix system will now be given:

(3.22)	yusà:re?	y-us-a-hra-e-?
	'he went back'	trans-rep-fact-MA-go-punc

In (3.22), the derivational frame is Frame 1, consisting of the translocative and repetitive. Therefore, the factual is infixed at the end of the pre-pronominal prefixes (see Frame 1 above), and the hinge -a?- does not occur. Since the repetitive is both preceded and followed by a formative, it has the shape -us-, rather than -s-. The deletion of the h of the masculine affix after a stressed vowel with falling tone is accounted for by P rule (2.13) given in Chapter 2. The a of hra is deleted by the internal sandhi rule of vowel syncope, rule (2.42) in Chapter 2. Finally, the presence of r in a non-initial masculine agent prefix is accounted for by the MP rule (2.113) in Chapter 2.

Another example using the pre-pronominal prefix system is:

(3.23)	ya?kkwátho?	y-a-a?-k-kwatho-?
	'I go in'	trans-fact-H-1A-go in-punc

In (3.23), the derivational frame is Frame 2, since neither the cislocative nor the repetitive is present. Therefore, the factual is followed by the hinge -a?-, as specified in condition 2 on p145. The sequence aa? reduces to a? by a P rule reducing all V1 V1 sequences to V1.

An example using the dualic is:

(3.24)	tautá:ke?	t-a-ut-a-k-e-?
	'I might come back'	du-opt-cis-opt-1A-go-punc

In (3.24), the derivational frame is Frame 1 because the cislocative is present. The optative is therefore a...a (see Frame 1 above). The cislocative is both preceded and followed by a formative and hence is -ut-. The dualic, being initial, is -t- (i.e., the hinge -a?- does not occur).

An example with the dualic in non-initial position and therefore requiring the hinge is:

(3.25)	wa?tkyà:ya?ke?	wa-a?-t-k-yahya?k-?
	'I'm going across'	fact-H-du-1A-go across-punc

In (3.25), the factual is represented by wa since it is

word-initial. The derivational frame is Frame 2, and therefore the factual is followed by the hinge. The other condition for the hinge is also present: the dualic is in non-initial position. As described above, even when the factual is not present, the dualic is preceded by the hinge in non-initial position, as in example (3.17) above, repeated here:

(3.26)=(3.17) ya?tvyakáu:ko?
'she's going to bump it'

y-a?-t-v-yakaw-ukw-?
trans-H-du-fut-FP-bump-punc

3.1.2 Pronominal Prefixes

The pronominal prefixes in Mohawk are an obligatory part of the verb. Following Chafe (1970a), I will refer to these prefixes as "agent" and "patient." Transitive prefixes, marking both agent and patient, also occur.

Mohawk has an "active-stative" system of pronominal marking, first described by Sapir (1917) for Dakota. Sapir noted that in Dakota there are separate pronominal forms for the semantic roles of "active" versus "inactive" subjects of intransitive verbs. The active subject of an intransitive verb is marked by the same pronominal as the subject of a transitive verb. The inactive subject of an intransitive verb is marked by the same pronominal as the

object of a transitive verb. This contrasts with accusative and ergative systems, where, respectively, either the object of a transitive verb or the subject of a transitive verb is singled out for special marking. In Mohawk, as in Dakota, semantic agents (or "active" subjects) of both transitive and intransitive verbs are similarly marked. Semantic patients of both intransitive and transitive verbs are also similarly marked. Transitive and intransitive verbs in the stative aspect take patient prefixes [8]. Some examples of this system follow:

Agent of intransitive verb:

(3.27)	tvharáhtate?	t-v-hra-arahtat-?
	'he will run'	du-fut-MA-run-punc

Agent of transitive verb:

(3.28)	wahará:ko?	wa-a?-hra-rakw-?
	'he chose one'	fact-H-MA-choose-punc

Patient of intransitive verb:

(3.29)	yakoya?tishúhkhwa?	yako-ya?t-ishuhkʷ-ha?
	'she's shivering'	FP-body-shiver-hab

Patient of transitive verb:

(3.30)	wahó:nute?	wa-a?-hro-nut-?
	'he fed him'	fact-H-M/M-feed-punc

Stative aspect (transitive verb):

(3.31)	rorákwv	hro-rakw-v
	'he chose it already'	MP-choose-stat

Stative aspect (intransitive verb):

(3.32)	wakatshvnú:ni	wak-at-shvnuni-ø
	'I'm happy'	1P-srf-be happy-stat

Oblique arguments can also be referenced in the pronominal prefix. When this occurs, a case suffix (causative, dative, or instrumental) appears on the verb. An independent noun or an incorporated noun may also appear as one of the verb's arguments, in which case it will be cross-referenced in the pronominal prefix. Some examples follow:

(3.33) tvhà:kahte? — t-v-hra-?ka-ht-?
'he will make it run fast' — du-fut-MA-run fast-caus-punc

(3.34) uwá:ri washakonuhsahní:nu?se?
'he bought a house for Mary'

uwari — wa-a?-shako-nuhs-a-hninu-?s-?
Mary — fact-H-M/F-house-J-house-dat-punc

(3.35) ye?nikhuhkhwa? ahserí:ye?
'sewing thread'
(='one-uses-it-to-sew-with string')

ye-?nikhu-hkw-ha? — (w)-ahseriye-?
FA-sew-inst-hab — ZA-string-nsf

(3.36) otstĕ́ñră' — wă'hotaskoññiă'tă'kwĕ ⁿ'hắtie' [9]
it rock (ice) — thither he it bridge goes on making for himself

'...making for himself a bridge of stone [ice].'

o-tstvhr-a?
ZP-rock-nsf

wa-a?-hro-at-askw-uny-a-?t-a-hkw-v-hatye-?
fact-H-MP-srf-bridge-make-J-caus-J-inst-stat-prog-punc

In (3.33), the pronominal prefix is <u>hra</u>, which can be interpreted as either 'he (agent)' or 'he/it', with 'it' marked by Ø. The verb root <u>-?ka-</u>, which is intransitive, is followed by a causative suffix <u>-ht-</u>, which adds another

argument (literally: 'he/it caused to run fast' = 'he caused it to run fast').

In (3.34), the dative case suffix -?s- marks the transitive pronominal prefix -shako- 'he/her' as referring to an agent and a benefactive argument, rather than an agent and a patient. The patient argument is the incorporated noun -nuhs- 'house', which is marked by ∅ in the pronominal prefix (see fuller discussion of this and similar examples in Chapter 4, Section 4.2.4).

In example (3.35), the instrumental case suffix -hkw- signals that the outside noun is an instrumental. The pronominal prefix yu- means either 'she,one' or 'she,one/it' with 'it' marked by ∅. As in (3.33), an argument is added to the verb; unlike (3.33), the argument is not only marked by ∅ in the pronominal prefix but also is represented by an external noun. In such constructions, the instrumental noun is always external.

Example (3.36) from Hewitt (1903) shows the same type of example with an external instrumental noun, but, in addition, there is an incorporated patient noun -ahskw- 'bridge'. The pronominal prefix references three arguments: 'he/it/it', where 'he' is also marked as a beneficiary by the semireflexive (middle voice) prefix -(a)t-; that is, the pronominal prefix means 'he-for-himself/it(inst)/it(pat)'. The instrumental 'it' is cross-referenced with the outside noun 'rock', and the

patient 'it' is cross-referenced with the incorporated noun 'bridge'.

The morphophonemics of the pronominal prefixes in Mohawk have been given in detail by Bonvillain (1973) and G. Michelson (1973). Lounsbury (1953) also provides detailed charts of the alternants of these prefixes in Oneida, which are virtually almost identical to the alternants in Mohawk. Further discussion of the pronominal prefixes will not be given here; however, the cross-referencing of pronominal prefixes with oblique arguments is discussed more fully in Chapter 4.

3.1.3 The Verb Base

The verb base consists of the verb stem plus (optional) case suffixes and/or (optional) incorporated noun stem, and/or (optional) reflexive or semireflexive, and/or (optional) purposive formative. The verb stem, in turn, consists of either a verb root or a verb root plus derivational suffixes.

Case Suffixes and Purposive. As discussed in the previous section, case (inflectional) affixes--the dative, the causative, and the instrumental--interact with the pronominal prefix to mark the case roles of the participants. Examples have been given above (examples (3.33)-(3.36)). There is also an inflectional affix

expressing intent or movement toward a goal (the purposive), which occurs following all other affixes in the verb base. An example of the purposive suffix is:

(3.37)	vhsatawv́ha?	v-hs-at-awv-ha-?
	'you will go swimming'	fut-2A-srf-swim-purp-punc

Incorporated Noun Position. Incorporated nouns occur immediately preceding the verb root. Noun incorporation is discussed in detail in Chapter 4.

Verb Base Prefixes. The inflectional prefixes in the verb base are the semireflexive -at-, expressing middle voice or action affecting the subject of the verb, and the reflexive -atat-, expressing reflexive action. Examples of each are:

(3.38)	kátstha?	k-at-st-ha?
	'I use it'	1A-srf-use-hab
(3.39)	wa?tetyatá́tkv?	wa-a?-te-ty-atat-kv-?
	'we saw each other'	fact-H-du-2dinA-ref-see-punc

Derivational Suffixes. The derivational verbal affixes are the undoer, the inchoative, and the distributive. Each will be described briefly below.

Undoer. Two formatives (kw and hsy) are used to indicate that the action of the verb is reversed or "undone." Lounsbury (1953) called this formative the "infective" or "undoer." It has also been called the "reversive." Two examples follow:

(3.40)	tewakyestáhsyu	te-wak-yest-a-hsy-u
	'I have already sorted it out'	du-1P-mix-J-un-stat
(3.41)	roharákwv	hro-har-a-kw-v
	'he took it down'	MP-hang up-J-un-stat

Inchoative. The inchoative, -?(n)-, is added to a verb root to express the meaning 'become' or 'get'. For example:

(3.42a) wa?tyohswáthe?ne?
'it got bright'

wa-a?-t-yo-hsw-athe-?n-?
fact-H-du-ZP-nf-be bright-inch-punc

(3.42b)	tsi wa?órhv?ne?	tsi	wa-a?-yo-rhv-?n-?
	'the next day'	P	fact-H-ZP-be day-inch-punc

Distributive. The usual form of the distributive is -nyu- or u-nyu. It is used to indicate that the action of the verb takes place over a certain area, not in one spot; however, it can also be used to express diversity of the patient noun, as well as diversity of the action of the verb:

(3.43)	yotirahstányu 'they drew pictures'	yoti-rahst-a-nyu-ø FpP-draw-J-dist-stat
(3.44)	teyutkahthúnyus 'she's looking around'	te-yu-at-kahtho-u-nyu-s du-FA-srf-look-dist-dist-hab

Lounsbury (1953) stated that the distributive in Oneida may occupy certain different positions in the verb base, depending on which formative it modifies. That is, it has a restricted but not a fixed position. It may occur <u>after</u> the causative or instrumental in Oneida (in contrast with the diagram given above on p.123). I have not investigated the positional possibilities of the distributive in Mohawk. Again, as with the derivational affixes in the pre-pronominal prefix system, the verb plus its derivational suffixes, including the distributive, can be described as a frame into which the inflectional suffixes are dropped.

3.1.4 Aspect Suffixes

The final position in the verb is the aspect suffix position. Every verb in Mohawk is inflected with either a habitual, punctual, stative, or imperative suffix. The punctual aspect always co-occurs with one of the three modal prefixes--the factual, future, or optative, indicating, respectively, an action that did, will, or should/might take place. The habitual suffix does not

require a modal prefix--in fact, it is mutually exclusive with these prefixes. The stative suffix usually occurs without a modal prefix, but it may co-occur with the future or optative to express 'will have Xed' or 'should have Xed'. The stative also occurs with adjectival verbs such as 'be good', 'be ugly', 'be strong', etc.

After the habitual and stative aspects, a past tense formative may be added. There are two past tense formatives--hk^{w}?, usually called the "former past" by Iroquoianists, meaning 'used to X', and -hne-, usually called the "remote past", meaning, roughly, 'had Xed'. The former past is usually added to the habitual, as in:

(3.45)	katawv́hesk^{w}e? 'I used to go swimming'	k-at-awv-he-s-hk^{w}? 1A-srf-swim-purp-hab-FP
(3.46)	thataweyà:thahk^{w}e? 'he used to come in'	t-hra-at-aweya?t-ha?-hk^{w}? cis-MA-srf-enter-hab-FP

The remote past is usually added to the stative, as in:

(3.47)	wakatawvhúhne [10] 'I had gone swimming (in the past)'	wak-at-awv-ha-u-hne 1P-srf-swim-purp-stat-RP

However, it is also possible to add the former past to the stative:

(3.48) thotaweyà:tuhkʷe? 'he had been coming in' — t-ho-at-aweya?t-u-hkʷ? cis-MP-srf-enter-stat-FP

(3.49) rohyákwʌhkʷe? 'he had been picking fruit' — hro-ahy-a-kw-v-hkʷ? MP-fruit-J-pick-stat-FP

Compare:

(3.50) rahyákwaskʷe? 'he used to pick fruit' — hra-ahy-a-kw-as-hkʷ? MA-fruit-J-pick-hab-FP

Finally, a progressive marker, -(h)atye-, meaning, roughly, 'as one goes along', may be added to a verb after the first aspect (usually stative) suffix. The resulting form may then receive yet another aspect suffix. (Lounsbury (1953) describes a similar process in Oneida.) An example from Mohawk is:

(3.51) rotahsehtuhátye?s 'he's hiding here and there' — hro-at-ahseht-u-hatye-?s MP-srf-hide-stat-prog-hab

Lounsbury (1953) defines the progressive as a derivational affix. I have listed it above (Section 3.1) as an inflectional affix in the aspect position class of the verb. Its position between two inflectional affixes in examples like (3.51) is not necessarily evidence of inflectional status, since I have argued above that Mohawk has derivational "frames" into which inflectional affixes are inserted. Although the progressive does not seem to syntactically link or relate two lexemes in a

construction, its aspectual meaning leads me to group it with the inflectional formatives. However, further investigation of this formative is needed.

3.2 Conjugation Classes

As has been evident from the examples given so far, the habitual and stative suffixes exhibit alloformic variation. When a large number of verbs are examined, it is found that most verbs take one of the following alternants:

Habitual: -s, -as, -e?s, -ha?

Stative: -u, -v, -?, ∅

There are a few exceptional habitual and stative suffixes, which are given in Appendix II of this chapter. Setting up a single underlying representation for either the habitual or stative, from which the other forms can be derived by phonological rules, is not feasible (Michelson (1975) discusses the impossibility of such a venture). However, verb bases do not arbitrarily co-occur with the alloforms for the stative and the habitual aspects. I first became aware of this during my fieldwork, when I realized that after hearing a verb in one aspect, I could often predict the other aspect endings. Furthermore, verb bases ending in certain segments seemed to be inflected

aspectually in a consistent way. After studying many verb bases, I concluded that, with a few exceptions, it can be predicted, based on the phonological shape of the verb stem (or verb base, when case suffixes also appear), which alloforms will occur. That is, conjugation classes can be set up based on the phonological shape of the verb base. Therefore, only irregular verb stems need to be listed with their conjugation class or irregular endings. The presence of such irregular verbs should not be considered a problem, since it is common to most languages.

Lounsbury (1953) proposed conjugation classes for Oneida that are based on the shape of the stative, which he gives as ø, -?, -u/-v, -?u, and -nu. Within these five major classes, the verb stems are divided into 14 subclasses based on the habitual alloform with which they co-occur. The punctual and imperative are then predictable for any verb, given the stative and habitual. The verb stems assigned to the conjugation classes fall into broad phonological groupings in Lounsbury's scheme; however, some overlap occurs, and Lounsbury concludes: "In most cases the conjugation class to which a verb root or derivational morpheme belongs is not predictable by a general rule. It must be given in the lexicon separately for each such morpheme."

Beatty (1974) briefly discusses dividing verbs into conjugation classes; however, he concludes that each verb stem must be marked in the lexicon for the set of aspect suffixes with which it co-occurs.

Michelson (1975), in her unpublished master's thesis, provides a very detailed account of the aspect suffixes in Mohawk [11]. She proposes six main conjugation classes and 14 subclasses. In her system, the habitual is basic--i.e., the six major classes are based on six different allomorphs of the habitual; next, verbs are subclassified by four different alloforms of the punctual; and finally, they are further subclassified by five alloforms of the stative. As mentioned above, she concludes that the variety of alloforms for each aspect precludes deriving them from underlying representations. Her 14 subclasses are based on the phonological ending of the stem, although, as she notes, certain problematical stems do not fit the classification.

The conjugation scheme that I will develop below differs significantly from those of Lounsbury, Beatty, and Michelson. First, it is proposed here that the conjugation class of a verb in Mohawk <u>can</u> be predicted (with some exceptions, which must be listed) on the basis of the phonological shape of the verb base, and that the four major classes conform to certain canonical shapes that permit a degree of generalization.

Second, recognition of a patterning of imperative/punctual bases versus habitual/stative bases allows certain "irregular" punctual suffixes to be designated as part of the base and hence regularizes the punctual to -? for all verbs. In the system proposed here, there are four major classes and eight subclasses, with all exceptions to these classes being treated as irregular (i.e., necessitating special marking in the lexicon). The stative will be taken as basic for two reasons: (1) all verbs are inflected for the stative, but all verbs are not inflected for the habitual, and (2) the four major classes based on the choice of the stative capture more generalizations about the canonical shape of their member verb bases than would a classification based on the habitual, as will become evident below.

The data used in setting up the conjugation class system given here are listed in Appendix I. Data are from my fieldwork and from Mithun (1977) and Michelson (1975). Each verb base is identified by its source in the Appendix.

The conjugation classifications previously proposed for Mohawk (Beatty, 1974; Michelson, 1975) were based only on the three aspect suffixes: habitual, punctual, and stative. However, if the imperative is taken into account also, the patterning of the system is seen to be much more systematic, since, as mentioned above, the same base is

used in both the punctual and the imperative. Most verbs use the same base in all four inflections. However, the habitual/stative versus punctual/imperative pattern is found in three types of verbs, which will be discussed below. Recognition of this pattern eliminates the irregularity from some verbs--for example, the fact that a "stem vowel" is found in some verb paradigms in both the imperative and the punctual. (The term "stem vowel" rather than "base vowel" is used because these vowels occur directly after the root, not after case affixes.) By listing two stem alloforms in the lexicon for these verbs, classification into a conjugation class is facilitated. For example:

(3.52)	shá:rv 'hang it!'	hs-harv-Ø 2A-hang-imp
(3.53)	wa?khá:rv? 'I hung it'	wa-a?-k-harv-? fact-H-1A-hang-punc
(3.54)	kharha? 'I'm hanging it'	k-har-ha? 1A-hang-hab
(3.55)	wákhare? 'I have hung it'	wak-har-? 1P-hang-stat

Here, the two alloforms of the verb stem 'hang' are har/harv, the latter containing a "stem vowel." The stative suffix is -?; an epenthetic e is inserted in (3.55) by a P rule (see rule (2.16) of Chapter 2).

This patterning of punctual/imperative versus habitual/stative is also found with irregular verbs: For example, the verb stem for 'give' is u in the imperative and punctual and awi in the habitual and stative:

(3.56)	tá:ku 'give it to me!'	tak-u-ø 2/1-give-imp
(3.57)	vkú:yu? 'I will give it to you'	v-kuy-u-? fut-1/2-give-punc
(3.58)	kuyá:wis 'I am giving it to you'	kuy-awi-s 1/2-give-stat
(3.59)	kuyá:wi 'I gave it to you'	kuy-awi-ǿ 1/2-give-stat

Finally, the habitual/stative versus punctual/imperative patterning is found with verbs bases ending in -?(n), where the n occurs only in the imperative and punctual. Examples (3.76)-(3.79) below show this patterning. These verb bases have a "stem consonant."

These three types of verbs--those with stem vowels, stem consonants, or suppletive stems--provide evidence of the dual-stem patterning mentioned above. The majority of verbs, however, have a single alloform for the stem. For example:

(3.60)	satkáhtho 'look!'	hs-atkahtho-ø 2A-look-imp
(3.61)	akatkáhtho? 'I should look'	aa-k-atkahtho-? opt-1A-look-punc
(3.62)	katkáhthos 'I am looking'	k-atkahtho-s 1A-look-hab
(3.63)	wakatkáhthu 'I have looked'	wak-atkahtho-u 1P-look-stat

In (3.60)-(3.63), the stem is -atkahtho- for all aspects. The loss of the final o in the stative is due to the rule of vowel syncope (see rule (2.42) of Chapter 2).

On the basis of these examples, I propose listing two stems in the lexicon for all verbs: one for the habitual and stative aspects and the other for the imperative and punctual. In most cases, these stems will be isomorphic; however, for others verbs, there will be two separate stems. In the Chart 3.2 below, verbs are grouped into four major conjugation classes based on their inflection in the stative aspect. Verbs are further classified by their inflections in the habitual aspect. Chart 3.2 shows the conjugation classes, the verb base endings that occur in each class, and the percentage of the data that fall into each class.

Chart 3.2. Conjugation Class Endings in Mohawk

	Stative	Habi-tual	Verb-Base Ending	% of Data
Class I				
A.	-u	-s	-Vt, -Vk, -V?(n), -ho, -a?k, -hw (one verb) -?w (one verb)	35%
B.	-u	-ha?	-Ct	12%
C.	-u	-e?s	-y, -r, -hr(a)	5%
Class II				
A.	-v	-s	-ra, -na, -?a, -ta, -ha, v?(n)	6%
B.	-v	-ha?	-hk^{w}, -er, -ir(a)	3%
C.	-v	-as	-kw, -hw, -?w	7%
Class III	-Ø	-s	-u, -v, -i, -e, -o, -aw (one verb)	24%
Class IV	-?	-ha?	-r(v), -ar(v),-er(v) -ot(v),-ot(u),-ut(v)	7%

The four major classes based on the stative aspect correspond to phonological generalizations about the verb stems:

Class I primarily contains verb bases ending in VC or VCC. The only exceptions to this are verb stems ending in -ho, and two verb stems ending in the resonant -w. These exceptional stems must be listed in the lexicon as belonging to Class I since they do not fit the phonological criteria for Class I.

Class II primarily contains verb bases ending in Ca or CR, where R is n, w, or r. The verb stem ending in v?(n), which would be more appropriate in Class I, is also in

this class, and this fact must be listed in the lexicon.

Class III contains all other verb bases ending in vowels (that is, all bases ending in vowels except for the -ho stems of Class I and the Ca stems of Class II). It also includes one exception--the verb stem -haw- 'carry', which, since it ends in a resonant, would fit more appropriately into Class II.

Class IV contains the verb stems that have "stem vowels," showing alloformic alternation in the habitual/stative versus the punctual/imperative pattern described above. Hence, stems in this class end in both a consonant (habitual/stative) and a vowel (punctual/imperative).

Verb stems ending in -er are found in both Class IC and Class IIB; therefore, they must be listed with their conjugation class.

A classification based on the habitual aspect would result in Classes IA, IIA, and III forming a single class (see Chart 3.2); Classes IB, IIB, and IV would form a second class; Class IC would form a third class; and IIC would form a fourth class. These groupings capture fewer generalizations about the canonical forms of their member verb bases than a classification based on the stative, as described above.

A detailed discussion of each class follows. Examples are given for each subclass; a full listing of all the data, listed by conjugation class, is given in Appendix I.

3.2.1 Class I

From the chart above, it can be seen that verb bases in Class I take the stative aspect -u. There are three subclasses, depending on the shape of the habitual alloform: -s, -ha?, or e?s. Approximately 52% of the data used are from Class I, making it the largest class.

Class IA contains verb stems ending in -Vt, -Vk, -V?(n), -ho, -a?k, -hw, and -?w. Each of these will be discussed below.

Bases ending in -Vt. These include only -at, -et, and -it. No verb bases ending in -vt were found. Verbs ending in -ot and -ut contain a "stem vowel" after the t and belong to another conjugation class.

A typical example of a base ending in -at is:

(3.64)	satóːrat 'hunt!'	hs-atorat-Ø 2A-hunt-imp
(3.65)	vkatóːrate? 'I will hunt'	v-k-atorat-? fut-1A-hunt-punc
(3.66)	katóːrats 'I'm hunting'	k-atorat-s 1A-hunt-hab

(3.67)	wakatorá:tu	wak-atorat-u
	'I have hunted'	1P-hunt-stat

In the punctual, an epenthetic e is inserted between the final consonant of the verb base and the punctual ending -? by rule (2.16) of Chapter 2.

Bases ending in Vk. Here, the vowel is -a, -e, -i, -o, or -u. (Only one example of a verb ending in -vk was found in the data; it is discussed in Appendix II.) A typical example is:

(3.68)	sá:wak	hs-awak-Ø
	'shake it!'	2A-shake-imp
(3.69)	vká:wake?	v-k-awak-?
	'I will shake it'	fut-1A-shake-punc
(3.70)	ká:waks	k-awak-s
	'I'm shaking it'	1A-shake-hab
(3.71)	wakawá:ku	wak-awak-u
	'I have shaken it'	1P-shake-stat

Verb bases ending in -ok belong in this class; however, in the stative aspect, the -ok is deleted. This deletion does not occur in the habitual aspect, and hence these verbs do not conform to the patterning of habitual/stative, discussed above. For example:

(3.72)	satò:rok	s-at-ohrok-Ø
	'shrink!'	2A-srf-shrink-imp
(3.73)	ayutò:roke?	a-yu-at-ohrok-?
	'she should shrink'	opt-FA-srf-shrink-punc

(3.74)	katò:roks	k-at-ohrok-s
	'I'm shrinking'	1A-srf-shrink-hab
(3.75)	rotò:ru	hro-at-ohr(ok)-u
	'he has shrunk'	MP-srf-shrink-stat

Interestingly, all verb bases ending in -ok lose the -ok in the stative. Alternatively, it may be that only the k is deleted in the stative. The o would then delete by vowel syncope since it is next to a stronger vowel--u. These bases may all be derived from the same root, although semantically they do not seem to form a class. It may be that the meaning carried by -ok or k is inconsistent with the meaning of the stative affix--that is, these verb stems may all be historically derived from a stem plus a derivational affix -ok/k, which deletes in the stative because of a semantic incompatibility. Unlike other verbs, the two stems listed in the lexicon for these irregular verbs are: one stem for the stative, and one stem for the habitual, imperative, and punctual.

Verb bases ending in V?(n). This includes verb stems ending in -a?, -e?, -u?, and -o?; verb stems ending in v?(n) belong to class IIA; no verb bases ending in -i?(n) were found in the data. In the imperative and punctual, the stem has a final -n. In the stative and habitual, there is no -n-, thus conforming to the general patterning described above and requiring dual-stem listing in the lexicon for these verbs. For example, the verb stem

-nuhwe?(n)- 'like' has the following paradigm:

(3.76)	senù:we?n 'like it!'	hse-nuhwe?n-ǿ 2a-like-imp
(3.77)	vkenù:we?ne? 'I will like it'	v-ke-nuhwe?n-? fut-1A-like-punc
(3.78)	kenù:we?s 'I like it'	ke-nuhwe?-s 1A-like-hab
(3.79)	wakenuhwé:?u 'I have liked it'	wake-nuhwe?-u 1P-like-stat

Bases ending in -ho. These include stems ending in -tho and -rho. For example:

(3.80)	tsvtho 'plant!'	ts-yvtho-ǿ 2A-plant-imp
(3.81)	vkyvtho? 'I will plant'	v-k-yvtho-? fut-1A-plant-punc
(3.82)	kyvthos 'I'm planting'	k-yvtho-s 1A-plant-hab
(3.83)	wakyvthu 'I have planted'	wak-yvtho-u 1P-plant-stat

The final -o of the stem deletes before the -u of the stative by a regular rule of vowel syncope given in Chapter 2. The second person agent pronominal prefix has the alloform ts- [dz] before y-initial stems; the y deletes.

Bases ending in -a?k. Most of these verbs seem to be related to the root -ya?k- 'break, cut', as in the following paradigm:

(3.84)	ítsya?k	ts-ya?k-ø
	'break it!'	2A-break-imp
(3.85)	vkya?ke?	v-k-ya?k-?
	'I will break it!'	fut-1A-break-punc
(3.86)	íkya?ks	k-ya?k-s
	'I'm breaking it'	1A-break-hab
(3.87)	wakyà:ku	wak-ya?k-u
	'I have broken it'	1P-break-stat

In (3.84) and (3.86), a prothetic i- is added to carry penultimate stress (see rule (2.4) in Chapter 2).

Bases ending in -hw and -?w. One verb stem ending in -hw and one ending in -?w are found in Class IA. The latter verb is:

(3.88)	sv́:ta?	sa-ita?w-ø
	'sleep!'	2A-sleep-imp
(3.89)	vwakí:ta?we?	v-wak-ita?w-?
	'I will sleep'	fut-1P-sleep -punc
(3.90)	wakí:ta?s	wak-ita?w-s
	'I'm sleeping'	1P-sleep-hab
(3.91)	wakitá:?u	wak-ita?w-u
	'I have slept'	1P-sleep-stat

As can be seen in the above example, the verb 'sleep' requires patient pronominal prefixes not only in the stative (like other verbs in Mohawk), but in the imperative, punctual, and habitual as well. The -w deletes in the imperative and in the habitual and stative aspects by regular phonological rules. In (3.88), the combination of a + i at a formative boundary yields v by

the internal sandhi rule (2.41) in Chapter 2.

Class IB contains verb bases ending in a consonant followed by -t (-Ct). No sequences of resonant plus t- occur in Mohawk (Michelson, 1983). This class includes the causative formative -ht/-st/-?t (the particular alloform of the causative seems to be lexically conditioned). An example is:

(3.92)	teshnekú́tyet	te-hs-hnek-utye-ht-ø
	'boil it!'	du-2A-liquid-throw-caus-imp
(3.93)	tvkhnekú́tyehte?	t-v-k-hnek-utye-ht-?
	'I will boil it'	du-fut-1A-liquid-throw-caus-punc
(3.94)	tekhnekutyéhtha?	te-k-hnek-utye-ht-ha?
	'I'm boiling it'	du-1A-liquid-throw-caus-punc
(3.95)	tewakhnekutyéhtu	te-wak-hnek-utye-ht-u
	'I have boiled it'	du-1P-liquid-throw-caus-stat

In the imperative, the final h is deleted by a regular rule simplifying word-final clusters.

Class IC is a relatively small class of verbs (approximately 5% of the data) that take the habitual suffix -e?s; the stative is -u. Most verb stems in this class end in -y, but there are also two stems ending in -r, and one in -hr(a), where the a appears in the imperative and punctual, like the stem vowels described for Class IV.

In stems ending in y, the -y vocalizes by a regular P rule when it occurs between a consonant and either a glottal stop or a word boundary:

(3.96)	sahtv́:ti	hs-ahtvty-ø
	'go away!'	2A-go away-imp
(3.97)	vkahtv́:ti?	v-k-ahtvty-?
	'I will go away'	fut-1A-go away-punc
(3.98)	kahtv́tye?s	k-ahtvty-e?s
	'I'm going away'	1A-go away-hab
(3.99)	wakahtv́tyu	wak-ahtvty-u
	'I have gone away'	1P-go away-stat

3.2.2 Class II

The verb bases in this class have a stative aspect of -v. There are three subclasses, corresponding to the three habitual alloforms -s, -ha?, and -as. Verb bases in this class end primarily in Ca or Cw, although this class also contains one verb ending in -er, one verb ending in ir(a), and all verbs ending in -v?(n). Other verbs ending V?(n) belong to Class IA. The only difference between Class IA and Class IIa is that the stative aspect for the former is -u and for the latter it is -v. Therefore, verbs ending in -v?(n) may exhibit a kind of vowel harmony, explaining their deviant classification in Class IIa (see example (3.107) below).

Class IIA consists of verb bases ending in -ra, -na, -?a, -ta, -ha, and -v?(n). With a few exceptions (see Appendix II at the end of this chapter), all verb bases ending in -a are found in this class. Examples are:

(3.100)	tsyé:na	ts-yena-ø
	'receive it!'	2A-receive-imp
(3.101)	ayeyé:na?	a-ye-yena-?
	'she should receive it'	opt-FA-receive-punc
(3.102)	kyé:nas	k-yena-s
	'I'm receiving it'	1A-receive-hab
(3.103)	royé:nv	hro-yena-v
	'he has received it'	MP-receive-stat
(3.104)	se?nyá:kv?n	hse-?nyakv?n-ø
	'escape!'	2A-escape-imp
(3.105)	aye?nyá:kv?ne?	a-ye-?nyakvn-?
	'she should escape'	opt-FA-escape-punc
(3.106)	ke?nyá:kv?s	ke-?nyakv?-s
	'I'm escaping'	1A-escape-hab
(3.107)	ro?nyakv́:?v	hro-?nyakv?-v
	'he has escaped'	MP-escape-stat

Like the verbs in Class IA that end in a vowel followed by a glottal stop, stems ending in -v?, as in (3.104)-(3.107) above, have a "stem consonant" -n- in the punctual and imperative forms, and thus require dual-stem listing in the lexicon.

Class IIB contains all verb bases ending in -hkʷ, one ending in -er, and one ending in -ir(a). An example of the first type is:

(3.108)	tesenúnyahkʷ 'dance!'	te-hse-nuny-a-hkʷ-ø du-2A-dance-J-lift-imp
(3.109)	tvkenúnyahkʷe? 'I will dance'	t-v-ke-nuny-a-hkʷ? du-fut-1A-dance-J-lift-punc
(3.110)	tekenunyáhkhwa? 'I am dancing'	te-ke-nuny-a-hkʷ-ha? du-1A-dance-J-lift-hab
(3.111)	tewakenunyáhkʷv 'I have danced'	te-wake-nuny-a-hkʷ-v du-1P-dance-J-lift-stat

In (3.110), the addition of the habitual formative -ha? to a verb stem ending in -kʷ results phonetically in [kʰʷ], which is represented orthographically here as -khw-.

The Class IIB stem ending in -ir(a) has a stem vowel -a- in the imperative and punctual inflections, necessitating dual-stem listing in the lexicon:

(3.112)	shnekí:ra 'drink!'	hs-hnek-ira-ø 2A-liquid-drink-imp
(3.113)	vkhnekí:ra? 'I will drink'	v-k-hnek-ira-? fut-1A-liquid-drink-punc
(3.114)	khnekírha? 'I'm drinking'	k-hnek-ir-ha? 1A-liquid-drink-hab
(3.115)	wakhnekí:rv 'I have drunk'	wak-hnek-ir-v 1P-liquid-drink-stat

Class IIC is a small class (approximately 7% of the verb bases in the data), yet in number of actual verbs it is quite large, since it contains the undoer formative -kw-. In fact, it contains all verb bases ending in -kw, one ending in -hw, and one ending in -?w. In the verbs ending in -kw, the w vocalizes when it occurs between a consonant and either a glottal stop or a word boundary by a regular rule of glide vocalization (see rule (2.5) in Chapter 2):

(3.116)	íhsko	hs-kw-ø
	'pick it!'	2A-pick-imp
(3.117)	vkko?	v-k-kw-?
	'I will pick it'	fut-1A-pick-punc
(3.118)	íkkwas	k-kw-as
	'I'm picking it'	1A-pick-hab
(3.119)	wákkwv	wak-kw-v
	'I have picked it'	1P-pick-stat

3.2.3 Class III

Class III is the second largest class, containing approximately 24% of the verb bases in the data. The stative aspect for Class III is ø and the habitual is -s. Most of the verb bases in this class end in a vowel other than -a or -o (but see below; some verbs ending in -o do fall in this class). That is, verb bases ending in -u, -v, -i, and -e belong in this class. (Verb bases ending in -a belong to Class IIA, described above; most verb

bases ending in -o belong to Class IA.) There is also one verb ending in -aw in this class (-haw- 'carry').

The only difference between this class and Classes IA and IIA is that the stative aspect is marked by ∅. A typical example is:

(3.120)	shyá:tu 'write!'	hs-hyatu-∅ 2A-write-imp
(3.121)	vkhyá:tu? 'I will write'	v-k-hyatu-? fut-1A-write-punc
(3.122)	khyá:tus 'I'm writing'	k-hyatu-s 1A-write-hab
(3.123)	wakhyá:tu 'I have written'	wak-hyatu-∅ 1P-write-stat

A verb stem ending in -o in this class is:

(3.124)	saterí:yo 'fight!'	hs-ate-riyo-∅ 2A-srf-fight-imp
(3.125)	ayuterí:yo? 'she should fight'	a-yu-ate-riyo-? opt-FA-srf-fight-punc
(3.126)	katerí:yos 'I'm fighting'	k-ate-riyo-s 1A-srf-fight-hab
(3.127)	roterí:yo 'he has fought'	hro-ate-riyo-∅ MP-srf-fight-stat

3.2.4 Class IV

Finally, Class IV contains verb bases in which the stative is marked by -?; the habitual is marked by -ha?. There is a "stem vowel" in the imperative and punctual. These

stems end in -r(v), -ar(v), -er(v), -ot(u), and -ut(v). An example is:

(3.128)	satervnó:tv 'sing!'	hs-ate-rvn-otv-ø 2A-srf-music-be there-imp
(3.129)	vkatervnó:tv? 'I will sing'	v-k-ate-rvn-otv-? fut-1A-srf-music-be there-punc
(3.130)	katervnótha? 'I'm singing'	k-ate-rvn-ot-ha? 1A-srf-music-be there-hab
(3.131)	wakaterv́:note? 'I have sung'	wak-ate-rvn-ot-? 1P-srf-music-be there-stat

In (3.131), an epenthetic e is inserted between the verb stem and the stative ending in -? by rule (2.16) in Chapter 2.

3.2.5 Miscellaneous Problems

There is some overlap of the classes proposed here: verb stems ending in -r occur in Classes IC and IIB; stems ending in -?w and -hw occur in both IA and IIC; and stems ending in -o occur in both IA and III. These stems must be listed in the lexicon with their conjugation class, since it is not entirely predictable.

Stems ending in -rho and -tho occur in Class IA; a stem ending in -yo is found in Class III, as well as two stems ending in -rho (-kutsherahrho- 'paint' and te...tsikhe?tahrho- 'sweeten'). Both these stems contain an incorporated noun plus the verb stem -rho- 'coat

something'. Other verb stems containing an incorporated noun stem plus the verb stem -rho occur in Class IA (see Appendix I). Therefore, the occurrence of 'paint' and 'sweeten' in Class III seems to be exceptional.

Stems ending in -hw and -?w are also problematic. the verb stems -yakvhw- 'take out' and -rakehw- 'erase' (both from Mithun, 1977) both fail to show vocalization of the w in the environment C_? and C_##, where other w's do vocalize (for example, in the verb stem -ohw- 'be in water (Michelson, 1983), where the future is vkóho? 'I will be in water'). Yet, -yakvhw- and -rakehw- are in different conjugation classes: IA and IIC, respectively. I have no explanation for this or for the fact that verb stems ending in -?w occur in both these classes. At this time, these verb stems must simply be marked in the lexicon for their conjugation class.

In addition to the problem of some overlapping of classes, there are also some verb stems that do not fit into any of the classes proposed here. These have not been taken into account in the classification given here, but are treated in Appendix II. The existence of these exceptional verbs does not detract from the broad generalizations that are exemplified by the conjugation classes described in this section, since irregularity in verb paradigms is found in most languages.

3.2.6 Summary of Conjugation Classes

The proposal being made here is that, although problems remain in the classification of Mohawk verb bases, the regularities far outweigh the irregularities and justify a division into conjugation classes based on the phonological shape of the base. For many verbs stems, two alloforms must be listed in the lexicon; however, a patterning is observed: the imperative and punctual occur with one stem alloform and the habitual and stative with the other. Whether there is a semantic basis for this pattern--the imperative and punctual being "one-time" activities and the habitual and stative describing states or duration of activity--is a question for further investigation.

3.3 Nominal Structure

As defined by Lyons (1977, part 2), nominals are referring expressions--that is, they refer to individuals or entities in the context of the speech act. Depending on the type of language, nominals may consist of a lexical noun, a noun phrase, or a nominalization. Nominalizations, in turn, may be of different types. One type of nominalization creates derived lexical nouns (i.e., they are listed in the lexicon). Another type of nominalization creates noun phrases from clauses. Some languages--for example, Nootka and Kwakiutl--have been described as having no noun/verb distinction (Swadesh, 1939; Boas, 1911); any root (with a few exceptions, like adverbs) can serve as the base for nominal or verbal affixation. On the syntactic level, however, Lyons (1977:433) points out, there is always a distinction between nominal and verbal expressions based on the predicate/argument structure of clauses.

In this section, a description of Mohawk nominal structure will be given, including basic nouns; derived (deverbal) nouns; so-called syntactic nouns, which are derived from clauses and have become idioms (i.e., listed in the lexicon); and clausal nominalizations (i.e., sentential subjects and objects). Comrie and Thompson (1985) describe the variability of deverbal nouns cross-linguistically in terms of their degree of

assimilation to non-derived noun phrases versus their degree of retention of sentential syntax. In Mohawk, as in many languages, some types of nominalizations resemble nouns in their derived structure, whereas others retain their syntactic structure while functioning as an argument of the verb. Morphological noun "frames" will be given in Section 3.3.4; it will be shown that only some types of derived nouns are also morphological nouns, whereas other derived nouns maintain their verbal structure.

3.3.1 Basic Nouns

Certain nominal expressions in Mohawk are composed of noun roots plus either (1) a neuter pronominal prefix and a noun suffix, or (2) no inflectional affixes. These will be called here basic inflected nouns and basic uninflected nouns, respectively.

3.3.1.1 Basic Uninflected Nouns

Uninflected nouns are rare and for the most part denote animals; for example, takò:s 'cat', è:rhar 'dog', kwéskwes 'pig'. These nouns cannot be incorporated; however, they can take certain derivational noun affixes; for example, tako?skó:wa 'tiger' (tako?s + kowa 'cat' + 'big') and kweskwéshne 'pig sty' (kweskwes + hne 'pig' + 'at place

of').

3.3.1.2 Basic Inflected Nouns

Structure. Inflected nouns consist of a neuter pronominal prefix (o-, ka-, or ø), a noun root, and a noun suffix (-a? or -?) [12]. The prefixes and suffixes may occur in any combination. For example:

o...a?

(3.132) oháha? 'road' — o-hah-a? ZP-road-nsf

o...?

(3.133) ó:nvste? 'corn' — o-nvst-? ZP-corn-nsf

ka...a?

(3.134) kanúhsa? 'house' — ka-nuhs-a? ZA-house-nsf

ka...?

(3.135) ká:nv? 'seed' — ka-nv-? ZA-seed-nsf

ø...a?

(3.136) áhskwa? 'bridge' — (w)-ahskw-a? ZA-bridge-nsf

ø...?

(3.137) áhsire? 'blanket' — (w)-ahsir-? ZA-blanket-nsf

The prefixes ka- and o- are similar to the verbal neuter

pronominal prefixes (ka- and yo-) for agent and patient, respectively. In (3.136) and (3.137), an underlying w (which is the neuter pronominal agent before a-stems in verbs) is assumed because the w apears with these roots if there is another prefix preceding it. For example,

(3.138)	tewahsí:rake 'two blankets'	te-w-ahsir-a-ke du-ZA-blanket-J-pl

Some nouns contain an internal -ar- sequence that is skipped when counting syllables for penultimate stress. For example:

(3.139)	onú:tara? 'soup'	o-nutar-a? ZP-soup-nsf
(3.140)	onyá:tara? 'lake'	o-nyatar-a? ZP-lake-nsf

In these examples, the a before the r could be historically a joiner a and the r could be a vestigial verb root (see Michelson, 1983, for discussion). The antepenultimate stress in these words suggests that the a before the r of nutar and nyatar has been skipped, as joiner vowels are skipped (see discussion in Chapter 2, Section 2.3.1).

Michelson (1983:112-113) gives a list of 35 nouns in Mohawk that follow this pattern--i.e., that have antepenultimate stress and contain an a in the environment C_ r. Most end in the suffix -a?; however, a few end in

-e?. For example,

(3.141)	o?nvhare? 'grapevine'	o-?nvhar-(e)? ZP-grapevine-nsf
(3.142)	kanu:ware? 'pin'	ka-nuwar-(e)? ZA-pin-nsf

There are several possible explanations for the antepenultimate stress in (3.41) and (3.42). One is that the a's have been reanalyzed as part of the noun root and are counted for stress. In this case, the e would be epenthetic by the regular P rule (2.16) in Chapter 2 that inserts e in the environment C_ ?. Howeer, given the fact that a before r in examples like (3.139) and (3.140) is skipped by the stress rule, the reanalysis explanation does not fully account for the stress pattern of these nouns.

A second possible explanation is that the a is skipped by the stress rule, as other joiner vowels are skipped, and therefore, the e is underlying (i.e., in addition to -a? and -?, there is a noun suffix -e?). In this case, the a would be analyzed as a joiner vowel that is skipped by the stress rule.

A third possibility is that these roots are listed in the lexicon with the a before the r marked as stressless; the e would be underlying and would count for stress.

Since alternants without the a never occur for these roots (e.g., the root -nutar- never occurs on the surface as -nutr-, or as -nut-, assuming the r to be a fossilized verb root), the constraints of the NGP framework being used in this thesis force the analysis of these roots as underlyingly containing an a. The explanation for antepenultimate stress in these words, then, must either be that the a is skipped by the stress rule because speakers somehow identify it as a historical relic of the joiner a (an unlikely possibility, given the framework used here), or that these roots are listed in the lexicon with the a and with their exceptional stress pattern. That is, they are an irregular group of roots that form a patterned subset due to historical changes--a common situation in languages. The latter option is chosen here. For nouns like onú:tara? 'soup', the root will be listed in the lexicon with a stressless vowel: -onuta[-stress]r-. The affixes o- and -a? are added, giving o + nuta[-stress]r + a?; phonological rules apply, including the stress rule, giving onú:tara?.

Given this analysis, the final e in examples (3.141) and (3.142) would not be epenthetic, but rather would have to be underlying since it counts for stress. The root -nuwar- 'pin' is listed as -nuwa[-stress]r-; the suffix -e? is added, as well as the prefix ka-, producing ka + nuwa[-stress]r + e?. The phonological rules apply, including the stress rule (see rule (2.112) in Chapter 2),

giving kanú:ware?.

Examples where a joiner a in an open syllable is stressed rather than skipped have been discussed by Postal (1968) and Michelson (1983). These examples always involve a vowel that is either marked as stressless in the lexicon, as just discussed, or a vowel that is skipped by the stress rule because it is in a "weightless" syllable (Ce before RV) (see discussion of weightless vowels in Chapter 2, Section 2.2.2). For example:

(3.143) teka?nukserá:ke [13] te-ka-?nukser-a-ke
'two onions' du-ZA-onion-J-pl

The stress rule first skips the penultimate vowel in (3.143) because it is a joiner a (see revised stress rule (2.112) in Chapter 2). However, it cannot stress the antepenultimate vowel e because it is in an open Ce syllable before RV--i.e., a weightless syllable. What seems to happen in these examples is that the stress then shifts back to the penultimate syllable, rather than appear on the pre-antepenultimate syllable (-nuk- in this example) [14]. Schematically, with the vowels that cannot receive stress capitalized, this is:

(3.144)

t e k a ? n u k s E r A k e

Stated somewhat anthropomorphically, the stress rule skips

the joiner A, only to find itself on a weightless vowel (E). It then shifts back to the A. Michelson (1983) uses a "stress jump" rule to effect this outcome. Postal (1968) also used a "stress jump" rule to explain this phenomenon. For both Postal and Michelson, the stress jump rule must be ordered with regard to the other rules affecting stress and epenthesis.

The same situation arises with the formative-internal (possibly historically joiner) stressless a's. For example:

(3.145) skanyatará:ti [13]
'one side of the lake'

s-ka-nyata[-stress]r-a-ti-ǿ
rep-ZA-lake-J-be on one side-stat

Again, the stress rule skips the joiner a, only to find a vowel marked [-stress]. It then shifts back again to the joiner vowel. That is, more than one weightless or stressless vowel cannot be skipped in succession by the stress rule. As this example shows, roots with historically joiner a's can appear in different positions in a word (depending on the degree of affixation). The a before the r (which is marked as stressless underlyingly in the lexicon in this analysis) remains stressless in its effects, as shown by example (3.145), even when there is further affixation.

There remains the question of why some noun roots take the suffix -a?, some take -?, and some take -e?, and why some take the prefix ka- and others o-. Although there may be historical reasons for these choices (see Woodbury, 1975, for a discussion of ka- vs. o- nominal prefixes in Onondaga as a reflection of manmade vs. natural entities), they must be treated as lexically conditioned synchronically and listed in the lexicon. This is similar to the situation with regard to gender in languages that classify nouns as masculine, feminine, neuter, etc.

Positions of Occurrence. The noun roots of inflected nouns can be incorporated for the most part. For example:

(3.146)	yohsirv̀:tu 'a blanket is hanging'	yo-ahsir-v?t-u ZP-blanket-be hanging-stat

Basic inflected nouns can also appear before nominal suffixes, like -kowa 'big', -shu?a 'plural', and -kvha 'former':

(3.147)	kanuhsa?kó:wa [15] 'Parliament' (='big house')	ka-nuhs-a?-kowa ZA-house-nsf-big
(3.148)	kvtskare?shú:?a 'carpets'	ka-itskar-e?-shu?a ZA-carpet-nsf-pl
(3.149)	raonuhsa?kv́ha 'his former house'	rao-nuhs-a?-kvha Mposs-house-nsf-former

They can occur before postpositions (with loss of the noun suffix), as in:

(3.150)	kanúhsku	ka-nuhs-ku
	'in the house'	ZA-house-in
(3.151)	okwiró:ku	o-kwir-oku
	'under the trees'	ZP-tree-under
(3.152)	ohahákta	o-hah-akta
	'near the road'	ZP-road-near

They can be enumerated:

(3.153)	vska kanúhsa?	vska ka-nuhs-a?
	'one house'	one ZA-house-nsf
(3.154)	tekanúhsake	te-ka-nuhs-a-ke
	'two houses'	du-ZA-house-J-pl
(3.155)	áhsv nikanúhsake	ahsv ni-ka-nuhs-a-ke
	'three houses'	three part-ZA-house-J-pl

They can occur after a possessive prefix:

(3.156)	raonúhsa?	rao-nuhs-a?
	'his house'	Mposs-house-nsf
(3.157)	akhwá:tˢire?	ak-hwatˢir-?
	'my family'	1poss-family-nsf

In syntactic constructions, basic nominals (both uninflected and inflected) may precede or follow a verb as subject or object. For example:

<u>Subject of intransitive verb</u>

(3.158) otsì:tsa? yohrv̀:tu
'the plant is hanging'

o-tsi?ts-a? yo-hr-v?t-u
ZP-plant-nsf ZP-nf-be hanging-stat

(3.159) wă'tioⁿ'shĕńt̃ho' né eksa'ắ' [16]
she wept the she child is
'the child wept.'

wa-a?-t-yu-ashvtho-? ne (y)e-ksa-?a
fact-H-du-FA-cry-punc P FA-child-dim

(3.160) teyohnekú:ti ne? onú:tara?
'let the soup boil'
(lit.: 'that-it-boils the soup')

te-yo-hnek-uti-ø ne? o-nutar-a?
du-ZP-liquid-throw P ZP-soup-nsf

<u>Subjects of transitive verbs</u> (agents) are usually persons and hence either named or referred to by pronouns. An animal may also be an agent, as in (3.161):

(3.161) è:rhar wahaya?táta? ne? óstyv?
'the dog buried the bone'

e?rhar wa-a?-hra-ya?t-ata-? ne? o-styv-?
dog fact-H-MA-body-bury-punc P ZP-bone-nsf

If the agent is a relative (e.g., sister, brother, mother), the form is actually a verb, not an inflected noun. For example:

(3.162) aktsí:?a wa?ukhináhsku?
'my sister gave us an animal (a pet)'

(w)ak-tsi-?a
F/1-be an older sibing-dim

wa-a?-yukhi-nahskw-u-?
fact-H-F/1p-animal-give-punc

Examples of basic nouns as direct objects of transitive verbs are:

(3.163) ohné:ka? vhsena?tsá:rv?
'you put the water on'
(lit: 'water you-will-put-it-in-the-pot')

o-hnek-a? v-hse-na?ts-a-rv-?
ZP-liquid-nsf fut-2A-pot-J-put in-punc

(3.164) sáhta? thó ítsv
'put your shoes down!'

sa-aht-a? tho ts-yv-ø
2poss-shoe-ns P 2A-be lying-imp

(3.165) sók thó ne? ó:nv vhsstátha?te? ne? ó:nvste?
'then you dry the corn'

sok tho ne? onv v-hs-st-ath-a-?t-?
P P P P fut-2A-nf-dry-J-caus-punc

ne? o-nvst-?
P ZP-corn-nsf

(3.166) teshnekútyet ne? onú:tara?
'boil the soup!'

te-hs-hnek-utye-ht-ø ne? o-nutar-a?
du-2A-liquid-throw-caus-imp P ZP-soup-nsf

Basic nouns can also serve as oblique arguments. For example:

(3.167) ówera? takahnhotúkwahte?
'the wind blew the door open'
(lit: 'wind this direction it caused the door to be unclosed)

o-wer-a? t-a-ka-hnho-tu-kw-a-ht-?
ZP-wind-nsf cis-fact-ZA-door-close-un-J-caus-punc

(3.168) kaná:kare? wahí:yvhte?
'I hit him with a stick'

ka-nakar-e? wa-a?-hi-yvht-?
ZA-stick-nsf fact-H-1/M-hit-punc

In (3.168), the case role of kaná:kare? 'stick' seems to be implicit rather than explicitly marked. The transitive pronominal prefix -hi- gives the agent and patient arguments of the verb 'hit'. Therefore, the external noun must be interpreted as an oblique argument, in this case as an instrument [17].

Another example with an oblique argument is:

(3.169) ó:yvte? watv?vhrunyà:tu
'the fence is made out of wood'

o-yvt-? w-at-v?vhr-uni-a-?t-u
ZP-wood-nsf ZA-srf-fence-make-J-inst-stat

In this example, the semireflexive (middle voice), -at- marks the neuter subject w- 'it' as the "experiencer" or affected entity. The instrumental suffix -?t- allows the external noun to be interpreted as an instrumental. The marking of case roles by the pronominal prefix is discussed in Section 3.1.2.

3.3.2 Derived Deverbal Nouns

There are two main types of derived nouns:

(1) deverbal nouns formed from a verb root followed by an "increment" or nominalizing formative

(2) syntactic nouns, which may be either:

(a) habitual nominalizations

(b) stative nominalizations

3.3.2.1 Incremental Nouns

These deverbal nouns are formed by adding a nominalizer or "increment" hser/tsher to a verb root and then inflecting the whole with a noun prefix (ka-, o-, or ∅) and a noun suffix (-a?). For example:

(3.170)	kayvthóhsera? 'things from the garden, vegetables'	ka-yvtho-hser-a? ZA-plant-nom-nsf
(3.171)	kahyatúhsera? 'paper, book'	ka-hyatu-hser-a? ZA-write-nom-nsf
(3.172)	owistóhsera? 'butter'	o-wisto-hser-a? ZP-be cold-nom-nsf
(3.173)	kayanervhsera? [15] 'law'	ka-yanerv-hser-a? ZA-be great-nom-nsf
(3.174)	ka?shatstvhsera? 'strength, power'	ka-?shatstv-hser-a? ZA-be strong-nom-nsf

These nominalizations share certain attributes with basic inflected nouns; e.g., they can be incorporated:

(3.175) ne dji nisa'shatstěʰʿseróteˇnʿ [18]
the where thy kind of power (='that which is your kind of power')

ne tsi ni-sa-?shatstv-hser-o?tv-ø
P P part-2P-be strong-nom-be a kind-stat

They can also occur before postpositions, as in:

(3.176) oroñto'tseráko nʿ [19]
it:case in (='in the burial case')
burial

o-rut-o-tsher-a-ku
ZP-log-be in water-nom-J-in

These derived nouns must be listed in the lexicon, since their meanings are not totally predictable.

In addition to deverbal nouns like (3.170)-(3.174), where the nominalizing suffix is used whether or not the deverbal noun is incorporated, there are also deverbal nouns that contain a nominalizer only when they are incorporated. These nouns are derived from verbs but have lost some of the verbal affixes. For example:

(3.177) atekhwà:ra (w)-ate-khw-a-hra
'table' ZA-srf-food-J-put on

(3.178) anitskwà:ra (w)-an-itskw-a-hra
'chair' ZA-srf-thigh-J-put on

(3.179) atyà:tawi (w)-at-ya?t-a-wi
'jacket' ZA-srf-body-J-be in a cylinder

Like basic inflected nouns beginning with a (see examples (3.135) and (3.136)), the glide-initial pronominal prefix w- is deleted. These nominalizations, although verbal in form, behave like basic nouns. For example, they can be incorporated:

(3.180) só:t^{s}i watekhwahrátsheres
'the table is too long'

sot^{s}i w-ate-khw-a-hra-tsher-es
too much ZA-srf-food-put on-nom-be a length

(3.181) kv? niwanitskwahratsherá:?a
'a small chair'

kv? ni-w-an-itskw-a-hra-tsher-a-?a
some part-ZA-srf-thigh-J-put on-nom-be small

(3.182) yotya?tawisherv̀:tv
'a jacket is hanging'

yo-at-ya?t-a-wi-tsher-v?t-v
ZP-srf-body-J-be in a cylinder-nom-be hanging-stat

Notice that, before they are incorporated, these deverbal nouns must receive the nominalizer -hser/tsher.

There are other nouns (non-derived) that exhibit similar behavior. For example, the following nouns cannot be incorporated in their independent form. When they are incorporated, they occur with one of a set of nominalizers or "increments":

(3.183) ótsyv? o-styv-?
'bone' ZP-bone-nsf

(3.184) kà:sere? ka-?sere-?
'car' ZA-drag-nsf

(3.185) ató:kv? (w)-atokv-?
'axe' ZA-axe-nsf

(3.186) áhta? (w)-aht-a?
'shoe' ZA-shoe-nsf

Incorporated forms:

(3.187) oh nikastyv?tò:tv
'what kind of bone is it?'

oh ni-ka-styv-?t-o?tv-ǿ
what part-ZA-bone-inc-be a kind-stat

(3.188) ka?serehtahu:tsi
'it's a black car'

ka-?sere-ht-a-hu?tsi-ø
ZA-drag-inc-J-be black-stat

(3.189) watokvhseráksv
'a bad axe'

w-atokv-hser-aksv-ǿ
ZA-axe-inc-be bad-stat

(3.190) áhsv niwahtáhkwake
'three shoes'

ahsv ni-w-aht-a-hkw-a-ke
three part-ZA-shoe-J-inc-J-pl

There are many such nouns in Mohawk and they must be listed in the lexicon with their increment, since it is not possible to predict which increment (?t, ht, hser, or hkw) occurs with which noun root. In the case of kà:sere? 'car', the root is actually a verb, -?sere- 'drag'; therefore, the use of an increment or nominalizer is consistent with other deverbal nouns. However, the roots -styv-, -atokv-, and -aht- ('bone', 'axe', and 'shoe', respectively) are noun roots, at least synchronically. Although it seems that roots can be classified as either

"nouns" or "verbs" in Mohawk, the distinction is actually not completely clear in all cases. For example, ahta? 'shoe', which takes an increment when it is incorporated, as in example (3.190) above, also may be used as a verb:

(3.191)	sarahta 'put on your shoes!'	hs-ar-ahta-Ø 2A-srf-shoe-imp
(3.192)	vhsarahta? 'you will put on your shoes'	v-hs-ar-ahta-? fut-2A-srf-shoe-punc

As a verb, it has a final a, at least in the imperative and punctual. This may be a stem vowel; I have no examples of the "verb" 'shoe' in the habitual or stative aspects in my data. In (3.191) and (3.192), it seems that 'shoe' is being used as a verb, co-occurring with verbal affixes: the semireflexive and either the imperative or future. In (3.190), -aht- is enumerated like a basic noun (cf. example (3.155) above). In these examples, the prefix ni-, which indicates the partitive, is used. This is a verbal prefix, while the suffix -ke is a noun pluralizer. This combination of verbal and nominal affixes is discussed further in Section 3.3.5.

3.3.2.2 Syntactic Nouns

The second kind of derived nominals can be divided into two subtypes: habitual nominalizations and stative nominalizations. Habitual nominalizations are formed by

zero-derivation of a verb in the habitual aspect. Often the verb root is followed by an instrumental formative or a causative formative, or both, before the habitual aspect suffix. The verb stem may consist of merely a verb root, as in (3.193)-(3.195) below, or it may be preceded by an incorporated noun stem, as in (3.196) and (3.197).

(3.193) yeharáhkhwa? ye-har-a-hkw-ha?
'hanger' FA-hang-J-inst-hab

(3.194) yehyatúhkhwa? ye-hyatu-hkw-ha?
'pencil' FA-write-inst-hab

(3.195) yuteka?táhkhwa?
'matches'

yu-atek-a-?t-a-hkw-ha?
FA-be burning-J-caus-J-inst-hab

(3.196) yutenuhsa?tariha?táhkhwa?
'heater' (lit: one uses it to cause the house to be warm')

yu-ate-nuhs-a?tariha-?t-a-hkw-ha?
FA-srf-house-be warm-caus-J-inst-hab

(3.197) yakonuhwaratù:tha?
'liquor' (lit: 'it causes one to lose one's mind)

yako-nuhwar-atu-?t-ha?
FP-mind-lose-caus-hab

Unlike -hser- nominallizations, instrumental nominalizations cannot be incorporated or further inflected. They are ambiguous: they could function as verbal expressions, as well as nominals. They come closest to being idioms, as Chafe (1970a) and Woodbury (1975) noted in describing such constructions in Onondaga. Lounsbury (cited in Woodbury 1975) called them "syntactic

nouns." Any verb may function this way in a particular context, but some become lexicalized. The instrumental nominalizations must be listed in the lexicon, since their meaning cannot be predicted.

This type of deverbal noun seems to refer mainly to acculturation items [20]. In examining Hewitt's (1903) texts, there were very few examples of this type of nominalization. However, I did find the following:

(3.198)	ioñtke‘tatsthă'	á'there' [21]
	one uses it bear it on the back by the forehead strap (='burden basket')	it basket
	yu-at-kehtat-st-ha?	(w)-a?ther-?
	FA-srf-bear a load-inst-hab	ZA-basket-nsf

Therefore, it seems that the structure of this type of nominalization was present in Mohawk and eventually became the main structure for naming acculturation items.

In these examples, the verb is always inflected in the habitual aspect (ha?) and the pronominal prefix is always the feminine indefinite (ye/yu), which can be translated as 'one'. These nominalizations are structurally verbs, but they function as nouns. The evidence for this is that they occur as arguments of verbs. For example:

(3.200) ka?nú: tsí yuterihwaweyvstáhkhwa?
'where is the school?'

ka?nu tsi yu-ate-rihw-a-weyv-st-a-hkw-ha?
where P FA-srf-matter-J-know-caus-J-inst-hab

In example (3.200), a nominalizing particle tsi occurs before the derived habitual noun. This particle often occurs with syntactic nouns.

Another type of habitual nominalization creates agentive nouns. A verb describing a habitual activity is used to denote people who perform that activity or to denote animate beings who exhibit a certain characteristic property. For example,

(3.201)	rvtsákwas 'fisherman'	hra-its-a-kw-as MA-fish-J-pick up-hab
(3.202)	rakáːratus 'he's a storyteller'	hra-kar-atu-s MA-story-tell-hab
(3.203)	tehaya?toréhtha? 'a judge'	te-hra-ya?t-oreht-ha? du-MA-body-judge-hab
(3.204)	teyuráhtats 'she's a runner'	te-yu-arahtat-s du-FA-run-hab
(3.205)	bus ratórye?s 'bus driver'	bus hra-at-ory-e?s bus MA-srf-operate,run-hab
(3.206)	kaya?tákeras 'goat'	ka-ya?t-akera-s ZA-body-be smelly-hab

Like the instrumental nominalizations, these deverbal nouns are "syntactic nouns" or idioms. Speakers are aware of their literal meaning, and these words could be generated as verbal expressions. However, they must also

be listed in the lexicon as nominalizations. These nominalizations cannot be further inflected with noun affixes, nor can they be incorporated.

Stative nominalizations also are structurally identical to verbs; however, instead of a habitual aspect suffix, they have a stative suffix. Some examples are:

(3.207)	ronateri:yo 'war' (='they fight')	hron-ate-riyo-ø MpP-srf-fight-stat
(3.208)	wahskwahere 'roof' (='it has a platform on top')	w-ahskw-a-her-e? ZA-platform-J-be on-stat
(3.209)	rathehto:ri 'scarecrow' (='he takes care of the garden')	hra-at-heht-ory-ø MA-srf-garden-operate-stat
(3.210)	yeya?tarunyu 'photographs' (='people are in there')	ye-ya?t-a-r-u-nyu-ø FA-body-J-be in-dist-dist-stat
(3.211)	teyakeni:teru 'married couple' (='they live together')	te-yaken-i?teru-ø du-lexd-reside-stat

Like the habitual nominalizations, the stative nominalizations cannot be incorporated. They are considered nominals because they can occur as an argument of a verb.

3.3.2 Noun-Noun Compounds

One noun + noun compound has already been given (example (3.198) 'burden basket'). This involved a derived noun followed by a basic inflected noun. However, two basic inflected nouns can also be juxtaposed to form a compound, as in:

(3.212)	kátshe?	káhi	ka-tshe-?	k-ahi-?
	'pear'		ZA-bottle-nsf	ZA-fruit-nsf
(3.213)	onékwa?	onó:ra?	o-nekw-a?	o-nor-a?
	'peapod'		ZP-pea-nsf	ZP-husk-nsf

3.3.3 Clausal Nominalizations

As mentioned above, there are nominalizations in Mohawk where clauses are used as sentential subjects or objects. For example, the full context of example (3.175) above is:

(3.214) tó kǎtǐ' katkǎthoʿ né dji
"well so then let me see it the where

nisa'shatstěⁿʿseróteⁿʿ
thy kind of power?"

"Let me see what kind of power thou hast." [18]

to kati k-at-kahtho-Ø ne tsi
P P 1A-srf-look at-imp P P

ni-sa-?shatstv-hser-o?tv-Ø
part-2P-be strong-nom-be a kind-stat

In example (3.214), the deverbal nominal -?shatstvhser- 'strength' is the subject of the intransitive verb -o?tv-

'be a kind'; the whole construction is the direct object or patient of the verb kahtho- 'look at'. It is preceded by a clausal nominalizer tsi. Some other examples, which also use tsi as a sentential nominalizer, are:

(3.215) ronuhtunyúkwv tsi nihoyé:rv
'he thought over what he had done'

hro-nuhtu-nyu-kw-v tsi ni-ho-yer-v
MP-think-dist-rev-stat P part-MP-do-stat

(3.216) takerharátstv tsi thó yvhse? vyóhrhv?ne?
'promise me that you will go there tomorrow'

take-rharat-st-v-Ø tsi tho
2/1-expect,wait-caus-dat-imp P P

y-v-hs-e-? v-yo-rhv-?n-?
trans-fut-2A-go-punc fut-ZP-be day-inch-punc

A longer example (from a text in Chapter 5) is:

(3.217)
yáh tehnirihwanù:we?s kí:kv so:t^{5}i rashá:rute? è:rhar
'They(two) don't like that the dog is tied up so much.'

yah te-hni-rihw-a-nuhwe?-s kikv sot^{5}i
not neg-MdA-matter-J-like-hab this too much

hra-shar-ut-? e?rhar
MA-leash-be attached-stat dog

The sentential object of rihwahuhwe?- 'like' is everything from kí:kv to the end of the sentence. The sentential object consists of kí:kv 'this' and an apposition: 'they (two) don't like this, (that) the dog is tied up so much.'

An example of a sentential subject (from Hewitt (1903:262)) is:

(3.218) ...né dji´ tká'here' ne´ rawěⁿ'héioⁿ'
the where there it lay on it the he is dead
(='...where the dead man lay')

ne tsi t-ka-her-? ne raw-vhey-u
P P cis-ZA-be on-stat P MP-die-stat

In this example, the subject of the verb 'be on' is a deverbal noun 'he-is-dead' = 'dead man'. The entire construction also functions as a nominal ('the place where the dead man lay').

A more complex example, also from Hewitt (1903:267), is:

(3.219)
iă´ [néne' otiă'ké'shoⁿ' né kanóⁿ'săkoⁿ'
not [the that it other everyone the house in
NP
iétero'] teiakothóñté'oⁿ'
they it (indef) abide]NP they it did hear

[ne´ dji´ nă'hótěⁿ' wă'hěñroⁿ']
[the where such kind of thing he it said]NP
NP
'...those other people who were in the lodge did not hear what things he said.'

yah ne ne otya?ke-shu? ne ka-nuhs-a-ku
not P P other-pl P ZA-house-J-in

ye-?teru-Ø te-yako-t-huhte-?u
FA-reside-stat neg-FP-srf-hear-stat

ne tsi nahotv wa-a?-hra-iru-?
P P what fact-H-MA-say-punc

In this example, the two clausal NPs are bracketed. One

functions as the subject of the verb 'hear' and the other as the direct object. The verb phrase is discontinuous: the negative marker yáh appears at the beginning of the sentence and the rest of the VP appears in-between the two NPs. The presence of yáh necessitates the negative prefix te on the verb. Note that that the sentential direct object is preceded by the sentential nominalizer tsi.

The status of these constructions as nominalizations depends on syntactic criteria. They appear in the same positions and have the same grammatical functions as basic nouns. Also, they are often preceded by the nominalizer tsi. In (3.217), the particle kí:kv 'this' serves as the direct object, with the sentential object as an appositive.

3.3.4 Nominal Frames

The verbal constructions above have been designated nominals because they occur in certain positions where basic nouns also occur. These positions can be described morphologically (i.e., co-occurrence with certain affixes within a word) or syntactically (i.e., positions within a sentence). Morphological noun frames are:

(1) before postpositions

(2) between noun prefixes (ka, o, ø) and noun suffixes (a?, ?, e?)

(3) in construction with numerals

(4) after possessive pronominal prefixes

(5) before nominal derivational affixes (e.g., -kowa 'big')

(6) incorporated in a structural verb, including adjectival verbs

Basic inflected nouns and nouns derived with -hser/tsher fulfill these criteria. Uninflected nouns, as well as other types of derived nouns (e.g., idiomatic nominals derived from verbs using the instrumental and habitual formatives) do not fulfill all these criteria. Their status as nominals depends on syntactic criteria: they appear in argument positions and, in the case of clausal nominalizations, are preceded by a nominalizing particle.

3.3.5 Noun-Verb Continuum

In enumerations, such as example (3.155) above, áhsv nikanúhsake 'three houses', the verbal prefix ni, meaning roughly 'of' is prefixed to a noun, which is, in turn, followed by a noun suffix -ke, meaning, roughly, 'plural'.

Also, examples (3.191) and (3.192) used the noun root 'shoe' as a verb with verbal affixes. This combination of verbal and nominal formatives in one word is not unusual, making it difficult to use co-occurrence with certain affixes as a criterion for nounhood or verbhood. For example:

(3.220)	rohné:ka? 'he's feeling good from drinking'	hro-hnek-a? MP-liquid-nsf

The noun for 'liquid' is ohné:ka?, with a neuter prefix (yo) which has lost its initial glide (as is typical in noun prefixes) and a noun suffix -a?. In (3.220), the neuter prefix is replaced by an an explicitly verbal prefix (hro), but the noun suffix remains. The prefix is not possessive, because the masculine singular possessive prefix is hrao-. The gloss is adjectival or verbal.

Similarly, example (3.221) below might be glossed 'she's skirted':

(3.221)	yakò:khare? 'she has a skirt on'	yako-?khar-? FP-skirt-nsf

Example (3.222) shows the use of the distributive suffix (a verbal suffix) with a noun root:

(3.222) yotsistónyu
'the stars are out'
yo-tsisto-nyu
ZP-star-dist

These examples suggest that either some noun roots must be listed in the lexicon as potential verb roots, or some affixes may have subcategorization frames for both noun and verb roots. However, this phenomenon needs further investigation.

Notes for Chapter 3

1. Lounsbury lists the progressive as a derivational affix. It has roughly the meaning of carrying out an activity 'while in motion' or 'while going along'.

2. Lounsbury (1953) also divides the pre-pronominal prefix system (in Oneida) into two subsystems, but his division (modal prefixes vs. all others) is different from the one I am using, which is based on a distinction between derivational and inflectional prefixes.

3. Usually the punctual occurs with the modal prefixes. However, the stative may occur in certain instances (see example (2.127) in Chapter 2: autúkha? 'I would have brought it' a-ut-a-wak-ha-Ø opt-cis-opt-1P-bring-stat).

4. In the formative segmentation, "H" stands for hinge. This is discussed on p.145.

5. The coincident also appears in fixed expressions like sha?té:ku 'eight', where it is not linked to an external formative. This semantic specialization, requiring lexical listing, does not contradict the argument that the coincident is an inflectional formative. In English, for example, an inflectional affix like -ed is no less an inflectional affix for appearing in a derivational compound like hand-woven.

6. The optative in this position has an alloform ae before certain second-person pronominal prefixes.

7. The negative also cannot co-occur with the future prefix. It usually co-occurs with the stative aspect.

8. There are some exceptions to this in my data. For example, kú:ni (k-uni-Ø) 'I'm making it' has an agent pronominal prefix, yet is in the stative aspect (see example (1.11) in Chapter 1). It is not clear to me at this point under what semantic conditions this situation arises.

9. Example from Hewitt (1903:309). Hewitt's orthography includes an apostroophe (') for glottal stop, an opening

quotation mark (ʻ) for aspiration, a raised n to show that the previous vowel is nasalized, and an n with a tilde for [ɲ], which in modern Mohawk is replaced by a nasal vowel. The nasal vowel [ũ] is written on by Hewitt, and the nasal vowel [ʌ̃] is written en. As mentioned in Chapter 1, all examples from Hewitt are given with his glosses, followed by my formative segmentation.

10. In (3.47), the h does not delete and the rule of length with falling tone does not apply (rule (2.13)). This situation occurs often, but not always, with the remote past and may be a case of free variation. Both the following forms were given as acceptable: tewakarahtathúhne and tewakarahtathù:ne for 'I went there to run'. (See example (3.15) in text.)

11. I would like to thank Karin Michelson for generously providing me with a copy of her master's thesis.

12. A third noun suffix---e?--will be added below.

13. Example from Michelson (1983:114).

14. Note that there is no constraint against stressing the pre-antepenultimate vowel under other (different) circumstances. For example, ónerahte? 'leaf' is underlyingly o-neraht-?. The penultimate vowel e is in a weightless syllable and hence the preceding vowel o is stressed. The final e is added by an automatic P rule (rule (2.16) in Chapter 2) after the stress rule has already applied.

15. Example from G. Michelson (1973).

16. From Hewitt (1903:261). See note 9 for explanation of Hewitt's orthography.

17. It is possible that the verb root -yvht- is actually two formatives: yv + ht 'be lying' + instrumental. In that case, the external noun would receive its case role from the instrumental suffix, as in example (3.169) below. The formative -ht/?t/st was identified as a causative in Section 3.1.2, and, indeed, it often functions as a causative, adding an argument to the verb's valence. Lounsbury (1953) pointed out that in Oneida, the instrumental st/ht/?t (his "instrumental I") also had a

causative use. His "Instrumental II" was -hkw- which consistently is used as an instrumental. A similar situation seems to exist in Mohawk.

18. Example from Hewitt (1903:336).

19. Example from Hewitt (1903:260).

20. Sally McLendon first suggested this possibility to me.

21. Example from Hewitt (1903:265).

Appendix I: Data Used for Conjugation Classes

Following is a list of the verb bases used as the data in determining the conjugation classes in Mohawk. The source of each is given in parentheses: (KM) = Michelson (1975); (MM) = Mithun (1977); no parenthetical information = my fieldnotes.

An asterisk preceding a base indicates that it was not used in calculating the percentages for each class, either because it is a derived base of an already counted base or because its final formative (e.g., "causative") has already been counted once in that class and, hence, to count it again would misleadingly expand the percentage of items in that class.

Class IA (stative -u; habitual -s) 35% of data

-arat-	'lie down' (MM)
-atehrarat-	'wait' (MM)
-vnakerat-	'be born' (KM)
-karvhrat-	'tip something' (MM)
te...awvhrat-	'put something over' (KM)
-hnirat-	'tighten' (MM)
*-rihwahnirat-	'take an oath' (MM)
-atorat-	'hunt'
-tat-	'offer' (KM)
-haratat-	'raise something' (MM)
-kehtat-	'put a load on someone' (KM)
-athutat-	'consent, obey' (KM)
-arutat-	'shoot' (MM)
-o?kwat-	'dig'
-ket-	'scrape, grate' (MM)
s...ahket-	'go back' (MM)
te...t...ahket-	'to receive something' (MM)
te...sha?ket-	'bend' (MM)
-anuwet-	'sleep over' (KM)

-yerit-	'complete' (KM)
-torarak-	'press' (KM)
te...ahtohrarak-	'squeeze something' (MM)
*te...rihstohrarak-	'type' (MM)
-esak-	'look for'
-ra?nvtak-	'stick on' (KM)
-nyak-	'get married'
-awak-	'shake'
-k-/-ek-	'eat'
-askanek-	'hope, wish for' (KM)
t...atu?nek-	'startle' (MM)
y...hrek-	'push' (MM)
-nutek-	'seal, close' (MM)
-swek-	'shut up' (KM)
te...rik-	'put together' (KM)
*te...hnyahskarik-	'unbuckle' (MM)
-otarhok-	'drape' (KM)
*-hnyo?kwa?tshero-tahrhok-	'hook' (MM)
-nyryhshthok-	'lock' (MM)
*te...nehthahrhok-	'block' (MM)
-rohrok-	'gather' (MM)
*-aterohrok-	'watch, look at' (MM)
-ohrok-	'insert' (KM)
*-atohrok-	'shrink' (MM)
t...rorok-	'add' (MM)
-?rhorok-	'cover something'
-hnuk-	'call someone' (MM)
-atvhna?(n)-	'hire someone' (MM)
-nutahra?(n)-	'go uphill' (KM)
-ehyahra?(n)-	'remember' (MM)
te...ta?(n)-	'stand, step on' (MM)
*-rata?(n)-	'step on something' (KM)
-ahta?(n)-	'to have one's fill' (KM)
-atateweyenvta?(n)-	'get ready' (MM)
-yvta?(n)-	'acquire' (KM)
*-?nikuhryvta?(n)-	'understand' (MM)
-rihwvta?(n)-	'wear out' (KM)
-yvtere?(n)-	'recognize' (KM)
-athute?(n)-	'hear' (KM)
-nuhwe?(n)-	'like'
-?sko?(n)-	'be drowning' (KM)
-atyaneru?(n)-	'feel spooky' (KM)
-kahratho-	'turn' (MM)

-kwatho-	'come and go' (KM)
-atkahtho-	'look'
t...atihvtho-	'pull' (MM)
te...ahsvtho-	'cry, weep' (MM)
-yvtho-	'plant'
-rho-	'coat something' (KM)
*-rihstahrho-	'iron' (MM)
*-hnehtarhro-	'seal something' (MM)
te...ohtahrho-	'clean something' (MM)
*-ya?tohtahrho-	'ostracize, alienate someone' (MM)
-ya?k-	'break, cut'
*te...ya?k-	'break, cut in two' (MM)
*-hnhohaya?k-	'knock' (MM)
te...yahya?k-	'cross'
-atukarya?k-	'be hungry'
-oya?k-	'shoot' (KM)
-yakvhw-	'take out' (MM)
-ita?w-	'sleep'

Class IB (stative -u; habitual -ha?) 12% of data

(This class contains the causative formative -ht/-st/-?t. Verb bases that could not positively be identified as containing the causative are listed without an asterisk and are counted in calculating the percentage for this class. However, I suspect that some of these bases actually contain the causative.)

t...hraht-	'fill something' (MM)(contains causative)
*-yesaht-	'torture someone' (MM)
*-atyesaht-	'waste' (MM)
*-karewaht-	'damage something, someone' (KM)
*-hrewaht-	'punish someone' (MM)
*te...atstarokwaht-	'splash, sprinkle' (MM)
-atehswaht-	'smell something' (MM)
s...ate?waht-	'miss' (MM)
-atsa?aht-	'burn something' (KM)
te...hvreht-	'yell' (MM)
*te...ya?toreht-	'judge' (MM)
-ahseht-	'hide something'
*-atahseht-	'hide oneself'
*-hvteht-	'put ahead' (KM)
-atewvteht-	'abandon' (KM)
y...atvnyeht-	'send something away' (MM)
*te...hnekutyeht-	'boil'
-nyakvht-	'save someone' (KM)

*ye...atsnvht-	'go down, descend' (KM)
-nvhrvht-	'yank' (MM)
*-a?svht-	'drop something' (MM)
*-hnhohayvht-	'slam a door' (MM)
*-huwvht-	'launch a boat' (KM)
te...rihwanuhyaniht-	'exaggerate' (MM)
*-riht-	'cook'
*te...hriht-	'break something' (MM)d
te...atukoht-	'penetrate' (KM)
*-wistoht-	'chill something' (KM)
*-ryoht-	'die from' (KM)
te...atutarikt-	'laugh loudly' (KM)
te...yest-	'mix something' (KM)
-atst-	'use something' (contains causative)
te...ahwe?ehst-	'pierce' (KM)
*-ataweyvhst-	'learn' (MM)
*-nvnyo?kwenohst-	'freeze something' (MM)
*-ate?nikuhriyohst-	'be patient' (MM)
te...t...ate?nyvtvhst-	'copy, imitate' (MM)
*-atkuhst-	'bewitch' (KM)
*te...i?tsyuhst-	'make dirty' (MM)
*atohrokst-	'shrink something' (MM)
-ohetst-	'outdo' (KM)
*-atohetst-	'pass'
-?nikuhrha?t-	'cheat' (contains causative)
*-statha?t-	'make dry'
*-ateka?t-	'start a fire' (KM)
-atswa?t-	'play' (MM)
t...ataweya?t-	'come in, enter'
*-atshinuhwatenya?t-	'spin around' (MM)
*-atya?tawi?t-	'put one's coat on' (MM)
-atkwi?t-	'move over' (MM)

Class IC (stative -u; habitual -e?s) 5% of data

te...atkarhateny-	'turn around' (KM)
-kweny-	'be able to do' (KM)
-tshvry-	'find something' (MM)
-atory-	'drive'
y...aty-	'throw away' (MM)
-ahtvty-	'go away'
te...ate?khahuty-	'skip' (MM)
-atahruty-	'look away' (KM)

-hser-	'chase something' (MM)
-kvnor-	'rain'

Class IIA (stative -v; habitual -s) 6% of data

te...owiha-	'split in two' (KM)
-yena-	'receive' (MM)
*y...yena-	'touch' (MM)
-nu?kera-	'suck' (MM)
y...atvwvnata-	'call someone on the telephone' (MM)
-ya?tat?a-	'bury a body' (MM)
-atit?a-	'get in'
-yakv?(n)-	'go out' (MM)
*-?nyakv?(n)-	'escape, run away' (MM)
-hetkv?(n)-	'be ugly' (KM)
-ya?tyenv?(n)-	'fall (living thing) (MM)
-atyesv?(n)-	'be easy' (KM)
-?taksv?(n)-	'be bad, evil' (KM)

Class IIB (stative -v; habitual -ha?) 3% of data

te...hkʷ-	'pick up' (MM)
*te...nunyahkʷ-	'dance'
-ata?kerahkʷ-	'float'
te...ate?khahakʷ-	'take a step' (MM)
-ya?tishuhkʷ-	'shiver'
yer-	'do'
-hnekir(a)-	'drink'

Class IIC (stative: -v; habitual: -as) 7% of data

-kw-	'pick'
*y...kw-	'go get' (MM)
*-yvthokw-	'harvest' (MM)
*-hnhotukw-	'open (a door)' (MM)
*-tsihkotakw-	'unbutton' (MM)
*-ahkwenyiahrakw-	'unharness' (MM)
*-rihsyukw-	'take apart' (MM)
-rakw-	'choose'
*-aterakw-	'keep something' (MM)
-takw-	'take out' (KM)
-kwatakw-	'prepare'
-atekhwakw-	'bite' (MM)
-atshokw-	'smoke' (MM,KM)
-anuhtenyukw-	'think' (MM)

-atitahkw-	'climb out' (MM)
*te...hnv?netahkw-	'copy (exactly)' (MM)
-ketskw-	'raise something' (KM)
*-atketskw-	'get up, wake up'
-nvhskw-	'steal' (MM)
-ate?kw-	'run away' (KM)
-rakeh^{w}-	'erase' (MM)
-atka?^{w}-	'let something go' (MM)

Class III (stative: ø; habitual: -s) 24% of data

-(n)ohare-	'wash'
te...sterihv-	'hurry' (MM)
-atkuhv-	'put one's head down' (KM)
-atorishv-	'rest' (MM)
-kv-	'see'
*te...atatkv-	'meet someone'
te...ra?nekv-	'stand or put things together'(MM)
te...orv-	'split something' (MM)
te...itv-	'fly' (MM)
-ate?nyvtv-	'try' (MM)
*t...atu?nektv(ni)-	'scare someone' (MM)
-atawv-	'swim'
-yv-	'put something down'
*-atyv-	'sit down'
*te...yv-	'gamble' (MM)
*-atervnayv-	'pray' (MM)
-rihunyv(ni)-	'teach someone' (MM)
-?nikhu-	'sew'
=rihu-	'let someone' (MM)
te...anvtshatenihu-	'wave' (MM)
te...atska?hu-	'eat a meal'
-hsnyenu-	'help' (MM)
-hninu-	'buy'
*-atvhninu-	'sell' (MM)
-itskaru-	'put a cover on something'(KM)
te...t...atera?karu-	'relax, rest' (MM)
-kwe?taru-	'cut, gouge' (MM)
te...areru-	'race' (MM)
-aweru-	'spill'
-hteru-	'put someone down' (KM)
-akhwisru-	'try harder' (MM)
-atkatstu-	'make soup' (KM)
-na?tu-	'call someone's name' (MM)
-ahtu-	'disappear'
-hyatu-	'write'
-karatu-	'tell a story'
te...atatu-	'exchange' (MM)

-hnhotu-	'shut something' (MM)
-ri?wanutu-	'ask'
-ataweyv?tu-	'save something'
*t...ateweyv?tu-	'do something right' (MM)
te...atenuhweratu-	'greet' (KM)
-ratyu-	'tear' (MM)
-takwarihsyu-	'straighten' (MM)
-ra?wihstohthsy-	'peel' (MM)
-ka?vyu-	'examine'
-uni-	'make'
*-khuni-	'cook'
*-atsheruni-	'get dressed up' (MM)
*-hwe?nuni-	'fold something' (MM)
-atshvnuni-	'become happy' (KM)
-athrori-	'tell'
-atati-	'talk' (MM)
-kutsherahrho-	'paint' (MM)
*te...tsikhe?tahrho-	'sweeten' (MM)
-riyo-	'kill' (KM)
*-ateriyo-	'fight' (MM)
-haw-	'carry'
*t...ha(w)-	'bring'
*y...ha(w)-	'take, carry away' (MM)

Class IV (stative: -?; habitual -ha?) 7% of data

-r(v)-	'fill in, put in'
-har(v)-	'hang'
-ohar(v)-	'attach' (KM)
-atstar(v)-	'cry, weep' (KM)
-her-/-hr(v)-	'put something on something'
-ehnot(u)-	'flood over' (KM)
-ya?tahnot(u)-	'tell about, describe' (KM)
-atervnot(v)-	'sing'
-hnyot(v)-	'stand something up' (KM)
-ut(v)-	'attach' (KM)
t...atirut(v)-	'pull, stretch' (KM)
-ate?skut(v)-	'roast' (MM)
-niyut(v)-	'hang' (MM)
te...ya?ser(v)-	'stack' (KM)

Appendix II: Problems and Exceptions to the Conjugation Classification

Some verb bases do not fit into the scheme of conjugation classes given in Chapter 3; that is, by the phonological classification given, they should belong to one class, yet they take the aspect endings of a different class. In the listing below, parenthetical (MM) indicates that the example is from Mithun (1977); (KM) indicates that the example is from Michelson (1975).

1. Some verb bases ending in -ha and -sa. These should belong to Class IIA, with other -a-final verb bases. However, they do not have an -v ending for the stative as other Class IIA verbs do; rather, they have -u (Class I stative ending). These verb bases are:

-yesa-	'suffer' (MM)
-hsha-	'finish' (MM)
-koha-	'go get' (MM)
te...atstikahwha-	'travel' (MM)

In the last three examples, the -ha- ending may be the purposive formative 'going to'. Further examples containing the purposive must be checked to see if they follow this pattern.

2. Two verb bases ending in -et. These should belong to Class IA with other -Vt ending verbs; however, they have a habitual ending of -as (like verbs in Class IIC) rather than the IA habitual ending -s:

-ashet-	'count' (KM)
-atket-	'scratch something' (KM)

Also, -atket- has a stative ending of -v, which puts it in Class IIC; however, -ashet- has a stative ending of -u, so it fits into neither Class IA nor Class IIC.

3. One verb ending in -e?n. This verb base (-hre?n- 'cut, make an incision' (MM)) has -as in the habitual and -v in the stative, which would put it in Class IIC with verb bases ending in -w. However, KM lists this verb base as -hren- with -as in the habitual and -u in the stative. In this case, it would not fit into either Class I or Class II. I do not have examples of this verb in my data.

4. Three verb bases endig in V?t. These should belong to Class IB; however, they have -s rather than -ha? in the habitual, like Class IA verbs:

te...atshari?t-	'beg' (MM)
t...yeri?t-	'do something right' (MM)
-atetsv?t-	'cure' (KM)

The second base in this list is given by KM as -yerit- and fits into Class IA with other -Vt ending verb bases.

5. Some verb bases endin in -ek and -vk. These should belong to Class IA with other -Vk bases; however, instead of the Class I stative ending -u, these verbs have ∅ (with loss of -k):

-hwanervk-	'tie' (MM)
-ne?kuhrek-	'hammer' (MM)
te...awv?ek-	'wrap something' (KM)
-kuhrek-	'hit, beat' (KM)

The loss of -k in the stative of these verbs suggests a different underlying form, perhaps explaining their failure to inflect like other -Vk verbs.

6. One verb base ending in -ok. This should be in Class IA with other -Vk verbs, but it has a habitual ending of -as, rather than -s, and a stative ending -v rather than -u, placing it in Class IIC. The -k- is not lost in the stative:

-attok-	'notice, perceive' (MM, KM)

There are also some bases that are apparent exceptions to the scheme of conjugation classes given here; that is they contain aspect endings not given in the chart in Chapter 3. Descriptions of these verb bases follows:

1. Two verb bases have -us in the habitual:

-ihey-	'die' (KM)
-hwetar-	'peel, slice' (KM)

2. Several verb bases have -? or -e? as their habitual aspect ending:

-yo?t(v)-	'work' (KM)
-?ser-	'drag' (MM)
-ehr-	'want' (MM, KM)
te...?nikuhrhar(v)-	'cause trouble' (MM)
-sha?te...tat-	'make something even' (MM)
te...kanehr(v)-	'look at' (KM)

3. Several verb bases take -?u, -?v, or -hu in the stative:

-hnirha-	'get hard, solid' (KM)
-?nosha-	'be envious' (KM)
-okha-	'leak' (KM)
-atu-	'become, be possible' (KM)
t...anuhtu-	'force something' (MM)
-swv-	'dislike' (KM)
-?nikuhrhv-	'forget' (MM)
-?nikuhraksv-	'be sad, crying' (MM)
-hsatv-	'ride, straddle' (MM)
-atehv-	'be embarrassed, ashamed' (KM)
te...ahsvtho-	'cry, weep' (MM)

These exceptions will be treated here as sets of irregular verbs that must have their exceptional aspect endings listed as part of their lexical entry.

CHAPTER 4

NOUN INCORPORATION

All noun incorporation (NI) is "morphologic" in the sense that it takes place within word boundaries. In describing noun incorporation, one is describing part of the internal structure of words. However, in Chapter 1 the notion that morphology and syntax are contiguous, mutually exclusive systems was rejected in favor of the view that words are phonological units and word boundaries are not barriers to syntactic processes. Word formation (i.e., morphology) is not a separate component of the grammar in this model. It does not constitute a level, but rather is merely a term that covers rules occurring in several components of the grammar.

Thus, there is no "boundary" between morphology and syntax; however, lexical items are impervious to syntactic rules. The question, then, is not whether NI is morphologic or syntactic, but rather whether it can be both at once. It will be argued below that there are two types of NI in Mohawk: one is lexical, the other syntactic. Both, of course, are "morphologic" by definition. The very nature of polysynthetic languages can lead to difficulties in differentiating lexical from syntactic processes, as has been pointed out by other workers on such languages (e.g., Fortescue, 1980).

However, I would argue that the difference does exist and that differentiating these two types of processes is, in fact, an essential part of understanding how polysynthetic languages "work." In Chapter 3, differentiating inflectional and derivational affixes was shown to aid in the analysis of verbal structure. In this chapter, it will be shown that recognizing that there are two types of noun incorporation in Mohawk--one lexical and one syntactic--helps to resolve previous problems in understanding this construction.

4.1 Previous Analyses of Noun Incorporation in Mohawk

Previous attempts to categorize noun incorporation have assumed that, at least in a given language, it is a single process. Sapir, in his 1911 article "The Problem of Noun Incorporation in American Languages," concluded that, although NI has a "syntactic value" (the incorporated noun serving as either the object, subject, locative, or instrumental argument of the verb), "the characteristic fact about the process is that certain syntactic relations are expressed by what in varying degree may be called composition or derivation"--that is, noun incorporation is "the morphologic equivalent of a logically syntactic [process]."

Sapir added, however, that NI in Iroquoian languages, unlike NI in other languages he discussed, cannot be clearly classified as either "composition" (compounding) or "derivation" because, on the one hand, other types of compounds are lacking in Iroquoian languages (e.g., noun + noun or verb + verb) [1], and on the other hand, the incorporated noun is not comparable to other derivational affixes in Iroquoian languages. He concludes that NI in Iroquoian is "something more or less sui generis, difficult to assign to any recognized morphologic category," and leaves it at that.

There have been two major treatments of NI in Iroquoian languages since Sapir's article: Woodbury's (1975) dissertation, "Noun Incorporation in Onondaga," and Mithun's (1984, 1986) classification of NI in Iroquoian and other languages of the world. Woodbury tries to solve a problem raised by Sapir: In languages where NI is an alternative to constructions with independent, external nouns, under what circumstances is NI used by speakers? She argues that NI is a syntactic device for creating lexical hierarchical structure by generating new semantic categories. She argues that all NI is "classificatory," either overtly or covertly. That is, the incorporated noun designates a general "non-delimited set," and an accompanying external noun denotes a specific referent of that set. The incorporated nouns, then, "classify" the external nouns. An example of overt classificatory NI in

Onondaga (taken from Woodbury, 1975) is:

(4.1) hatihnékaéts ov:tá:ki:?
they:it/liquid/gather/asp it/tree/be-soup/asp
(= 'maple syrup')

'They gather maple syrup' (lit: 'They gather liquid, it is tree-soup.')

In (4.1), the noun stem -hnek- 'liquid' is incorporated into the first verb. It is more general in meaning than the external noun 'maple syrup' (which, however, also contains an incorporated noun, 'tree'); that is, maple syrup is 'a kind of' liquid. An example of covert classificatory NI in Onondaga given by Woodbury is:

(4.2) wa?hayv?kwahní:nu?
tns/he:it/tobacco/buy/asp

'He bought tobacco.'

In (4.2), there is no external noun; rather, the incorporated noun 'tobacco' is interpreted as having general (nonspecific) reference. Woodbury argues that in both examples, the meaning of the incorporated noun is "a kind of _." Thus, the gloss for (4.2) would be 'he bought a kind of tobacco.' In describing a non-delimited set, the incorporated noun's function is similar to that of an indefinite noun: it designates rather than denotes a referent.

Woodbury goes on to state that, in contrast to incorporated nouns, independent (non-incorporated) nouns may either designate or denote their referents. Whereas designation is similar to the concept of indefiniteness for nouns, denotation is similar to the concept of definiteness. Woodbury proposes that the particle ne? is placed before independent, denotative nouns in Onondaga; otherwise, independent nouns are designative [2]. She gives the following examples from Onondaga to show designative and denotative independent (external) nouns, respectively:

(4.3)	tashakáú?	ka?áhsɤ:?
	cisloc/tns/he:her/give/asp	it/basket/sf
	'He handed her a basket.'	
(4.4)	tashakáú?	ne? ka?áhsɤ:?
	cisloc/tns/he:her/give/asp	n.p it/basket/sf
	'He handed her the basket.'	

In these examples, there is no incorporated noun; sf = noun suffix and n.p. = nominal particle. Woodbury concludes from examples like these that although NI seems to signal indefiniteness for the incorporated noun, that cannot be its sole function, since indefiniteness can also be achieved using an external noun, as in (4.3). She argues that constructions with incorporated nouns differ from those with independent designative (indefinite) nouns because the former refer to an "implicit subclass," a "kind of _." NI, then, generates new semantic categories

via a syntactic process.

Mithun (1984) also describes NI as a single process. However, for Mithun, it is derivational, not syntactic; she states: "incorporation is a solidly morphological device that derives lexical items, not sentences." Characterizing the difference between utterances with incorporated nouns and those without, she argues that there are four types of NI and that each type functions to qualify the action or quality described by the the verb and to "background" an argument of the verb in a certain domain. Type I backgrounds an argument within the verb, as a compound; for example:

(4.5) t-v-hu-?kvhr-akwátho
change-will-they-dirt-turn.over [3]
'they will plow'

In (4.5), Mithun argues, the incorporated noun -<u>?kvhr</u>- 'dirt' loses its salience and becomes part of an NV compound: 'dirt-turnover'='plow'.

Her Type II NI backgrounds an argument within the clause; for example:

(4.6) kvtsyu v-kuwa-nya?t-o:?ase [4]
fish will-they/her-throat-slit
'They will throat-slit a fish.'

In (4.6), the pronominal prefix -<u>kuwa</u>- 'they/her(Z)'

cross-references 'fish', not the incorporated patient noun 'throat'. Mithun describes this as an example of advancement of a noun (in this case 'fish') to the direct object position, which has been vacated by incorporating the patient (in this case, 'throat').

Mithun's Type III NI backgrounds an argument within discourse; for example:

(4.7) Nó:nv akwé: yostáthv n-ó:-nvhst-e
the.when all it.is.dry the-it-corn-NOM

sok nú:wa v-ts-ak-wa-nvhst-arú:ko.
then now will-back-we-all-corn-take-REVERS

'When the corn was completely dry, it was time to shell it (the corn).'

In (4.7), 'corn' is first mentioned as an independent noun (nó:nvhste); when it is used again, it is incorporated or "backgrounded".

Mithun's Type IV NI--"classificatory"--refers to examples like (4.1) above, where an external noun occurs in addition to the incorporated noun. Whereas some languages have only type I, or types I and II, or types I, II, and III, Mithun argues that Mohawk has all four types of NI.

In all types of NI, according to Mithun, the incorporated noun "narrows" the meaning of the verb. It cannot serve as an antecedent for anaphora--i.e., it does not set up a discourse referent. In Postal's terms, the

construction is an anaphoric island. The incorporated noun does not introduce "new information," Mithun argues, but rather serves to background "old information." The incorporated noun is always unmarked for definiteness, number, or case. In Type I, it is also nonspecific. In Type II, the incorporated noun may refer to a specific entity, but it is still unmarked for definiteness, number, or case. Type III incorporated nouns also may be specific, but, in addition, they are "old information," and Type IV incorporated nouns are general (nonspecific) categories that serve to classify an external noun.

Although I agree with Mithun that NI is functional, I will use a quite different classification based on syntactic versus lexical functions of NI. In her Types I and IV, the incorporated noun is nonspecific, while in her Types II and III, it may be specific. I would group her Types I and IV into one category--lexical NI--and her Types II and III into another category--syntactic NI. Lexical NI builds lexemes, which are anaphoric islands. However, syntactic NI, I will argue below, is quite different from lexical NI: the incorporated noun may participate in syntactic processes.

Instead of classifying all NI as one process--either as syntactic (Woodbury) or as a nonsyntactic process that results in argument "backgrounding" of different degrees (Mithun), I will argue that there are two distinct types

of NI with distinct functions. The separation of derivational, lexeme-building processes (which are confined to the lexicon), from inflectional, syntactic processes, which has been used throughout this thesis, is again relevant here. Also, the argument that word boundaries are not barriers to syntactic processes will be supported.

There is no doubt that, in one sense, NI is a "morphologic" process: it participates in word formation. However, I will argue that it is sometimes also a syntactic process. That is, it is hypothesized here that a single morphological structure can be used either for lexeme-building or for syntactic functions. Attempts to chararcterize all NI as either "syntactic" or "derivational" have had to "squeeze" the data in one direction or the other. Sapir opted for defining NI morphologically for the sake of unity of definition; and, indeed, it is a word-building process. Sapir compared the various reconstructable syntactic relations within English compounds like song-writer, steam-engine, and concert-singer (object, instrument, and locative) with the reconstructable syntactic relation of an incorporated noun to its verb. He states (1911:257):

"In both cases the grammatical expression of a logical relation, in other words a syntactic process, is sacrificed to a compositional process in which the logical relation is only implied. The sacrifice of syntax to morphology or word-building is indeed a general tendency in more than one American language."

I will argue, on the contrary, that syntax is not sacrificed to the morphology in syntactic NI and that the logical relation of the incorporated noun is not merely implied. By distinguishing lexical from syntactic noun incorporation, the aspects of the syntactic structure that clarify the case roles of the verbal arguments in syntactic NI can be discovered, as will be discussed below.

Noun incorporation will be defined here as the combination of a noun stem and a verb stem within word boundaries. It may be a lexical, derivational process, similar to compounding, or it may be a syntactic process, used for discourse-related functions, similar to the manipulation of word units in more analytic languages to signal differences in focus, etc, such as the distinction between passive and active sentences in English.

It is not unusual to find a single structural type serving both morphologic and syntactic functions. In English, adjective-noun juxtaposition (tall man, green hat, black board) is considered a syntactic construction. At the same time, compounds may be formed by juxtaposition and stress shift (e.g., blackboard). Only orthographic convention "closes up" blackboard and similar compounds; many, of course, are written as two words, while functioning as a compound: White House, for example, as contrasted with a white house. Similarly, verbal

inflection for the past participle can also be used derivationally to form adjectives, as in broken.

Therefore, the discovery that Mohawk uses a single structural technique--noun incorporation--to serve both a lexical and a syntactic function is no more exotic than the fact that English uses juxtaposition that way.

4.2 Distinguishing Lexical and Syntactic Noun Incorporation

Certain morphological aspects of NI are beyond dispute. For example, an incorporated noun and its verb form part of a single word, defined phonologically as in Chapter 1. Structurally, NI is morphological, then, in this sense. The hypothesis that NI functions either lexically or syntactically requires the delineation of criteria that will distinguish these two functions. I propose the following semantic, syntactic, and phonological criteria:

Semantic Criteria

Lexical NI	Syntactic NI
The incorporated noun construction:	
1. Describes habitual activities, entities, or states; unitary activities; general activities.	1. Describes particular events or activities.

2. May drift from a compositional meaning, and therefore must be memorized by language-learners and listed in the lexicon.	2. Is transparently compositional in meaning; novel combinations can be understood at first hearing by any speaker of the language.
3. Is not paraphrasable using the same verb and noun stems in a non-incorporated construction. Tends to be idiomatic.	3. Is paraphrasable using the same verb and noun stems in a non-incorporated construction, although this will produce a difference in focus, definiteness, etc.
4. Is general (nonspecific) in reference. The incorporated noun is neither definite nor indefinite. It has no "salience."	4. Can be specific in reference, but is indefinite. Signals indefinite nouns.

Syntactic Criteria

Lexical NI	Syntactic NI
The incorporated noun construction:	
1. Does not use the incorporated noun as an overt argument of the verb; the NV compound may be transitive or intransitive. If it is transitive, it can take a direct object in addition to the incorporated noun.	1. Does use the incorporated noun as an overt argument of the verb at all levels. The verb cannot take an additional argument to fill the case role of the incorporated noun.
2. Is an "anaphoric island"; that is, the incorporated noun does not set up a discourse referent and cannot serve as an antecedent in anaphoric relations.	2. Is not an anaphoric island; the incorporated noun does set up a discourse referent and can serve as the antecedent in anaphoric relations.
3. The incorporated noun is not the head of an NP; it is not associated with external determiners or modifiers.	3. The incorporated noun may be the head of a (often discontinuous) NP, with external determiners or modifiers.

Phonological Criteria

Lexical NI	Syntactic NI
The incorporated noun construction:	
1. May undergo phonological changes that differentiate the noun and verb stems from their independent counterparts.	1. The noun and verb stems have the same phonological shape as their independent counterparts.

The central fact about lexical NI is that the incorporated noun loses its saliency semantically, syntactically, and phonologically. Syntactic incorporated nouns, on the other hand, are salient arguments of the verb. The speaker incorporates for a reason (discussed below in Section 4.3.4), but the manipulation is best desscribed as syntactic in nature, not lexical or lexeme-building. Lexical and syntactic NI will now each be discussed in terms of these criteria.

4.2.1 Lexical NI: Semantic Criteria

Noun-verb compounds describe a "unitary activity"; in Sapir's terms, they express "typical or characteristic activities" rather than "accidental associations." In Mithun's terms, they describe a "name-worthy activity, entity, quality." For example:

(4.8)	sekhú:ni 'cook!'	hse-khw-uni-Ø 2A-food-make-imp
(4.9)	teyotshá:tayv 'it's cloudy'	te-yo-itshat-a-yv-Ø du-ZP-cloud-J-be lying-stat
(4.10)	yakoya?táhskats 'she's pretty'	yako-ya?t-a-hskats-Ø FP-body-J-be beautiful-stat

This semantic criterion, however, is too vague to use as conclusive evidence that a given incorporated noun construction is lexical. A more decisive criterion is semantic drift. Lexically incorporated nouns tend to drift semantically. In the examples below, the meaning of the compound stem is not semantically transparent from the meaning of its parts.

(4.11)	tehanuhwarawv́:ye 'he's crazy'	te-hra-nuhwar-awv(r)ye-Ø du-MA-brain-stir-stat
(4.12)	ronuhwarahtú?u 'he's drunk'	hra-nuhwar-ahtu-?u MA-brain-lose-stat
(4.13)	wake?nikuhrayv́:ta?s 'I understand'	wake-?nikuhr-a-yvta?-s 1P-mind-J-acquire-hab
(4.14)	wa?kate?nikuhró:ri? 'I had a nice time'	
	wa-a?-k-ate-?nikuhr-ori-? fact-H-1A-srf-mind-run,operate-punc	
(4.15)	ro?nikuhrowá:nv 'he's smart, broad-minded'	hro-?nikuhr-owanv-Ø MP-mind-be big-stat
(4.16)	wake?nikuhráksvs 'I'm sad'	wake-?nikuhr-aksv-s 1P-mind-be bad-hab

Lexicalized incorporated noun constructions are not generally paraphrasabale by syntactic constructions. Just as in English 'sweet potato' is not paraphrasable by 'a potato that is sweet', similarly, lexicalized incorporated noun constructions in Mohawk cannot be paraphrased syntactically. The following example contains an incorporated noun, and the whole construction functions as a deverbal noun:

(4.17)	sewahyó:wane?	se-wa-ahy-owan-?
	'apple'	rep-ZA-fruit-be big-stat

This literally means 'one-it-fruit-be big'. However, sewahyó:wane? cannot be replaced in an utterance by a syntactic paraphrase, such as káhi kó:wane?, literally, 'it-fruit, it-be big' = 'the fruit is big', just as 'Big Foot' in English cannot be paraphrased by '(a) big foot'. Sewahyó:wane? could be applied to small apples, and not all 'big fruit' are apples.

The fourth semantic criterion listed above was that the incorporated noun in lexical NI is general in reference, neither definite nor indefinite. The examples given above show this property. For example, sekhú:ni 'cook!' contains the incorporated noun -khw- 'food', which does not refer to a specific entity. It qualifies the verb 'make' as in Mithun's description of NI. In Woodbury's terms, it designates a "non-delimited set."

4.2.2 Lexical NI: Syntactic Criteria

Case Relations. The first syntactic argument for the existence of lexical NI is that NV compound verbs that create new lexemes behave just like other, noncompound verbs. For example, if they are transitive, they can take a direct object. This is typically found in cases of so-called classificatory NI, which usually involves a lexicalized incorporated noun construction (compound) plus an external noun. That is, the incorporated noun does not prevent the verb as a whole from taking a direct object:

(4.18) teyohnekú:ti ne? onú:tara?
'let the soup boil!'

te-yo-hnek-uty-Ø ne? o-nutar-a?
du-ZP-liquid-throw-imp P ZP-soup-nsf

The lexeme 'boil' contains an incorporated noun -hnek- 'liquid', yet the entire compound can take a direct object: onú:tara? 'soup'. One can also say:

(4.19) teyohnekútye?s
'it's boiling'

te-yo-hnek-uty-e?s
du-ZP-liquid-throw-hab

without the external noun. The compound lexeme -hnekuty- 'boil' describes a unitary activity and is not paraphrasable by 'the liquid, it-is-being thrown'. That is, this compound must be listed in the lexicon and learned by speakers in learning the language. It is inaccurate, I think, to characterize this as

"classificatory." "Soup" is not a more specific subcategory for "liquid" here. Rather, 'liquid-throw' is a lexeme meaning 'boil'. 'Soup-throw' would mean something entirely different [5].

Since -hnekuty- is a compound verb, it functions as other verbs do: not only can it take an external direct object (patient) argument, as in (4.18) above, but also it can incorporate another noun, as in (4.20):

(4.20) tehsenutarahnekútyet
'boil the soup!'

te-hse-nutar-a-hnek-utye-?t-ø
du-2A-soup-J-liquid-throw-caus-imp

In example (4.20), the lexicalized NV compound -hnekuty- 'boil' has incorporated the stem of the noun onu:tara? 'soup' syntactically. It does not form yet another lexeme. Syntactic incorporation occurs only once in a verb. The incorporating verb, however, may be an NV compound, as in (4.20). This may explain why one cannot incorporate an indefinite number of times. The actual limit is two, the first incorporated noun being part of a lexicalized compound, as noted by Lounsbury (cited in Reich, 1969). (The lexicalized compound may, in rare instances, also contain a lexicalized compound, bringing the total of incorporated nouns to three, but only one of these is a syntactic incorporation.) Although linguists have apparently obtained speaker acceptance of words with

more than two syntactic incorporations (see Postal, 1963:398), such words do not occur spontaneously or in any texts that I have examined. Postal's example of an indefinitely long word using numerous noun incorporations has been cited by many linguists to support various hypotheses. I think one must be very cautious in declaring such multiple incorporations "grammatical." Multiple NI has been compared to multiple center embedding in English--that is, rare but grammatically possible. However, I think there is a better explanation: more than two incorporations are not grammatical in Mohawk. Examples to the contrary may be constructed by linguists but are probably not part of the natural language. Unless and until examples such as that given by Postal can be verified by other field workers, skepticism seems the best response [6].

Another example of an incorporated noun construction with an external patient noun is:

(4.21)	tí khnekírha?	k-hnek-ir-ha?
	'I drink tea'	1A-liquid-drink-hab

In (4.21), the compound lexeme -hnekir- means 'drink', and the verb root -ir- can no longer be used alone (i.e., it is always preceded by the noun root -hnek- 'liquid').

In example (4.22) below, the compound lexeme is 'braid-make':

(4.22) vkeratskv?tú:ni? sanúhkwis
'I'll braid your hair.'

v-ke-ratskv?t-uni-? sa-nuhkwis
fut-1A-braid-make-punc 2poss-hair

Example (4.22) fits the definition of "classificatory" NI given by Woodbury and Mithun, as discussed above. However, I think that, even though an incorporated noun is often more general in meaning than its accompanying external noun, here again, "classificatory" is not an appropriate term. In example (4.22), one cannot say that 'hair' is a 'kind of braid'. Rather, I would argue that 'braid-make' is a transitive lexicalized compound that can take a direct object, in this case, 'hair', just as in English the lexicalized compound verb babysit (formed by backformation from babysitter) can take a direct object: I'm babysitting Luke tonight.

The external noun may itself be a nominalization that includes an incorporated noun. In (4.23) below, the lexicalized compound -karaya?k- ('story-break' = 'pay') occurs with an external patient noun kaká:rayv, which is itself a nominalization of a lexicalized compound -karayv-, literally, 'story-be lying' = 'bill'. (Such nominalizations were discussed in Chapter 3, Section 3.3.)

(4.23) kaká:rayv ahskáraya?ke?
'there is a bill to be paid'

ka-kar-a-yv-Ø a-hs-kar-a-ya?k-?
ZP-story-J-be lying-stat opt-2A-story-J-break-punc

The external noun in lexical NI may also be a clause--a sentential object--as in (4.24), which is taken from one of the texts given in Chapter 5:

(4.24)
yáh tehnirihwanù:we?s kí:kv só:t^{s}i rashá:rute? è:rhar
'they(two) don't like that the dog is tied up so much.'

yah te-hni-rihw-a-nuhwe?-s kikv sot^{s}i
not neg-MdA-matter-J-like-hab P too much

hra-shar-ut-? e?rhar
MA-leash-attach-stat dog

In (4.24), the lexicalized compound -rihwanuhwe?- is translated as 'like' (actually, -nuhwe?- alone means 'like' if it is applied to concrete nouns; when the patient of 'like' is abstract or conceptual, as in (4.24), then -rihwanuhwe?- is used). The sentential patient argument itself contains an incorporated noun--'leash'--creating a lexicalized compound -sharut- 'tie up', which takes as its subject argument è:rhar 'dog'.

In the following examples, there is no external noun; however, as with example (4.19), an external noun is possible, even though it does not appear. That is, incorporated ncuns may be part of a compound lexeme even

if there is no overt external patient noun:

(4.25)	kheya?tv́hawe? 'I'm holding her'	khe-ya?t-vhaw-? 1/F-body-carry-stat
(4.26)	tekaristohrará:ku it's been typed'	te-ka-rist-ohrarak-u du-ZA-metal-press-stat

In these examples of lexicalized compounds, the incorporated noun is not coreferenced by the pronominal prefix because it is not a syntactic argument of the verb. In (4.25), the pronominal prefix is transitive, indicating 'I act upon her'. It does not refer overtly to the incorporated noun -ya?t- 'body', which is neuter and would require a different transitive pronominal prefix (k-, for 'I act upon it'). An outside noun, like uwá:ri 'Mary', could be added to this sentence without a change in the form of the verb. Similarly, in (4.26), the zoic-neuter pronominal prefix -ka- does not refer to the incorporated noun -rist- 'metal'; rather it refers to the object that has been typed.

As can be seen from these examples, the pronominal prefix, even when transitive, does not coreference the incorporated noun when the incorporated noun is part of a lexicalized compound. This is further evidence that the incorporated noun in lexicalized compounds is not acting as an argument of the verb.

The agentive pronominal prefixes all have implicit (zero-marked) neuter patients when they occur on transitive verbs. In (4.27) and (4.28) below, the zero-marked patient 'it' of the pronominal prefix refers not to the incorporated noun, but rather to an implicit external patient noun:

(4.27)	skárya?k	hs-kar-ya?k-ø
	'pay (it)!'	2A-story-break-imp
(4.28)	sekhú:ni	hse-khw-uni-ø
	'cook (it)!'	2A-food-make-imp

Constituent Structure. The other two syntactic criteria for identifying lexical NI, being negative, are harder to exemplify--i.e., that in lexicalized compounds the incorporated noun does not set up a discourse referent for anaphora or serve as the head of a noun phrase containing modifiers or complements.

If the incorporated noun acts as the head of a noun phrase, then it has syntactic (discontinuous) relations with external words. It will be argued here that when this occurs, the incorporated noun construction is never a lexicalized compound, but, rather, is an example of syntactic NI. For example,

(4.29) orù:ya? na?tehakahrò:tvs
'he has blue eyes'
(lit: blue of-that-his-eyes-be a kind)

o-ruhy-a? n-a?-te-hra-kahr-o?tv-s
ZP-sky-nsf part-du-MA-eye-be a kind-hab

In (4.29), the adjective 'blue' is syntactically linked to the incorporated noun 'eye' via the partitive prefix. The incorporated noun 'eye' (-kahr-) does not form a lexicalized compound with -o?tv- 'be a kind'. There is no semantic specialization here; the meaning is compositionally transparent. The incorporated noun is the subject of the construction and the pronominal prefix -hra- is the possessive form (singular masculine) for inalienably possessed nouns. Examples like this will be examined in more detail in Section 4.2.4, where it will be shown that in such examples of syntactic NI, the incorporated noun is the head of a noun phrase.

An example of a lexicalized compound which at first glance appears to have an external modifier is:

(4.30) oyé:ri niyohwistá:?e
'ten o'clock'

oyeri ni-yo-hwist-a-?e-ø
ten part-ZP-metal-J-strike-stat

Example (4.30) could be an answer to:

(4.31) tó nitsohwistá:?e
'what time is it?'

to ni-s-yo-hwist-a-?e-Ø
what part-cis-ZP-metal-J-strike-stat

Literally, (4.31) and (4.30) are: 'how many metal-strikings?' and 'ten metal-strikings'. The numeral 'ten' modifies the entire compound, which is a deverbal noun (metal-strikings). Semantically, it is not 'ten metals were struck', but rather, 'ten metal-strikings occurred'. Therefore, the incorporated noun -hwist- 'metal' is not the head of a noun phrase with 'ten' as a modifier. Rather, 'metal-strikings' is a lexicalized compound--an example of lexical, not syntactic, noun incorporation, and oyé:ri 'ten' does not modify the incorporated noun alone. This contrasts with (4.29), where 'blue' modifies the incorporated noun 'eyes'. I would argue that example (4.29) is an example of syntactic NI, whereas (4.30) and (4.31) are examples of lexical NI.

4.2.3 Lexical NI: Phonological Evidence

Finally, lexical incorporated noun constructions may show phonological differences between the incorporated noun and verb stems and their external noun or verb stem counterparts. For example:

(4.32) tehahuhtaneˊ:kv te-hra-ahuht-a-nekv-ø
'rabbit' du-MA-ear-J-be side by side-stat

This word is usually pronounced:

(4.33) [thamdaneˊ:gv]
'rabbit'

The incorporated noun stem -ahuht- 'ear' has been reduced to [md]. The m is an example of an optional phonological process described in Chapter 2. Another example is:

(4.34) karahkwakayuˋ:tha? ka-rahkw-a-ka(?v)yu-?t-ha?
'clock' ZA-sun-J-examine-caus-hab

The root for 'examine' is -ka?vyu-, which has been shortened to -kayu- in the word for 'clock'. Another example where the verb root has been shortened is:

(4.35) yuterihwaweyvstáhkhwa?
'school'

yu-ate-rihw-a-weyv-st-hkw-ha?
FA-srf-matter-J-know how-caus-inst-hab

This word is often pronounced:

(4.36) yuterihwayvstáhkhwa?

where the verb root -weyv- has been reduced to -yv-.

4.2.4 Syntactic NI: Syntactic Criteria

The criteria are reversed for syntactic NI: semantically, syntactic NI constructions do not describe unitary

activities, do not form lexicalized compounds capable of semantic drift, are paraphrasable and semantically transparent, and can be specific in reference. Syntactically, the incorporated noun does function as a syntactic argument (i.e., does not allow an additional external noun in its case place), does form a discourse referent for anaphora, and does function as the head of a noun phrase that may include external determiners, modifiers, etc. The syntactic arguments will be given first.

The Incorporated Noun as an Overt Syntactic Argument. Examples like the following have been used by other researchers (see Mithun, 1984, e.g.) to show that NI "advances" an oblique argument into a different case role:

(4.37) uwá:ri washakonuhsahní:nu?se?
'He bought a house for Mary.'

uwari wa-a?-shako-nuhs-a-hninu-?s-?
Mary fact-H-M/F-house-J-buy-dat-punc

In (4.37), the pronominal prefix -shako- refers to a third person feminine patient and a third person masculine agent. The direct object, the incorporated noun root -nuhs- 'house', is not overtly marked in the pronominal prefix. However, two additional factors should be considered in interpreting the pronominal prefix in this example. First, one could argue that neuter direct objects are never overtly marked in the pronominal prefix.

If -nuhs- is an external patient noun and there is no indirect object, the pronominal prefix is overtly marked for the agent only, as in:

(4.38) wahahní:nu? kanúhsa?
'he bought a house'

wa-a?-hra-hninu-?	ka-nuhs-a?
fact-H-MA-buy-punc	ZA-house-nsf

In (4.38), -hra- is the pronominal prefix for third person masculine agent. It is used in verbs where there is an overt direct object, as well as in verbs where there is no overt direct object. Compare (4.38) with (4.39):

(4.39) wahahní:nu? wa-a?-hra-hninu-?
'he bought (it)' fact-H-MA-buy-punc

Therefore, the direct object in examples like (4.37) could be coreferenced by ∅ marking in the pronominal prefix.

The second factor that should be taken into consideration is the dative suffix on the verb in (4.37). One might argue that in example (4.37), three arguments are marked on the verb in the pronominal prefix: masculine third person agent, third person neuter patient (marked by ∅), and third person feminine dative. The dative argument is marked in the pronoun, as well as by -?s-, the dative suffix [7]. That is, unlike lexical NI (where the incorporated noun is not "salient" and is not coreferenced in the pronominal prefix), syntactically

incorporated nouns are coreferenced in the pronominal prefix, usually by ∅ since they are usually (but not always, as will be shown below) neuter patients.

Thus, I would argue that there is no "advancement" of an argument to a direct object case role vacated by the incorporated noun. To see this more clearly, it is only necessary to consider the following facts: When shako marks a direct object, as in:

(4.40) washakó:kv? wa-a?-shako-kv-?
'he saw her' fact-H-M/F-see-punc

there is no dative marker on the verb. However, in (4.37) above, the dative marker must be used to interpret shako correctly. The utterance is ungrammatical without it:

(4.41) *uwá:ri washakonuhsahní:nu?
'he bought a house for Mary'

Thus, when shako (or any transitive pronominal prefix) is accompanied by the dative suffix, it signals agent and benefactive; without the dative suffix, it signals agent and patient. In (4.41), since there is already a patient (the incorporated noun stem -nuhs-), there is a conflict of case marking, resulting in the ungrammaticality of the utterance (*He house-bought Mary).

Transitive pronominal prefixes can refer overtly only to animate arguments. In a transitive prefix, the animate arguments will be agent and patient if one animate being acts directly upon another. If the direct object is inanimate, it is marked by ø in the pronominal prefix. If, in addition to the inanimate direct object, there is also a beneficiary of the action--a dative--this will be marked by the use of a transitive pronominal prefix plus a dative suffix. The dative suffix, not the incorporated noun, then, changes the case role of the pronominal prefix. The pronominal prefix may be interpreted as dative even when there is no incorporated noun:

(4.42a)	shakotohetstv́:ni	shako-at-ohetst-vni-ø
	'he passed by her'	M/F-srf-pass-dat-stat
(4.42b)	tahokwatákwahse?	t-a-hro-kwatakw-a-hs-?
	'he fixed him up'	cis-fact-M/M-fix-J-dat-punc

This shows that the incorporated noun in such examples as (4.37) (i.e., examples of syntactic NI) is not involved in changing case roles. The case roles remain the same, whether a noun is incorporated or not.

It is clear from these examples that case roles are marked in Mohawk not only by pronominal prefixes, but also by combinations of pronominal prefixes and verbal suffixes, such as the dative. The transitive pronominal prefixes do double duty, as it were, marking either agent/patient or agent/benefactive, depending on the

presence or absence of the dative suffix (not on the presence or absence of an incorporated noun).

There is evidence that the instrumental case can also be marked by a pronominal prefix in conjunction with the instrumental and causative suffixes, as discussed in Chapter 3, Section 3.1.2. Example (3.36) from Hewitt (1903:309) is repeated here:

(4.43)
otstĕñră' wă'hotaskoñniă'tă'kwĕ" 'hătie'
it rock (Ice) thither he it bridge goes on making of it for himself
'[He is] making for himself a bridge of stone [ice].'

o-tstvhr-a?
ZP-rock-nsf

wa-a?-hro-at-askw-uny-a-?t-a-hkw-v-hatye
fact-H-MP-srf-platform-make-J-caus-J-inst-stat-prog-punc

The causative (-?t-) and the instrumental (-hkw-) together with the pronominal prefix -ho- and the semireflexive ('middle voice') -(a)t-, provide the semantic interpretation of the case roles of 'he', 'rock', and 'bridge'. The semireflexive marks ho 'he' as the affected argument: 'for himself'. The external noun 'rock' is marked for instrumental case by the instrumental suffix, -hkw-. The incorporated noun 'bridge' is case-marked by the causative (-?t-) as the subject of 'make'; literally: 'he causes a bridge to form (be made) of stone (ice).' It is helpful to know that the 'he' in this example is the evil twin Tawískaru (translated by Hewitt as 'Ice,

Crystal'), who is associated with winter (and hence the opposite of the good twin, Oterutuni?a ('Sapling'), who is associated with spring and renewed growth). Therefore, the evil twin is causing a bridge of ice to form (explaining the use of the causative suffix), rather than 'making a bridge' in the sense of constructing a bridge. When the good twin sends an omen to frighten Tawiskaru, the latter runs away, which causes the bridge to melt.

Another example using the causative and instrumental suffixes to specify case roles is:

(4.44) yuteka?tahkhwa? ó:yvte?
'firewood'

yu-atek-a-?t-a-hkw-ha? o-yvt-?
FA-burn-J-caus-J-inst-hab ZP-wood-nsf

The result is a deverbal compound, which means literally 'wood (that) one-uses-it-to-cause-burning'. The pronominal prefix yu- means 'she or one' or 'she or one acts on it'; the 'it' in this case has its case role provided by the instrumental suffix: 'one uses it (wood) to cause (it?) to burn.'

Case roles, then, are explicitly marked in Mohawk, it is argued here. The pronominal prefix, in conjunction with verbal suffixes, provides the semantic interpretation of the arguments of the verb, as shown in the examples above. Syntactic noun incorporation does not affect this marking; it does not "advance" an argument or leave a case

role vacant, and there is no ambiguity or reliance on pragmatic interpretation in these examples.

Inability to Take Additional Patient Argument. The incorporated noun in syntactic NI, it is proposed here, is simply an argument of the verb--the patient argument. If it is inanimate (as is almost always the case), it is marked by ∅ in the pronominal prefix of the verb, as all inanimate patients are marked. Unlike the examples of lexicalized NI constructions given in Section 4.2.2, the syntactic NI constructions cannot take an additional patient argument. For example, it is not possible to say:

(4.45) *kenuhsanù:we?s kanúhsa? [8]
'I like the house.'

ke-nuhs-a-nuhwe?-s ka-nuhs-a?
1A-house-J-like-hab ZA-house-nf

There has been some confusion about this point due to an analysis given in Postal (1963) of a construction in Mohawk that he called "noun stem doubling." It is true that an appositive construction may be used to further specify a noun that is first introduced in an incorporation construction. For example,

(4.46) kenuhsanù:we?s thí:kv kanúhsa?
'I like that house.'

ke-nuhs-a-nuhwe?-s thikv ka-nuhs-a?
1A-house-J-like-hab P ZA-house-nsf

However, out of context even these constructions are

rejected by speakers as ungrammatical. Both my language consultants totally rejected example (4.46), which was taken from Postal (1963:291), while accepting (substituting) example (4.47):

(4.47) kenuhsanù:we?s thí:kv
'I like that house.'

A noun stem <u>can</u> be doubled under certain circumstances--as an appositive. This occurs, for example, in one type of possessive construction. Woodbury (1975:) gives the following example from Onondaga:

(4.48) wa?ha?se:htóhaé? ne? ko?sé:hta?
tns/he:it/vehicle/wash/asp n.p. her/vehicle/sf

'He washed her vehicle.'
(lit: 'he washed a vehicle, <u>her</u> vehicle')

An example from Mohawk is:

(4.49) kenuhsanù:we?s ne sawátis raonúhsa? [9]
'I like John's house.'

ke-nuhs-a-nuhwe?-s ne sawatis rao-nuhs-a?
1A-house-J-like-hab P John Mposs-house-nsf

In these possessive examples, it will be argued here, the external noun is appositive, as in the English sentence, 'I saw a house, <u>her</u> house'. In fact, this is the translation given by Woodbury for the Onondaga example. Evidence that these external nouns are appositives comes from the fact that the sentence is

grammatical if they are removed, and the verb's valence remains the same. They are not needed to complete the sentence; hence, they are not complements of the verb. The verb is still transitive, even without the external noun and the patient argument remains the same--e.g., vehicle in (4.48). In contrast, removing the external noun in lexical incorporated noun constructions removes the complement--cf. examples (4.48) and (4.49) with (4.18) and (4.21) above, repeated here:

(4.50)=(4.18) teyohnekú:ti ne? onú:tara?
'let the soup boil!'

te-yo-hnek-uty-Ø ne? o-nutar-a?
du-ZP-liquid-throw-imp P ZP-soup-nsf

(4.51)=(4.21) tí khnekírha?
'I drink tea.'

ti k-hnek-ir-ha?
tea 1A-liquid-drink-hab

These examples are grammatical if one removes the outside noun, but they become intransitive. Teyohnekú:ti means 'that it boils' not 'that (someone) is boiling liquid'; similarly, khnekírha? means 'I'm drinking', not 'I'm drinking liquid'. That is, the incorporated noun in a lexicalized NI construction does not fill the role of patient, just as in English one can say, I babysat yesterday (intransitive) or I babysat Luke yesterday (transitive). Babysit can take a direct object because 'baby' has lost its salience.

If the syntactic incorporated noun does not change case roles and is actually merely an argument of the verb, we would expect it to behave like other arguments--i.e., it should be able to serve as the antecedent for an anaphor and as the head of a noun phrase (which may be discontinuous) that can also contain modifiers, determiners, etc. These will be discussed in the next two sections.

Anaphora. It is being proposed here that syntactic incorporated nouns may participate in anaphora. Examples will be given from my field notes and from texts recorded by Hewitt (1903). This approach contrasts with Mithun's (1984) argument that incorporated nouns do not set up discourse referents and are, to uses Postal's term, "anaphoric islands." Mithun uses the following example to show that an antecedent may be pragmatic rather than overtly present in the utterance:

(4.52) k-atun-hah-kwe. Ah tsi yehétkv.
I-watch-hab-past ah how she-ugly

'I was baby-sitting. Boy, is she ugly!'

Since there is no incorporated noun in example (4.52), Mithun argues that there is no overt anaphor for the 'she' of the second sentence. Rather, the antecedent of 'she' is pragmatic. The pronoun k- on the first verb refers only to 'I' and is intransitive, according to Mithun [10]. However, the possibility of pragmatic antecedents in

Mohawk (and probably all languages) does not preclude the possibility of overt syntactic antecedents. In many instances, an incorporated noun is present, and the anaphoric reference is not based merely on pragmatic considerations. In the following example (from Hewitt (1903:315), the incorporated noun is animate and hence coreferenced in the subsequent pronominal prefixes:

(4.53)

Tá	e'thóne'	nĕ́n	ne	wă'ha'nhă'tserísăke'	
so	at that time	now	the	he-assistants-sought-for	
né	a'hṍne'	a'hṍsa'hatikó'hă'		né	karắ'kwă'
the	they him should accompany	they should go after it again		the	it sun

'He therefore sought servants who would accompany him to fetch the sun.'

ta	e?thone?	nv	ne	wa-a?-hra-hnha?-tser-isak-?
P	P	P	P	fact-H-MA-send-nom-seek-punc
ne	a-hun-e-?			a-h-us-a-hati-kw-ha-?
P	opt-Mp-go-punc			opt-?-rep-opt-MpA-get-purp-punc
ne	ka-rahkw-?			
P	ZA-sun-punc			

Here, the incorporated noun stem -hnha?tser- 'assistants, servants' (derived from a verb: literally, -hnha?- 'to send' plus -tser- nominalizer) is the antecedent for the pronominal prefixes on the following verbs: 'they should go (accompany)' and 'they should go after it again.' In the text preceding this passage, there is no independent, external noun to serve as an antecedent for the pronominal prefixes. Therefore, these prefixes cannot be interpreted pragmatically from the context of the narrative. Rather,

the pronominal prefixes on 'accompany' and 'go after' are quite clearly anaphors of the incorporated noun 'assistants'.

It is, in fact, quite common in Mohawk to use an incorporated noun as the antecedent in anaphora. In most examples, the incorporated noun is neuter, and hence marked by Ø in the pronominal prefix; thus, example (4.53) is important since the antecedent is animate, and the anaphors are marked explicitly on the following verbs.

Another example from Hewitt (1903:284) (this time with the anaphor marked by Ø) is:

(4.54)	Nĕ́ñ	săswarõntótĕ^{n}ʿ	né	sewarõntotákwĕ^{n}ʿ.
	now	again do ye set up (the) tree	the	ye tree have uprooted

Kĕ́^{n}	wắhĭ'	kā́iĕ^{n}ʿ
here	verily	it lies

"Now do ye replace the tree that ye have uprooted. Here verily it lies."

nv	s-a-sewa-rut-otv-?	ne
P	rep-fact-2pA-tree-stand up-punc	P

sewa-rut-ot-a-kw-v	kv	wahi	ka-yv-Ø
2pA-tree-stand up-J-un-stat	P	P	ZA-be lying-stat

In these examples, the incorporated noun establishes a discourse referent, and it can be concluded that words with syntactically incorporated nouns are not "anaphoric islands." This contrasts with lexical noun incorporation, where the incorporated noun cannot serve as an antecedent.

In Mohawk, anaphora occurs not only between an incorporated noun and a pronominal prefix on a separate verb, but also between pronominal prefixes of separate verbs in an utterance. Pronominal prefixes and external nouns can coexist in a sentence, as has been demonstrated in many of the examples above; for example:

(4.55) utóhetste? kà:sere?
'the car passed'

wa-a?-w-at-ohetst-? ka-?sere-?
fact-H-ZA-srf-pass-punc ZA-drag-stat (= car)

Rather than considering Mohawk a "pro-drop" language--i.e., rather than assuming that underlying all sentences without external nouns there are sentences with external nouns (or pronouns) that may "drop"--I think it is valid to consider the pronominal prefixes in Mohawk as full arguments of the verb, not as agreement markers. Although Iroquoianists have not, in general, explicitly described the pronominal prefixes as having the full status of pronouns, there is a tradition among other linguists of such treatment. For example, Boas (1911:34) stated:

"When, for instance, in Chinook, we find expressions like he her it with cut, man, woman, knife, meaning the man cut the woman with the knife, we may safely say that the nouns themselves appear without any trace of case-relationship, merely as appositions to a number of pronouns."

The "pronouns" referred to in this passage are pronominal affixes. Boas adds, "the case-relation, however, is confined to the two forms of subject and object, since the characteristic of each particular oblique relation is expressed by adverbial elements." This is similar to the situation I have described in Mohawk, with oblique arguments marked for their case roles by verbal suffixes--the dative, instrumental, and causative.

Bloomfield (1933:193) used the term "cross-reference" to describe constructions where verbs obligatorily contain pronominal markers that are coreferenced with external noun arguments, and that also occur when the external arguments are not present. He classified cross-reference as a type of agreement, and distinguished it from the other two types of agreement--concord and government.

Hockett (1958) also suggested that in some languages, pronominal affixes function like independent pronouns, rather than agreement markers, and, more recently, Anderson (1982), Hale (1983), and Van Valin (1985) have discussed this possibility for Breton, Walpiri, and Lakhota, respectively. Mithun (1985) discusses some of the implications of recognizing pronominal affixes as primary verbal arguments.

In cases where both an external noun and a pronominal prefix occur, as in (4.55) above, the external noun is an appositive, coreferent with the pronominal prefix. That is, it is proposed here that the pronominal prefixes have the status of phonologically independent pronouns, such as those found in English. They may participate in coreference relations; they are not mere agreement markers.

Evidence for this comes from the fact that (1) verbs with pronominal prefixes are complete clauses, and (2) the so-called pronouns of Mohawk (i.e., independent pronouns) are emphatics that alter the meaning of the sentence when used (and they are not used frequently).

The first point--that in Mohawk verbs plus their pronominal prefixes constitute complete clauses--has been illustrated by the examples above. The agent, patient, benefactive (dative), and instrumental arguments of a verb can all be marked by the pronominal prefix (in the latter two cases, in conjunction with certain suffixes, as described above), with no external nouns or external pronouns needed. This contrasts with cases of true agreement markers, such as the third person singular present suffix -s in English 'she walks'. By itself, walks is nonpropositional and ambiguous (it could be a plural noun, e.g.). Similarly, the verbal person and number suffixes on French verbs are agreement markers. In

Latin, on the other hand, the verbal person and number markers are meaningful; the verb with its person and number markers is propositional without external nouns or pronouns; therefore, I would argue, the person and number affixes on Latin verbs, as on Mohawk verbs, are not agreement markers, but, rather, function as true pronouns.

In Mohawk, the fact that all arguments of the verb can simultaneously be marked on the verb means that a single word can contain the propositional content of a clause. For this reason, the term "clauseword" might be more appropriate than "verb" to refer to these constructions in Mohawk.

The second point--that external pronouns in Mohawk are emphatics--also supports the hypothesis that the pronominal prefixes function as true pronouns. For example,

(4.56) rao?kwá:tu hraw-o?kwat-u
'he had dug' MP-dig-stat

is <u>not</u> a paraphrase of

(4.57) raúha rao?kwá:tu
'he was the one who dug'

rauha hraw-o?kwat-u
he(emphatic) MP-dig-stat

The latter (4.57) is marked in terms of frequency. The unmarked way of saying 'he had dug' is example (4.56).

Since anaphora between clauses (or clausewords) is quite common, no verbs in Mohawk are anaphoric islands. For example:

(4.58)
wahiya:thewe? ne yehskenihnha:?u ne? ahihnuksa?
I have him the you sent me there I might fetch him

'I've got him here, the one you (two) sent me to fetch. [11]

wa-a?-hri-ya?t-hew-? ne ye-hskeni-hnha?-u
fact-H-1/M-body-hold-punc P trans-2d/1-send-stat

ne? a-hri-hnuk-s-a?
P opt-1/M-fetch-dat-punc

The definition of anaphoric islands in Postal (1969) precludes anaphora between an internal part of a complex lexical item and an external noun or pronoun. Agreement markers, of course, are assumed to agree with external nouns or pronouns. Therefore, the term anaphoric island refers only to lexemes, not words with their inflections. I have argued here that lexical incorporated noun constructions are anaphoric islands, whereas syntactically incorporated noun constructions are not anaphoric islands. In other words, the syntactically incorporated noun can serve as the antecedent in anaphora relations, as in examples (4.53) and (4.54) above.

The Incorporated Noun as the "Head" of an NP. Before deciding whether the incorporated noun can be the head of a (possibly discontinuous) noun phrases, it is first important to establish that an incorporated noun can be

the head of a word-internal noun phrase. Consider the following example from Hewitt (1903:):

(4.59)

tcioteri‘sioñ‘hắtie	né	hotăksoñnioñni‘hắtiē̆ne:
again it disappeared (came to pieces)	the	he it bridge had been making for himself

'...the bridge which he was making was dissipated.'

s-yo-ate-rihsy-u-hatye-ǿ	ne
rep-ZP-srf-fall apart-stat-prog-stat	P

hro-at-askw-uny-uny-ǿ-hatye-hne [12]
MP-srf-bridge-make-?-stat-prog-RP

In this example, the noun phrase 'the bridge that he had been making' is contained in one word (a structural verb), with 'bridge' (an incorporated noun) as its head. Distributionally, 'bridge' can substitute for 'bridge that he had been making'; therefore, an incorporated noun can serve as the head of an NP. The incorporated noun also belongs to the same category--noun--as the whole phrase because the verb phrase has, by zero derivation, been turned into a noun, coreferent with <u>it</u> in 'again it disappeared' (marked overtly by the pronominal prefix -<u>yo</u>-).

Once it is established that incorporated nouns can be the heads of NPs, the next step is to determine if the NP can be discontinuous; that is, whether the modifiers can be external to the incorporated noun construction.

Mithun (1984, 1986) has argued that when an external modifier coexists with an incorporated noun construction, the external modifier is itself the actual argument of the verb, since it can occur as such when there is no incorporated noun. For example, (4.60) (from Mithun, 1986) has no incorporated noun:

(4.60) kanekwarúnyu wa?katkáhtho
it-dotted-DIST PAST-I-see

'I saw a polka-dotted one.'

The same external modifier can be used if there is an incorporated noun:

(4.61) kanekwarúnyu wa?-k-akya?tawi?tsher-ú:ni
it-dotted-DIST PAST-I-dress-make

'I made a polka-dotted dress.'

Mithun argues that (4.60) would be appropriate "any time the type of patient involved (here a dress) is interpretable from context" (1986:35). She implies that the context need not be explicitly linguistic, but, rather, may be pragmatic. However, there are several problems with this.

In the first place, wa?katkáhtho is also a complete sentence. It means 'I saw it' or 'I saw her (FZ)', with the zoic/neuter patient pronoun being marked by ø, as discussed above. All agentive prefixes in Mohawk can be interpreted as marking neuter patients when they are

attached to transitive verbs. Thus, in (4.60), there is no syntactic proof that 'it-is-polka-dotted' is the patient argument of the verb. Literally, the translation is 'it-is-polka-dotted, I-saw-it'. Put in English order, it would be: 'I saw it, it-is-polka-dotted', where 'it-is-polka-dotted' is a derived noun. It could be the patient argument, with agreement marked by ∅ on the verb, but it could also be a modifier of the patient 'it' of the verb 'see', as in the English gloss: 'I saw a polka-dotted one'. It could also be an appositive: 'I saw it, a polka-dotted one'.

Given the interpretation of Mohawk pronominal prefixes above (i.e., that they are not agreement markers), the phrase 'it is polka-dotted' in example (4.60) must be interpreted either as a modifier of the "head" 'it' (represented by ∅ in the pronominal prefix of the verb 'see') or as an appositive, coreferent with the "head" 'it'.

Examples like the following show that in some cases the external phrase must be interpreted as a modifier, not as an argument of the verb or an appositive:

(4.62) áhsv niwakenúhsayv
'I have three houses'

ahsv ni-wake-nuhs-a-yv-∅
three part-1P-house-J-be lying-stat

(4.63) vska wakenahskwayv
'I have one animal (pet)'

vska wake-nahskw-a-yv-Ø
one 1P-animal,slave-J-be lying-stat

Since the external forms ('three' and 'one') are not nouns, they cannot be interpreted as the patient argument of the verb. Similarly, since they are not nouns, they are not appositives of the pronominal prefix or the incorporated noun.

I suggest that Mithun's example (4.61) above shows an external modifier of an incorporated noun. It could be translated with a relative clause: 'The dress that I made is polka-dotted', that is, with a sentential subject (I-dress-made) and a predicate adjective (it-is-polka-dotted). However, if the word order were reversed, the translation might be 'I made a polka-dotted dress'. Here, it is 'it-is-polka-dotted' that serves as an attributive adjective for the noun 'dress'. Either way, the form 'it-is-polka-dotted' modifies 'dress'--as a predicate adjective or an attributive adjective.

Mithun argues that the incorporated noun is <u>not</u> the head of the NP in example (4.61), but rather that the external 'it-is-polka-dotted' is the argument of the verb 'make'. Her evidence for this is that example (4.60) is grammatical. However, as we have seen, the pronominal prefix <u>-k-</u> can be transitive in meaning (either 'I/it' or

'I/her (zoic)'), the patient being marked by ∅. Therefore, a potential head ('it', marked by ∅) is present. Mithun, on the other hand, points to examples where the antecedent is pragmatically interpreted. For example, in English, one might say,

(4.64) I went fishing yesterday. I caught a beaut!

Here, Mithun argues, it is pragmatically understood that I caught a "beaut" of a fish, not, say, a rabbit or a fox.

However, it is one thing to say that pragmatic inference is possible in discourse, and it is another to assert that the predominant method of interpreting modifiers in a language--in this case, Mohawk--is pragmatic rather than structural. And that is the entailment of Mithun's argument, since most nouns in context are incorporated. When modified, the modifiers are external. If the incorporated noun merely "qualifies" or "narrows" the meaning of the verb and does not function as a syntactic argument of the verb, then it cannot serve as the head of an NP, since it has no salience. In all such cases, then, the modifier must be interpreted pragmatically, if Mithun's approach is adopted.

Whether an incorporated noun can serve as the head of a discontinuous noun phrase was addressed by Sadock (1980, 1986) in his work on Greenlandic Eskimo. Sadock uses examples from Greenlandic Eskimo to show that in some

cases, it is impossible to deny that the incorporated noun is the head of an NP complement of a verb. For example, "gapping" occurs in:

(4.65)

...Paliitsit	276-inik	ammassattortoq
Paliitsit	276-inik	ammassak-tor-toq
Paliitsit	276-INST.PL	sardine-eat-NOM.PART.3sg.

nipisallu	ilivitsut	marluk.
nipisa-t-lu	ilivitsoq-t	marluk
lumpfish-PL-CONJ	whole-PL	two

'that Paliitsit ate 276 sardines and two whole lumpfish.'

If ammassak 'sardine' is interpreted as merely a qualifier of the action of the verb tor 'ate', one must then interpret this utterance as 'Paliitsit sardine-ate lumpfish', obviously not a correct interpretation.

Mithun argues that Greenlandic Eskimo does not have NI, but rather that verbal affixes are attached to nouns. Sadock points out that even if we do not call this process "noun incorporation," it is nonetheless a derivational process (perhaps even more so than compounding, which is the term usually applied to NI by those who claim that NI is not syntactic) and therefore provides evidence that syntactic processes can, in some languages, ignore word boundaries. Once that barrier is removed, the possibility that syntax ignores word boundaries in other polysynthetic languages must be considered. I would argue that the process described by Sadock, whether one calls it "noun

incorporation" or not, is a syntactic process, not a derivational (lexeme-building) one, in terms of the definitions in Chapter 1.

Sadock argues further that in Greenlandic Eskimo an incorporated noun cannot occur simultaneously with an external noun. One cannot say:

(4.66)

*276-inik	ammassannik	ammassattorpoq
276-inik	ammassak-nik	ammassak-tor-poq
276-INST-PL	sardine-INST.PL	sardine-eat-INDIC.3sg.

He concludes that this is strong evidence that the incorporated noun is the head of a phrase, functioning as the syntactic argument of the verb, since there is no external argument, and example (4.65), as discussed, shows that the incorporated noun does not merely qualify the action of the verb.

In contrast, it has been argued (Postal, 1962) that in Mohawk a noun stem can be "doubled," appearing both in incorporated position and externally simultaneously. However, as I have argued earlier in this chapter, this occurs only under certain conditions, and when it does occur, the external noun is an appositive. It is never a bare noun, but is always accompanied by a possessive, demonstrative, or other modifier.

Sadock argues that the external syntax of verbs with incorporated nouns in Greenlandic Eskimo is different from verbs without incorporated nouns, showing that the incorporated noun has syntactic relevance. Gapping (as in (4.65) above) is one example. Another is possession of an incorporated noun by an outside ergative case noun. Without an incorporated noun, the external noun cannot be ergative.

This evidence of syntactic linkages ignoring word boundaries in Eskimo, which is also a polysynthetic language, further confirms the hypothesis of this thesis that word boundaries are not barriers to syntactic rules. The examples from Mohawk and Eskimo show that an incorporated noun can serve as the head of a discontinuous NP. The head of the NP may be within a word; however, this does not mean that all words have heads, as Selkirk (1982) and Williams (1981), among others, have argued. Their arguments for the notion "head of word" depend on the assumption that words are the basic units of syntax [13].

The hypothesis of this thesis, however, is that word boundaries are not barriers to syntax--that is, grammatical constructions do not necessarily coincide with word boundaries. "Head" is a grammatically defined concept, whether defined distributionally, as in an X-bar type of schema (Chomsky, 1970; Jackendoff, 1977), or

defined more generally as the element that governs or selects for the other element in a grammatical construction (see, e.g., Nichols, 1986; Van Valin, 1987). As a grammatically defined concept, it cannot refer to word boundaries in the model used in this thesis.

Productivity. It is necessary to address the issue of productivity in arguing that NI can be a syntactic phenomenon. As Mithun points out, there are limits on NI: not every noun can be incorporated; not every verb can incorporate its patient; and speakers say they know whether they have heard a NV compound before. This does not rule out new combinations, however. As Mithun notes, speakers are interested and take pleasure in hearing and using new combinations [14]. In other words, one can conclude from these facts and observations that NI is productive--at least up to a point.

Productivity exists in lexeme-formation, probably in all languages. Mithun, then, would claim that NI is productive in this sense only--new lexemes are formed. I have argued that some NI is lexical, and therefore, the observation that speakers are aware of and appreciate "new" lexemic combinations does not contradict my hypothesis. On the other hand, if syntactic incorporation also occurs, as I have argued, speakers may not be as aware of a novel syntactic combination they hear, just as speakers of English are not aware when they hear a novel

phrase or sentence. If the Mohawk speaker is not aware of hearing a novel incorporated noun construction, he or she cannot report being aware of it. Hence, the argument from speaker awareness is, I feel, on shaky ground. Arguments for or against the existence of syntactic NI alongside lexical NI are, I believe, best based on linguistic data and criteria, such as that given in the previous sections, not on speakers' judgments.

4.2.5 Syntactic NI: Semantic Criteria. The first semantic criterion (see p235 above) for syntactic NI is that it describes particular, rather than unitary, activities. In many languages, lexemes may co-occur frequently with certain other lexemes, yet not coalesce with them phonologically within word boundaries. In Mohawk, certain nouns are typically incorporated in certain verbs, but the combination is not lexicalized even though it refers to a "unitary activity." As mentioned above, the vagueness of this semantic criterion renders it invalid. In collocations, the incorporated noun still refers to a specific entity in the discourse. Therefore, evidence that incorporated nouns are or are not lexicalized is best based on other semantic and syntactic criteria.

Compositional meaning of syntactic NI constructions. The second semantic criterion--that the meaning of syntactic NI constructions is compositional, and that novel combinations can be understood at first hearing by

speakers of the language--is borne out by the examples given above in this section and in the three texts in the appendix. To take a few examples from the texts in Chapter 5:

(4.67) ohniyeryérha? ayena?tarú:ni?
'how does one make bread?'

oh-ni-ye-yer-ha? a-ye-na?tar-uni-?
what-part-FA-do-hab opt-FA-bread-make-punc

(4.68) vhsenvstako?
'you will pick the corn'

v-hse-nvst-a-kw-?
fut-2A-corn-J-pick-punc

(4.69) aktsí:?a wa?ukhináhsku?
'my older sister gave us an animal (pet)'

ak-tsi-?a wa-a?-nahskw-u-?
1poss-older sister-dim fact-H-animal-give-punc

Possibility of syntactic paraphrase. The third semantic criterion is that syntactic incorporated noun constructions are paraphrasable by syntactic constructions with external nouns. Postal (1963) argued that structures with incorporated nouns and those without them were transformationally related. That is, he proposed that the following two sentences were related by an incorporation transformation:

(4.70) í?i kenú:we?s ne kanúhsa? [15]
I I-like-hab P it-house-ns

'I like the house'.

and

(4.71) i?i kenuhsanú:we?s
I I-house-J-like-hab

'I like the house.'

Postal bases the proposed transformational relationship on the fact that the selection restrictions are the same between verb stems and their unincorporated patient noun arguments. If a verb stem cannot have an abstract noun as a patient, then neither can it have an abstract incorporated noun patient argument. To repeat these selection restrictions for verb stems both with and without incorporated nouns would be "enormously complicated," Postal argues, if both types of sentence are generated from the base phrase structure rules and not related transformationally. This is, of course, one of the classic generative arguments for the need for transformations to relate such pairs of utterances as active and passive in English.

Because pronominal agreement prefixes are obligatory in both verbs with incorporated nouns and those without them, Postal concludes that the incorporated noun construction is derived from the more basic unincorporated form, since rules are needed to generate the pronominal prefixes in the unincorporated forms, and not all verbs with external noun arguments allow an incorporated alternative.

Postal states that the incorporation transformation is "meaning preserving." He states (1963:334-335): "all other things being equal, sentences related by this transformation have identical meanings because they have identical underlying P-markers." I would argue, on the contrary, following Mithun (1984), that there is a semantic difference between a construction with an incorporated noun and one without an incorporated noun. That is, as Mithun states, speakers incorporate for a reason: incorporation serves a function. Thus, although syntactic paraphrase is possible, it changes the meaning in discourse-related ways. The propositional meaning remains the same (in contrast with attempts to paraphrase lexical NI); but the subtle semantics of focus, old/new information, and definite/indefinite are different for incorporating versus nonincorporating structures. This will be further discussed in the next section, which describes the fourth semantic criterion: that syntactic incorported nouns can be specific in reference but are indefinite.

Syntactically incorporated nouns as indefinite nouns. One might ask, "Why incorporate?" Since constructions with external nouns are also available to speakers, why, in cases of syntactic NI, do speakers choose to incorporate and cause the NP to be discontinuous? Mithun (1984) addresses this question and concludes that the incorporated noun backgrounds "old" information. However,

it will be argued here that incorporated nouns are not always "old" information, although it is clear that a semantic difference exists between the incorporated noun construction and a construction without an incorporated noun, just as a semantic (focus) difference exists between active and passive sentences in English.

It may be that the incorporated noun construction is the normal, unmarked way of speaking. That is, the question to ask is not, "why incorporate?", but rather, "under what circumstances do speakers use external nouns?" Sadock (1986) also mentions this possibility: he says speakers may "REFRAIN from incorporating for a purpose," and "the nonincorporated form takes on a special significance."

Mithun has stated (1984) that it is "relatively rare" for a noun to appear incorporated at its first mention in a text. In my data and in Hewitt's (1903) texts, I found just the opposite to be the case. Nouns were less likely to appear unincorporated. The three texts in Chapter 5 show the following frequency counts [16]:

	Incorporated Nouns	External Nouns
Text 1:	13	4
Text 2:	10	8
Text 3:	12	6

The external nouns, for the most part, refer to people ('my sister', 'the children') or animals ('the dog'). Of the 18 external nouns in the texts, five might actually be termed verbs (two mentions of 'my sister' (= 'be a sibling') and three mentions of 'child' (= 'be a child')) and four were animals (three mentions of 'dog' and one of 'pet'). There were two mentions of 'dirt' as an external noun, but this was part of a compound 'ashes' (karístaku o?kv̀:ra? = 'in-the-stove dirt'). The other external nouns were: two mentions of 'corn' (which was incorporated elsewhere), one mention of 'beans' (also incorporated elsewhere), one mention of 'pail' (incorporated elsewhere), one mention of 'mind' (incorporated elsewhere), one mention of 'liquid' (incorporated elsewhere), and one mention of 'ladder' (not incorporated elsewhere).

Subsequent reference to an incorporated noun (if the incorporated noun does appear first), according to Mithun, must be made by repeating the noun. However, I found that pronominal reference suffices; the noun does not have to be (and usually is not) repeated. Example (4.72) is from text 3 in Chapter 5:

(4.72) vhsenvstako? . . . vhshá:rv?
v-hse-nvst-a-kw-? v-hs-harv-?
fut-2A-corn-J-pick-punc fut-2A-hang-punc

vhsstátha?te?
v-hs-st-ath-a-?t-?
fut-2A-nf-dry-J-caus-punc

'you'll pick the corn. . .you'll hang it up, you'll dry it.'

At this point in the text, 'corn' has been used only as an incorporated noun. It later appears as an external noun, possibly for emphasis, or possibly because it is used as a definite noun.

Thus, incorporated nouns can refer to specific entities in a discourse, although the reference is indefinite [17]. They do not always background an argument, but rather can introduce a topic, just as an indefinite noun in English can introduce a discourse topic:

(4.73) Bill saw a stray cat on his windowsill. He opened the window and let the cat in.

In the first sentence, 'a stray cat' is an indefinite (but specific) NP introducing a topic. 'Cat' is the head of an NP; it sets up a discourse referent that becomes definite in the second sentence, where it is "old information." I am suggesting that syntactic NI in Mohawk works similarly, and that the structural similarity to lexical NI has blocked the recognition of this in previous work on noun

incorporation.

Syntactic NI, I suggest, is the normal, unmarked way of referring to an indefinite noun in Mohawk. External nouns are either (1) definite (old information), (2) unincorporable (may be old or new information), or (3) the direct object of a verb that has a lexicalized incorporated noun construction (i.e., so-called classificatory NI), as in example (4.18) above.

Woodbury (1975), as mentioned above, has argued that there are significant semantic differences between Onondaga constructions with incorporated nouns and those without incorporated nouns. In particular, she states that incorporated nouns can only designate their referents and can never denote their referents. That is, incorporated nouns can never refer to specific entities in the discourse, they can only designate the class to which an object belongs: "a kind of _." External nouns, on the other hand, can either denote or designate their referents, she argues, and this is indicated by the presence or absence, respectively, of the nominal particle ne?. She contrasts the following three sentences, the first two grammatical, the third not:

(4.74) tutakhéyú? ne? vnuhétshʌ́:?
dlc/cisloc/I:her/give/asp n.p. ?/nom/sf(=hat)
'I gave the hat back to her.'

Example (4.74) has an external noun vnuhétshʌ́:? 'hat',

which is denoted (definite).

(4.75) takheyvnuhétshv?
cisloc/I:her/hat/give/asp
'I gave her a hat' (from the universe of hats)

Example (4.75) has an incorporated noun stem -vnuhetsh- 'hat'. According to Woodbury, (4.75) means 'I gave her a hat from the universe of hats', 'a kind of hat', not a specific hat. Example (4.76) is ungrammatical:

(4.76) *tutakheyvnuhétshv?
'I gave her back a hat'

This example fails because of the prefix 'back' (t), which conflicts semantically with the designative (nonspecific) reference of the incorporated noun -vnuhetsh- 'hat'. The 'back' prefix (dualic here) indicates that a specific hat is being referred to--i.e., that a specific hat was given to the speaker on a previous occasion.

There is another explanation for these facts, however. If the incorporated noun signals an indefinite noun, as I have suggested, it is fine to say 'I hat-gave her'--i.e., 'I gave her a hat' (specific, but not definite). The conflict in example (4.76) is between the indefiniteness of an incorporated noun and the semantics of the prefix 'back', not between a proposed designative function of incorporated nouns (that is, that they designate a class) and the prefix 'back'.

Indefinite nouns usually signal "new" information, while definite nouns are used to signal "old" information in a discourse (see, e.g., Lyons, 1977). Therefore, Woodbury is right that incorporated nouns designate rather than denote; they are always indefinite. However, I would argue that syntactically incorporated nouns can refer and they can be specific. Since indefinite nouns are quite capable of serving as antecedents and as heads of NPs, it is not surprising that incorporated nouns can also serve as antecedents and heads of NPs. Semantically, in discourse-related ways, they are different from external nouns; but syntactically they are not.

Mithun (1984) argues that incorporated nouns are "backgrounded," and that they signal "old information." She states that when a noun is used to introduce a topic, it is not incorporated into a verb, and only later, after it has become "old" information in the discourse can it be incorporated. I am suggesting that the distinction between "old" and "new" information in a discourse is not related to the issue of NI. Rather, NI is related to the distinction between definite and indefinite nouns. An incorporated noun can serve as "new" information and can introduce a new topic into the discourse. This is compatible with the finding that syntactic incorporated nouns can serve as antecedents in anaphoric relationships--that is, that words with syntactically incorporated nouns are not anaphoric islands.

Notes for Chapter 4

1. In fact, noun + noun compounds do exist in Mohawk. However, like many compounds in English, they comprise more than one phonological word. See Section 3.3 in Chapter 3.

2. The function of the particle ne(?) in Mohawk is complex and is not confined to signalling definite nouns. Rather, ne(?) seems to function as a "focuser." It may occur before adverbs, as in:

oh nihsatyérhahkwe? ne thetv́:re?
'what did you do yesterday?'

oh	ni-hs-at-yer-ha-hkw?	ne	thetvre
what	part-2A-srf-do-hab-FP	P	yesterday

An utterance with ne? may be more appropriate than one without ne? in a given context--that is, in a context where the speaker wishes to focus an argument or, apparently, an adverb; however, the functions of ne? need further investigation.

3. This is Mithun's segmentation. I have altered her example only in substituting ? for ', which indicates a glottal stop in her orthography. The first formative, -t-, is the dualic, which in this case refers to a 'change in state'.

4. I am not familiar with the verb -o?ase- 'slit' in Mithun's example (4.6). However, if the dative suffix (-?s(e)-) is part of this verb, it would mark the external noun as a beneficiary; that is, advancement to direct object position would not be at issue. See discussion in text for examples (4.48)-(4.51) below.

5. This does not mean that there are no cases of classificatory noun incorporation. There are instances where a more general noun is incorporated and a more specific noun is present externally--the phenomenon described in detail by Woodbury (1975) for Onondaga. However, in these cases, I would suggest, the external noun is an appositive. This is discussed in detail below in Section 4.2.4, where it is argued that in syntactic NI, the incorporated noun fills the patient case role, and external nouns are appositives to the pronominal prefixes.

6. Note that even if Postal were right, it would not affect my argument that some noun incorporation is lexical and some is syntactic. The well-attested existence of two noun incorporations within a single verb can be accounted for either way. However, if no more than two incorporations are allowed (as I suspect), an explanation for this limitation is needed (that is, a generativist would argue that, once the rule is there, why can't speakers use it more than twice?). The division of NI into lexical and syntactic types, although motivated by other facts, provides an answer to this question. Lounsbury (1953) gave an example from Oneida of a word with three incorporated nouns, but the first two were part of a lexicalized compound, which was then incorporated syntactically:

wa?tha[[te[khw]ahlaksla]tokvhti?tsla]tá:se
'he went around to the other side of the altar'

This word contains the lexicalized compound 'altar' ((o)tekhwahlakslatokvhti?), which is literally 'holy table'. 'Table' (atekhwahlaksla), in turn, is a nominalization of 'one puts food on it', with incorporated noun -khw- 'food'. The whole lexicalized compound 'altar' is incorporated syntactically into -tase- 'go around'.

It is also worth noting that Mohawk speakers are well aware of the fact that their language contains potentially very long words and that linguists are interested in this phenomenon. There are a few examples that are usually given by speakers to show just how long words can be, but none of these, to my knowledge, contains more than two incorporated nouns. One example, provided by Sister Dorothy Lazore at Kahnawà:ke, is:

tutayakotehahuhtanekv?tsheratkehrutahkwvhátye?
'she's coming back from buying rabbits at the market.'

t-ut-a-yako-ate-ha-huht-a-nekv-?tsher-
dup-cis-fact-FP-srf-MA?-ear-J-be side by side-nom-

at-kehru-t-a-nkw-v-hatye-?
srf-place on ground-caus-J-inst-stat-prog-punc

7. Woodbury (1975) discusses similar examples in Onondaga and cites Lounsbury's suggestion, similar to the one made here, that there are three arguments marked in the pronominal prefix in examples like (4.37), the direct object being marked by $\emptyset$.

8. Chafe (1970) notes the ungrammaticality of similar constructions in Onondaga.

9. Example from Postal (1963:291). The orthography has

been regularized from the "underlying" form used by Postal, which included a pronoun i?i 'I' that "dropped."

10. Actually, the pronominal prefix k- can be used transitively, as all agent prefixes can in Mohawk. In its transitive use, it means 'I/her (zoic)' or 'I/it'.

11. This example is from a re-elicitation (Hopkins and Deer, 1981) of a 1880 Mohawk version of the Code of Handsome Lake (Bureau of American Ethnology ms. no. 3489).

12. The verb root -uny- 'make' seems to be repeated in Hewitt's transcription; perhaps this is a typographical error.

13. There are many other problems with the notion "head of word" as defined by Williams (1981) and Selkirk (1982). For example, Williams defines the head as the "righthand member" of a word, which runs into problems even in English (where, e.g., the righthand member of the nouns sit-in and push-up is not a noun), let alone other languages. Selkirk's revision of this notion to "rightmost" element also runs into problems, and she adds that this must be an English "parameter setting," in the generativist terminology. Selkirk does not include inflectional affixes as possible heads for words; however, Williams does--e.g., a word with four inflectional affixes has four "heads", with the features of each head percolating up to the dominating node, presumably so that the word can be interpreted. However, if word boundaries are not barriers to syntactic rules (or to semantic interpretation), there is no need for percolation; the features can be directly interpreted.

14. The degree of variability across speakers in their use of noun incorporation has not, as far as I know, been studied systematically. Individuals often describe certain other individuals as particularly good speakers of Mohawk and often assert that younger speakers do not speak Mohawk "correctly." Exactly what these judgments refer to is not clear, but speaker variability in linguistic skills in both literate and non-literate societies has been addressed by some linguists (e.g., Bloomfield, 1927; Gleitman and Gleitman, 1970) and warrants further investigation in Mohawk.

15. Postal used an assumed "underlying level" in his transcriptions. Therefore, overt pronouns are frequent in his examples, although presumbly they would delete (optionally) before the surface level. See note 9 above.

16. The frequency counts do not include English words, like tractor, English proper names, or nouns with

postpositions. Also, most importantly, they do not include lexicalized noun-incorporation constructions. These are marked in the texts' segmentations by bracketing; for example: [FRUIT-BE BIG] (= 'apple').

17. The use of a definite article in the gloss ('the corn') is misleading because of the possibility for the definite article to have a generic-like use in English, as in She plays the oboe, or I heard it on the radio. In recipes, such as the text that this line is taken from, definite articles are often used with indefinite reference in English: Set the oven at 350 . . .

CHAPTER 5

MOHAWK TEXTS

5.1 Method of Presentation

The three texts of naturally occurring speech presented in this chapter were recorded in 1983 at Kahnawà:ke; the speaker is Grace Curotte. After each narrative was recorded, Mrs. Curotte and I went over the taped version word-by-word so that word glosses could be obtained. A general gloss of each narrative, provided by Mrs. Curotte, is also given. Elicitation around each word was used to aid in the formative segmentation, which is given following each narrative.

Phonological criteria were used to determine the location of "sentence" boundaries (see discussion in Chapter 1). The phonological criteria used were: (1) a sharply downward pitch and a long pause, followed by intake of breath and a rising pitch to demarcate sentences, and (2) shorter pauses preceded by a less sharply downward pitch to demarcate intonational phrases, which are each presented on a separate line. When the criteria conflict--for example, when a pause occurs but no downward pitch--the pause is given priority in determining the boundary. Admittedly, these criteria are far from perfect; Brown and Yule (1983) discuss the problems of

using pitch and/or pause in determining boundaries within utterance. However, at present, these criteria seem as close as we can get to discovering such boundaries.

Within each line, the words, defined by the criteria discussed in Chapter 1, are separated by either no pause or very slight pause, and intonation is steady between words on one line (i.e., in one intonational phrase).

Each sentence is numbered and these numbers are used to identify the same sentences in the formative segmentations, which follow each text.

In the segmentation section, noun roots and verb roots are capitalized, and lexicalized NV constructions are differentiated from syntactic NV constructions by the use of bracketing for the former. For example, the lexicalized sewahyó:wane 'apple' appears in the segmentation as:

```
se-w-ahy-owan-?
rep-ZA-[FRUIT-BE BIG]-stat
```

A syntactic NV construction will not be bracketed. It was not possible for me to always determine beyond a shadow of a doubt that a construction was or was not lexicalized. The criteria given in Chapter 4 for distinguishing lexical from syntactic noun incorporation are not always available in a text (e.g., anaphoric relations or construction of the incorporated noun with elements outside the verb).

For example, in the word tyotahyú:ni 'the fruit is growing (there)', in line 8 of Text 1, the incorporated noun -ahy- 'fruit', when combined with the verb root -uny- 'make' gives the semantically specialized meaning 'grow'. However, it may be that the semantic specialization applies to -uny-; i.e., that it can mean 'grow' in certain contexts. The noun root 'fruit' may be syntactically incorporated here, although the entire phrase in which it appears, tyotahyú:ni ne sewahyó:wane? 'where the apples are growing', seems to be an example of classificatory noun incorporation. Sewahyó:wane?, a syntactic noun, cannot be incorporated (see Section 3.3.2). Therefore, a more general noun -ahy- 'fruit' is incorporated with -uny- 'make' to give the meaning 'grow'. In the analysis given in Chapter 4, so-called classificatory noun incorporation was found to usually (but not always) involve a lexicalized NV compound plus an outside noun. In the cases where a lexicalized NV compound is not involved, the outside noun is interpreted as an appositive. Since pronominal prefixes cross-reference the verb's arguments in Mohawk, one possibility is that all nouns are appositives to the primary pronominal arguments. This makes it even more difficult for the non-native speaker to determine which noun incorporations are lexicalized and which are syntactic. However, as I have argued in Chapter 4, there are distinctions between the two, which more intensive work on the language may help to clarify.

5.2 Texts

5.2.1 Wvhniserí:yo ('A Beautiful Day')

1. A: oh nihsatyérhahkwe? ne? thetv́:re
what did you do yesterday

2. G: thetv́:re
yesterday

í:?i tanu? Audrey
I and Audrey

tánu? ratiksa?okú:?a
and the children

tánu? Alice
and Alice

wa?ukwahuwì:sere?
we drove in the car

3. tsi niyó:re tsi wvhniserí:io
as much as it was a beautiful day

sók wa?akwesákha? sewahyó:wane?
so we went to look for apples

tsi nú: thutahyahní:nus
where they sell fruit.

4. ya?ákwawe?
we arrived there

né:ne?

í:se? vhsà:yako?
you you will pick fruit.

5. sók ki
then

ya?akwate?serehtayv?
we parked the car.

6. sók
then

wa?ukhihró:ri? tsi ní:yo
they told us how

thó ne ó:nv
there

"tractor" thó ka?serehtayv
tractor there vehicle was there.

7. wahskwáhere?
it has a platform

ohná:kv yo?serehtv̀:tu
behind it is attached to the vehicle.

8. thó vhsátyv?
there you will sit

sók wa?ukwahuwì:sere?
then we rode

9. tsi niyó:re tyotahyú:ni
up to the fruit is growing

ne sewahyó:wane?
apples

sók ki wa?akwà:yako?
then we picked the fruit.

10. wahutatyé:rite?
they overdid it

wahnirahthéshu? tehniksá:?a?
they climbed all over the two children

okwirà:ke
on the trees

wahyà:yako? tánu?
they picked fruit and

tsi nahyate?nikuhró:ri?
they had a good time

tánu? ehtà:ke ní:?i tyákwate?
and at the bottom we we stood

11. (tsi) wa?akwà:yako?
we picked fruit

tsi niyó:re ú:tu?
as far as it was possible

ya?tyakwanvtshaníhara?ne?
our arms could reach.

12. yáh teyukwá:yv ne kanekó:ta
not we didn't have ladder

13. akò:rv rútstha?
someone else they were using it.

14. sók
when

tsi o:nv wa?akwatyè:nihte?
we had enough

sók ki tutayakwatíta?
we got back in.

15. thó sayakwatitáhko?
there we got out

sók ki wa?akwakárya?ke?
then we paid.

16. sók akte?nú:wa nú:we nusayákwe?
then another place we went

17. ákte? nú: sayakwahyakóha?
another place we picked fruit again.

18. ne ki shà:ka
same

wa?akwatyè:nihte?
we had enough

watto:kv nikarí:wes
it is certain length of time

skanà:tsa? tsi ní:ku
one pail be an amount.

19. sók ki tutayákwe?
then we came back.

20. ka?serehtákta
near the car

thó ne? ó:nv
there

tánu? "cider"
and cider

wa?akwari?wanú:tu? yáh tehotí:yv
we asked for it not they didn't have it.

21. tóka? áhsv tóka? nikayé:ri
maybe three maybe four

na?akwatkarhatté:ni? tsi nú:we ya?akwari?wanú:tu?
we went around to place we asked for it

yáh úhka tehotí:yv.
not someone they didn't have it.

22. thó ne? ó:nv
then

wa?akwv́:ru? á:?oki vhsitewahtv́:ti? ó:nv
we said ok we will go home then

tánu?
also

teyona?taratsikhè:tare? wa?akwahní:nu?
cake we bought it

yakwatuhkárya?ks
we were hungry.

23. tayukwahuwì:sere?
when we were driving

sók né:?e wa?ákwake?
then we ate it.

24. ó:nv ki

tsi niyó:re tsi tyóhskats
as far as it was beautiful

yu?wé:sv wvhniseri:yo
it was pleasant it was a beautiful day.

25. kwáh yu?wé:sv
very it was pleasant

tsi wa?tyakwatstikáhwha?
we traveled all around.

A: What did you do yesterday?

G: Yesterday, we took a ride in the car--Audrey, and the children, and Alice, and I. It was a beautiful day and we went looking for apples at places where they sell fruit. We arrived at one place where you pick the fruit. We parked the car, and they told us how there was a tractor with a platform attached behind it--that's where we would sit.

Then we rode up to where the apples were growing and we picked the apples. They overdid it. The two children climbed all over in the trees. They picked fruit and they had a good time. We stood at the bottom of the tree and picked apples as far as our arms could reach. We didn't have a ladder because someone else was using it.

When we had enough, we got back on the tractor platform and then got off and paid. Then we went to another place and picked fruit again. When we had enough, about one pail, we came back near the car, and we asked for cider, but they didn't have it. We went to three or four places and asked for cider but no one had it.

So, finally, we said "Let's go home." Then we bought some cake, and we were hungry on the way home so we ate it while we were driving. The weather was really beautiful and we had a really pleasant day, traveling all around.

Segmentation

1. oh ni-hs-at-yer-ha-hkw? ne? thetvre
   what part-2A-srf-DO-hab-FP P yesterday

2. thetvre i?i tanu? Audrey tanu?
   yesterday 1pro and Audrey and

   rati-ksa?-oku-?a tanu? Alice
   MpP-CHILD-pl-dim and Alice

   wa-a?-yukwa-huw-i?sere-?
   fact-H-1pP-[BOAT-DRAG]-punc

3. tsi ni-yo-re-Ø tsi
   P part-ZP-BE A DISTANCE-stat P

   w-vhniser-iyo-Ø sok wa-a?-yakwa-esak-ha-?
   ZA-DAY-BE GOOD-stat P fact-H-1expA-SEEK-purp-punc

   se-w-ahi-owane-Ø tsi nu
   rep-ZA-[FRUIT-BE BIG]-stat P where

   t-hu-at-ahi-a-hninu-s
   cis-MpA-srf-FRUIT-J-BUY-hab

4. y-a-a?-yakwa-w-? nene?
trans-fact-H-1expA-ARRIVE-punc P

ise? v-hs-ahy-a-kw-?
2pro fut-2A-FRUIT-J-PICK-punc

5. sok ki
P P

y-a-a?-yakwa-ate-?sere-ht-a-yv-?
trans-fact-H-1expA-srf-DRAG-nom-J-BE LYING,PUT-punc

6. sok wa-a?-yukhi-hrori-? tsi ni-yo-(t)
P fact-H-F/1p-TELL-punc P part-ZP-(BE THERE)

tho ne? onv tractor tho
P P P tractor P

ka-?sere-ht-a-yv-Ø
ZA-DRAG-nom-J-BE LYING-stat

7. w-ahskw-a-her-? ohnakv
ZA-PLATFORM-J-PUT ON-stat behind

yo-?sere-ht-v?t-u
ZP-DRAG-nom-HANG DOWN-stat

8. tho v-hs-at-yv-?
P fut-2A-srf-BE LYING,PUT-punc

sok wa-a?-yukwa-huw-i?ser-?
P fact-H-1expP-[BOAT-DRAG]-punc

9. tsi ni-yo-re-Ø
P part-ZP-BE A DISTANCE-stat

t-yo-at-ahy-uni-Ø ne
cis-ZP-srf-[FRUIT-MAKE]-stat P

se-w-ahy-owane-Ø sok ki
rep-ZA-[FRUIT-BE BIG]-stat P P

wa-a?-yakwa-ahy-a-kw-?
fact-H-1expA-FRUIT-J-PICK-punc

10. wa-a?-hu-atat-yerit-? wa-a?-hni-rahte-hsu-?
fact-H-MpA-ref-BE ENOUGH-punc fact-H-MdA-CLIMB-pl-punc

te-hni-ksa?-a? yo-kwir-a-?ke
du-MdA-CHILD-dim ZP-TREE-J-on

wa-a?-hy-ahy-a-kw-? tanu? tsi
fact-H-MdA-FRUIT-J-PICK-punc and P

n-a-a?-hy-ate-?nikuhr-ori-? tanu?
part-fact-H-MdA-srf-[MIND-OPERATE]-punc and

ehta?ke ne-i?i t-yakwa-t-?
bottom P 1pro cis-1expA-STAND-stat

11. tsi wa-a?-yakwa-ahy-a-kw-? tsi
P fact-H-1expA-FRUIT-J-PICK-punc P

ni-yo-re-Ø wa-a?-w-atu-?
part-ZP-BE A DISTANCE-stat fact-H-ZA-BE ABLE-punc

y-a-a?-t-yakwa-nvtsh-a-nihara?n-?
trans-fact-H-du-1expA-ARM-J-REACH-punc

12. yah te-yukwa-yv-Ø ne ka-nekot-a?
not neg-1expP-BE LYING-stat P ZA-LADDER-nsf

13. yako-hrv ru-at-st-ha?
FP-ELSE,OTHER(?) MpA-srf-USE-hab

14. sok tsi onv wa-a?-yakwa-at-yehni-ht-?
P P P fact-H-1expA-srf-FILL-caus-punc

sok ki t-ut-a-yakwa-atita-?
P P du-cis-fact-1expA-GET IN-punc

15. tho s-a-yakwa-atita-kw-?
P rep-fact-1expA-GET IN-un-punc

sok ki wa-a?-yakwa-kar-ya?k-?
P P fact-H-1expA-[STORY-BREAK]-punc

16. sok akte?nuhwa nuwe n-us-a-yakwa-e-?
P another place part-rep-fact-1expA-GO-punc

17. akte? nu s-a-yakwa-ahy-a-kw-ha-?
another place rep-fact-1expA-FRUIT-J-PICK-purp-punc

18. ne ki sha?ka wa-a?-yakwa-at-yehni-ht-?
P P same fact-H-1expA-srf-FILL-caus-punc

w-at-tokv?-Ø
ZA-srf-BE SPECIFIC-stat

ni-ka-rihw-es-Ø s-ka-na?ts-a?
part-ZA-[MATTER-BE A LENGTH]-stat rep-ZA-PAIL-nsf

tsi ni-k-u-Ø
P part-ZA-BE AN AMOUNT-stat

19. sok ki t-ut-a-yakwa-e-?
P P du-cis-fact-1expA-GO-punc

20. ka-?sere-ht-akta tho n?e onv tanu? cider
ZA-DRAG-nom-near P P P also cider

wa-a?-yakwa-ri?wanutu-? yah te-hoti-yv-ø
fact-H-1expA-ASK FOR-punc not neg-MpP-BE LYING-stat

21. toka? ahsv toka? ni-kayeri
maybe THREE maybe part-FOUR

n-a-a?-yakwa-at-karhat-teni-? tsi nuwe
part-fact-H-1expA-srf-TURN-CHANGE-punc P place

y-a-a?-yakwa-ri?wanutu-? yah uhka
trans-fact-H-1expA-ASK FOR-punc not who

te-hoti-yv-ø
neg-MpP-BE LYING-stat

22. tho ne? onv wa-a?-yakwa-iru-? a?oki
P P P fact-H-1expA-SAY-punc P

v-si-tewa-ahtvti-? onv tanu?
fut-rep-1inpA-LEAVE-punc P also

te-yo-na?tar-a-tsikhe?t-a-r-?
du-ZP-[BREAD-J-[SUGAR-J-BE IN]]-stat

wa-a?-yakwa-hninu-? yakwa-at-uhkarya?k-s
fact-H-1expA-BUY-punc 1expA-srf-BE HUNGRY-hab

23. t-a-yukwa-huw-i?sere-? sok ne?e
cis-fact-1pP-[BOAT-DRAG]-punc P P

wa-a?-yakwa-k-?
fact-H-1expA-EAT-punc

24. onv ki tsi ni-yo-re-ø tsi
P P P part-ZP-BE A DISTANCE-stat P

t-yo-hskats-ø y-u?wesv-0
cis-ZP-BE BEAUTIFUL-stat ZA-BE PLEASANT-stat

w-vhniser-iyo-ø
ZA-DAY-BE GOOD-stat

25. kwah y-u?wesv-ø tsi
very ZA-BE PLEASANT-stat P

wa-a?-t-yakwa-at-stikahwha-?
fact-du-1expA-srf-TRAVEL-punc

5.2.2 "Rahù:tsi" ("Blackie")

1. è:rhar
dog

yukwanahskwayv:tahkwe? "rahù:tsi" ruwá:yats
we used to have a pet "rahu:tsi" he was named
(he is black)

ne washakwanà:tuhkwe?
we called him.

2. ne tsí

aktsí:?a wa?ukhináhsku?
my older sister she gave us an animal.

3. tánu?
and

wa?ukhihró:ri? ausashakwahsvnaté:ni?
she told us we should change his name

"Blackie" ruwá:yats
"Blackie" he was named.

4. wa?i:ru
she said

tóka?
maybe

kí:kv raksá:?a? raotshé:nvkvha tóhsa ki
this one boy his former pet not

ausahoyv́:tere?ne?
he would recognize him

ó:ya? ki nishohsvno?tvhak
other he has a kind of name.

5. sók ki "rahù:tsi" washakwanà:tuhkwe?
so "rahu:tsi" (he is black) we named him.

6. ó:nv ki?
then

sók ki washakwasharú:tv?
we tied him on a leash

tánu?
and

kv́? nikarì:wes rashá:rute?
some it is a length of time his leash was attached.

7. ó:nv ki
then

wa?ukhró:ri? ne khe?okú:?a wahní:ru?
they told me my children they said

yáh tehnirihwanù:we?s kí:kv só:tˢi
not they(two) do not like this too much

rashá:rute?
he is tied up

è:rhar
dog

8. sók ki washakwasharutá:ko?
so we untied him

sok óksak
right away

9. ka?k(nú:) thyahatákhe?
somewhere he ran off.

10. tánu?
and

thó ne tvthre? tsí ki
there he will come back

raúha raotv?nikù:ra?
he(emphatic) his mind.

11. nó:nv
then

tvthahtv́:ti?
he will return.

12. ó:nv ki
then

khá:re vska ya?ká:yvhte?
again one time

yahayá:kv?ne? sók ki
he went out and

yáh tha?tethawé:nu
not he didn't come back.

13. tayutewvnáta? ne? aktsí:?a wa?í:ru?
she telephoned my older sister she said

thó yeshv̀:teru
there he's staying there again

thó yusahokè:tote?
there he returned.

14. sók ki óksak
so right away

sahuwvhnúksa?
they went to get him.

15. ó:nv ki
then

tutashakwaya?tvhawe? sók ki á:re
we brought him back so again

sashakwasharú:tv?
we put him back on the leash.

16. ó:nv ki

tsi niyó:re tsi
that much

roya?tasté:ris
he is funny

tsi nihate?nikuhra?tókha?
he is bright

17. nahò:tv vhshró:ri? né:ne? akwé:ku ki
what you will tell him all

vhsehre? akwé:ku roteriyv̀:tare?
you will think all he understands.

18. tánu?
and

ne karuhí:yo tsi niyó:re tsi
Karuhi:yo that much

tehyatvrotsherí:yo
they(two) are good friends.

19. nó:nv
when

"TV" roterò:ru thó ki vhanitskó:tv? tánu?
TV he watches there he sits there also

20. akwé:ku nó:nv vhotáwha?
all when he will go to sleep

ahakwvyè:seke?
if he was able

thó ki yvhá:rate?
there he will lie.

21. nék tsi yáh ki teshakwarihwá:wis
but not we do not allow him.

22. ó:nv vská:ya?
then once

kí:kv
this

tánu? wakyó?te? yekyá:kv?s orhu?kè:ne
and I work I go out in the morning.

23. ya?kyá:kv?ne? yáhtv
I go out not

kvneka tehiya?ttshvryu
anywhere I didn't find him

24. yáh ki teyotú:?u tautahiya?tinyú:tu
not it was possible I couldn't bring him in.

25. tsi niyó:re o?karahsnéha tutá:ke?
as far as evening I came back

ó:nv thó ahskwv?nà:ke
then there on the porch

thó wa?thakwáterahte? ki è:rhar
there I saw him this dog.

26. tsi niyó:re tsi
as far as

yáh skv́:nv te:kv tehanuhtúnyu seru?kè:ne
not it is well this he felt with difficulty

thì:re
he walks

27. tánu?
and

tehoya?tátsu onawa?tstósku raya?takwé:ku
his body is dirty it is covered with mud his whole body

28. ó:nv
then

washakwaka?v́:yu? tsi
we examined him

tyók nihoyà:tawvs
something it happened to his body.

29. sók ki karuhí:yo
so Karuhi:yo

wahate?nyv́:tv?
he tried

yahoyé:na? yáh teyotú:?u
he would hold him not it wasn't possible.

30. rehrakwe? vhoká:ri?
he wanted he will bite him

só:tˢi
too much

rokarewáhtu
he was injured.

31. ó:nv ki John tutà:re? sók ki né:?e
then John he came back so

wa?thoyà:tahkwe?
he picked him up.

32. tahoya?tínyute?
he brought him in

washakwakv?v́:yu tsi niyó:re tsi
we examined him as much as

rokarewáhtu
he was injured.

33. tánu?
and

thó ne sók ki washakwaya?tóhare?
there we washed his body.

34. sók
so

ratetsv́?tshne
to the doctor's

yashakwaya?tv́hawe?
we took him.

35. tahokwatákwahse?
he fixed it up for him

waha?níkhu? tsi nú:we nihokarewáhtu
he sewed it place where he is injured.

36. tánu?
and

kheh ki thv̀:teru
he stayed

v́ska yahanú:wete?
one he stayed overnight.

37. tsi wa?órhv?ne? ó:nv yusashakwv̀:nuke?
the next day then we got him back from there.

38. ó:nv ki
when

ne

thó ne shusashakwv̀:nuke?
there we got him back

ó:nv ki
then

kwáh skv́:nv shanuhtúnyu
very it is well he feels again

39. shotshvnú:ni
he is happy again

wé:ne tsi ó:nv

ostúha shota?karí:te?
a little he is healthy again.

We used to have a dog named "Rahù:tsi"--that's what we called him. My older sister gave him to us, and she told us we should change his name. He had been named "Blackie." She said that maybe the boy who used to own him would not recognize him if he had a different name. So we named him "Rahù:tsi."

We put him on a leash and he was tied there for a while. But my two children said they didn't like that the dog was tied up so much. So, we untied him. Right away, he ran off somewhere and he only came back when he made up his own mind to return.

One time he went out and he didn't come back. My older sister telephoned and said he was back at her place again--he had returned there. So, right away, we went to get him and brought him back, and we tied him on the leash again.

He was always so funny and very bright. He understands everything you tell him, everything you're thinking. And he and Karuhi:yo were great friends. When Karuhi:yo watched TV, the dog would sit there, too; and when we went to bed, he would try to sleep there with us, but we wouldn't allow that.

Then one day when I went out to work in the morning, I couldn't find him anywhere. It wasn't possible for me to bring him in. In the evening, when I came back, I saw him there on the porch. But he didn't look well. He could hardly walk and he was very dirty; his whole body was covered with mud. So we examined him because something had happened to him. Karuhi:yo tried to hold him, but it wasn't possible--the dog wanted to bite him because he was so injured.

Then John came back and he picked him up and brought him in. We examined him to see how injured he was, and we washed his body. Then we took him to the doctor's. The doctor fixed him up; he sewed the place where he was injured. The dog stayed there overnight, and the next day we went to get him. When we brought him home, he was very well, he felt happy and healthy again.

Segmentation

1. e?rhar yukwa-nahskw-a-yv-?t-a-hkw?
DOG 1pP-ANIMAL-J-BE LYING-hab-J-FP

hra-hu?tsi-0 ruwa-yat-s
MA-BE BLACK-stat F/M-CALL-hab

ne wa-a?-shakwa-na?tu-hkw-?
P fact-H-1exp/M-GIVE A NAME-inst-punc

2. ne tsi (w)ak-tsi-?a
P P 1poss-BE OLDER SIBLING-dim

wa-a?-yukhi-nahskw-u-?
fact-H-F/1p-ANIMAL-GIVE-punc

3. tanu? wa-a?-yukhi-hrori-?
and fact-H-F/1p-TELL-punc

a-us-a-shakwa-hsvn-a-teni-? Blackie
opt-rep-opt-1exp/M-NAME-J-CHANGE-punc Blackie

ruwa-yat-s
F/M-CALL-hab

4. wa-a?-(ye)-iru-? toka? kikv hra-ksa?-a?
fact-H-FA-SAY-punc maybe this MA-CHILD-dim

hrao-tsvnv-kvha tohsa ki
Mposs-PET-former not P

a-us-a-hro-yvtere?n-? oya? ki
opt-rep-opt-M/M-RECOGNIZE-punc other P

ni-s-hro-hsvn-o?tv-ha-k-Ø
part-rep-MP-NAME-BE A KIND-hab-mod-imp

5. sok ki hra-hu?tsi-ø
P P MA-BE BLACK-stat

wa-a?-shakwa-na?tu-hkw-?
fact-H-1p/M-GIVE A NAME-inst-punc

6. onv ki sok ki wa-a?-shakwa-ashar-utv-?
P P P P fact-H-1p/M-[LEASH-ATTACH]-punc

tanu? kv? ni-ka-rihw-es-ø
and some part-ZA-[MATTER-BE A LENGTH]-stat

hra-ashar-ut-?
MA-[LEASH-ATTACH]-stat

7. onv ki wa-a?-yuk-hrori-? ne?
P P fact-H-F/1-TELL-punc P

khe-?oku-?a wa-a?-hni-iru-?
1/F-pl-dim fact-H-MdA-SAY-punc

yah te-hni-rihw-a-nuhwe?-s kikv
not neg-MdA-[MATTER-J-LIKE]-hab this

so?t i hra-ashar-ut-? e?rhar
too much MA-[LEASH-ATTACH]-stat DOG

8. sok ki wa-a?-shakwa-ashar-ut-a-kw-?
P P fact-H-1p/M-[LEASH-ATTACH]-J-un-punc

sok oksak
P right away

9. ka?k (nu) th-y-a-a?-hra-takhe-?
somewhere contr-trans-fact-H-MA-RUN-punc

10. tanu? tho ne t-v-t-hra-e-?
and P P du-fut-cis-MA-GO-punc

tsi ki rauha hrao-atv-?nikuhr-a?
P P 3pro Mposs-srf-MIND-nsf

11. ne-onv t-v-t-hra-ahtvty-?
P P du-fut-cis-MA-LEAVE-punc

12. onv ki khare vska
P P again one

y-a-a?-ka-yv-ht-?
trans-fact-H-ZA-BE LYING-caus-punc

y-a-a?-hra-yakv?n-? sok ki
trans-fact-H-MA-GO OUT-punc P P

yah th-a?-te-t-hraw-e-nu
not contr-H-du-cis-MA-GO-stat

13. t-a-yu-ate-wvn-ata-? ne?
cis-fact-FA-srf-[WORD-SAY]-punc P

(w)ak-tsi-?a wa-a?-(ye)-iru-?
1poss-BE OLDER SIBLING-dim fact-H-FA-SAY-punc

tho ye-s-hra-i?teru-Ø
P trans-rep-MA-STAY,RESIDE-hab

tho y-us-a-hro-ke?toht-?
P trans-rep-fact-MP-APPEAR-punc

14. sok ki oksak s-a-huwa-ihnuksa-?
P P right away rep-fact-F/M-FETCH-punc

15. onv ki t-ut-a-shakwa-ya?t-vhaw-?
P P du-cis-fact-1p/M-[BODY-CARRY]-punc

sok ki are s-a-shakwa-ashar-utv-?
P P again rep-fact-1p/M-[LEASH-ATTACH]-punc

16. onv ki tsi ni-yo-re-Ø
P P P part-ZP-BE A DISTANCE-stat

tsi hro-ya?t-a-steris-0 tsi
P MP-[BODY-J-BE FUNNY]-stat P

ni-hra-ate-?nihuhr-a?tok-ha?
part-MA-srf-[MIND-BE BRIGHT]-hab

17. na-h-o?tv-Ø v-hs-hrori-?
part-ZP-BE A KIND-stat fut-2A-TELL-punc

nene? akweku ki v-hs-ehr-?
P all P fut-2A-THINK-punc

akweku hro-ate-ryv?tar-?
all MP-srf-UNDERSTAND-stat

18. tanu? ne ka-ruhy-iyo-Ø
and P ZP-[SKY-BE GOOD]-stat (a name)

tsi ni-yo-re-Ø tsi
P part-ZP-BE A DISTANCE-stat P

te-hy-ate-vro-tsher-iyo-Ø
du-MdA-srf-BE FRIENDS-nom-BE GOOD-stat

19. n(e)-onv TV hro-ate-rohr-u tho
P P TV MP-srf-WATCH-stat P

ki v-hra-an-itskw-otv-? tanu?
P fut-MA-srf-[THIGH-BE THERE]-punc also

20. akweku ne-onv v-hro-ita?w-ha-?
all P P fut-MP-SLEEP-purp-punc

a-hra-kwenye-?se-k-? tho ki
opt-MA-BE ABLE-dat-mod-punc P P

y-v-hra-arat-?
trans-fut-MA-LIE DOWN-punc

21. nek tsi yah ki te-shakwa-rihw-awi-s
P P not P neg-1p/M-[MATTER-GIVE]-hab

22. onv enskaya? kikv tanu? wak-yo?t-e?
P once this and 1P-WORK-hab

ye-k-yakv?-s yo-rhu-?ke-hne
trans-1A-GO OUT-hab ZP-BE DAY-on-at

23. y-a-a?-k-yakv?n-? yah tv
trans-fact-H-1A-GO OUT-punc not P

kvneka te-hi-ya?t-tshvri-u
anywhere neg-1/M-[BODY-FIND]-stat

24. yah ki te-yu-atu-?u
not P neg-FA-BE ABLE-stat

t-a-ut-a-hi-ya?t-inyut-u
du-opt-cis-opt-1/M-[BODY-BRING IN]-stat

25. tsi ni-yo-re-Ø
P part-ZP-BE A DISTANCE-stat

yo-?karahs-neha t-ut-t-a-k-e-?
ZP-EVENING-way of du-cis-fact-1A-GO-punc

onv tho ahskw-v?v-a-?ke tho
P P PLATFORM-?-J-on P

wa-a?-t-hakw-ate-raht-? ki e?rhar
fact-H-du-M/1-srf-MEET-punc P DOG

26. tsi ni-yo-re-Ø tsi
P part-ZP-BE A DISTANCE-stat P

yah s-ka-inv-Ø
not rep-ZA-BE PEACEFUL,WELL-stat

te-kv te-hra-anuhtu-nyu-ø
not-this neg-MA-THINK,FEEL-dist-stat

seru?kene? thi-hra-e-ø
hardly contr-MA-GO-imp(?)

27. tanu? te-ho-ya?t-a-?tsu-ø
and du-MP-BODY-J-BE DIRTY-stat

yo-nawa?tst-osku-ø hra-ya?t-akweku-ø
ZP-MUD-BE COVERED-stat MA-BODY-all-stat

28. tanu? wa-a?-shakwa-ka?vyu-? tsi
and fact-H-1p/M-EXAMINE-punc P

tyok ni-hro-ya?t-a-wv-s
P part-MP-[BODY-J-HAPPEN]-hab

29. sok ki ka-ruhy-iyo-ø
P P ZA-[SKY-BE GOOD]-stat

wa-a?-hra-ate-?nyvtv-? y-a-hro-yena-?
fact-H-MA-srf-TRY-punc trans-opt-M/M-GRASP-punc

yah te-yo-atu-?u
not neg-ZP-BE ABLE-stat

30. hra-ehr-a-hkw? v-hro-kari-?
MA-WANT-hab(?)-FP fut-M/M-BITE-punc

sot'i hro-karewa-ht-u
too much MP-INJURE-caus-stat

31. onv ki John t-ut-a-hra-e-?
P P John du-cis-fact-MA-GO-punc

sok ki ne?e wa-a?-t-hro-ya?t-a-hkw-?
P P P fact-H-du-M/M-BODY-J-LIFT-punc

32. t-a-hro-ya?t-inyut-?
cis-fact-M/M-[BODY-BRING IN]-punc

wa-a?-shakwa-ka?vyu-? tsi
fact-H-1p/M-EXAMINE-punc P

ni-yo-re-ø tsi
part-ZP-BE A DISTANCE-stat P

hro-karewa-ht-u
MP-injure-caus-stat

33. tanu? tho ne sok ki
and P P P P

wa-a?-shakwa-ya?t-ohare-?
fact-H-1p/M-BODY-WASH-punc

34. sok hra-ate-tsv?ts-hne
P MA-srf-CURE-at place of

y-a-a?-shakwa-ya?t-vhaw-?
trans-fact-H-1p/M-[BODY-CARRY]-punc

35. t-a-hro-kwatakw-a-hs-?
cis-fact-M/M-FIX-J-dat-punc

s-a-hra-?nikhu-? tsi nuwe
rep-fact-MA-SEW-punc P place

ni-hro-karewa-ht-u
part-MP-INJURE-caus-stat

36. tanu? kheh ki t-hra-i?teru-Ø
and P P cis-MA-STAY-stat

vska y-a-a?-hra-anuwet-?
one trans-fact-H-MA-SLEEP OVER-punc

37. tsi wa-a?-yo-rhv-?n-? onv
P fact-H-ZP-BE DAY-inch-punc P

y-us-a-shakwa-ihnuk-?
trans-rep-fact-1p/M-FETCH-punc

38. onv ki ne tho ne
P P P P P

sh-us-a-shakwa-ihnuk-?
coin-rep-fact-1p/M-FETCH-punc

onv ki kwah s-ka-inv-Ø
P P very rep-ZA-BE PEACEFUL,WELL-stat

s-hra-anuhtu-nyu-Ø
rep-MA-FEEL-dist-stat

39. s-hro-at-shvnuni-Ø wene tsi onv
rep-MP-srf-BE HAPPY-stat P P P

yo-stu-ha s-hro-at-a?karite-?
ZP-LITTLE BIT-dim rep-MP-srf-BE IN HEALTH-stat

5.2.3 Kana?tarokhú:we (Cornbread)

1. A: oh niyeyérha? ayena?tarú:ni
what one does it one might make bread

kana?tarokhú:we nekwá orihwakwé:ku
the true bread everything

2. G: tyotyervhtu
the first thing

kahéhtaku vtéhshawe?
from the garden you will bring it.

3. nó:nv yekayé:ri tsi niyonorá:ri
when it is ready when the husk is ripe

vwatenvstísa? vhsenvstako?
the corn will be ready you will pick the corn.

4. sók vhsenoróthsi?
then you will peel the husk

tánu? vhsenorú:ni?
and you will braid the husk

vhshá:rv?
you will hang it up.

5. vhsstátha?te?
you will dry it.

6. nó:nv yekayé:ri tsi niyostáthv
when it is ready when it is dry

7. sók
then

vhsenvstarú:ko?
you will take the corn off the cob.

8. thó ne? ó:nv
then

karístaku o?kv̀:ra? vhsena?tsá:rv?
stove dirt,ashes you will put the pot on.

9. thó
there

yvhsáweru? karístaku o?kv̀:ra?
you will pour it in stove dirt,ashes.

10. tvhshnekútyehte?
you will boil water

sók tsi yvhsáweru? ne? o:nvste?
then you will pour it in corn.

11. tvyohnekú:ti?
you will let it boil

nó:nv yekayé:ri
when it is ready

tsi nikarì:wes wa?tyohnekú:ti?
when it is enough it has boiled

thó ne? ó:nv
then

vhshnekaté:ni? vhsenóhare?
you will drain the water you will wash it.

12. akwé:ku vhsenóhare? tsi niyó:re kwáh
all youwill wash it until very

thó kv́:?v yotenóhare
it is washed.

13. sók thó ne? o:nv vhsstátha?te?
then you will dry it

ne? o:nvste?
corn.

14. nó:nv kwáh yotokv́:?v yostáthv
very it is certain it is dry.

15. thó ne? ó:nv vhsethe?te?
then you will grind it.

16. sók

ó:nv vwá:tu? vhsena?taru:ni?
then it will be possible you will make bread

tánu? osahè:ta?
and beans

né:ne? osahe?ta?ú:we
the true beans

ne? tvhsyeste?
you will mix in.

17. ohné:ka? vhsena?tsá:rv?
water you will put it in the pot.

18. teyohnekútye?s vtehsáweru?
the water is boiling you will pour it

tánu?
and

tvhsawvrye?
you will stir it.

19. thó ne? ó:nv
then

vhskwatá:ko? tvhshwe?nú:ni?
you will prepare it you will make it round.

20. sók
then

tvhstakwvhtvste? tánu?
you will flatten it and

satena?tsáhare?
you put the pot on

thóha teyohnekútye?s
almost the water is boiling

thó yvhsohwe?
then you will put it in water.

21. nó:nv akwé:ku thó yvhsohwe?
then everything you will put it in water

vtewatáhsawv?
it will start

tvyohnekú:ti?
the water will boil.

22. sók

nó:nv ya?tekayé:ri tsi niyó:re vká:ri?
it is ready when it will be done

vkutà:kerahkwe?
it will float.

23. ó:nv ki yeyóhe
then it is time

vwá:tu? ne? vhseke?
it will be possible you will eat.

A: How do you make cornbread from scratch?

G: First, you bring the corn in from the garden when it is ready. When the husk is ripe, you pick the corn. Then you husk it and braid the husks. You hang it up to dry and when it's dry enough, you take the corn off the cob.

Then you're going to use ashes. You put the pot on the stove and you pour in the ashes and boil them; then you put in the corn. You let it boil, and when it has boiled enough, you drain the water. You wash everything until it's really clean, and then you let the corn dry until it's very dry. Next, you grind it and then you can make the bread. You mix in beans--the true beans.

You put water in the pot. You pour in the boiling water and stir it. Then you prepare the bread. You make it round and flat. You have your pot on the stove with water that is almost boiling. You put everything in the water and it will start to boil, until it's cooked. When it's ready--when the bread floats--then it's time to eat.

Segmentation

1. oh ni-ye-yer-ha? a-ye-na?tar-u:ni-?
what part-FA-DO-hab opt-FA-BREAD-MAKE-punc

ka-na?tar-o-khw-uwe-ø
ZA-[BREAD-BE IN WATER]-FOOD-BE TRUE-stat

nekwa yo-rihw-akweku-ø
P ZP-MATTER-ALL-stat

2. t-yo-at-yervht-u ka-heht-a-ku
cis-ZP-srf-BE FIRST-stat ZA-GARDEN-J-in

v-te-hs-haw-?
fut-cis-2A-CARRY-punc

3. ne-onv ye-ka-yeri-ø tsi
P P trans-ZA-BE ENOUGH-stat P

ni-yo-nor-a-ri-ø
part-ZP-HUSK-J-BE RIPE-stat

v-w-ate-nvst-isa-?
fut-ZA-srf-CORN-FINISH-punc

v-hse-nvst-a-kw-?
fut-2A-CORN-J-PICK-punc

4. sok v-hse-nor-ot-hsi-? tanu?
P fut-2A-HUSK-BE THERE-un-punc and

v-hse-nor-uni-? v-hs-harv-?
fut-2A-HUSK-MAKE-punc fut-2A-HANG-punc

5. v-hs-st-ath-a-?t-?
   fut-2A-nf-BE DRY-J-caus-punc

6. ne-onv ye-ka-yeri-Ø tsi
   P P trans-ZA-BE ENOUGH-stat P

   ni-yo-st-ath-v
   part-ZP-nf-BE DRY-stat

7. sok v-hse-nvst-a-rukw-?
   P fut-2A-CORN-J-TAKE OFF-punc

8. tho ne? onv
   P P P

   ka-rist-a-ku o-?kvhr-a?
   ZA-METAL-J-in ZP-DIRT-nsf

   v-hse-na?ts-a-rv-?
   fut-2A-POT-J-PUT IN-punc

9. tho y-v-hs-aweru-? ka-rist-a-ku
   P trans-fut-2A-SPILL-punc ZA-METAL-J-in

   o-?kvhr-a?
   ZP-DIRT-nsf

10. t-v-hs-hnek-utye-ht-? sok tsi
    du-fut-2A-[LIQUID-THROW]-caus-punc P P

    y-v-hs-aweru-? ne? o-nvst-?
    trans-fut-2A-SPILL-punc P ZP-CORN-nsf

11. t-v-yo-hnek-uty-? ne-onv
    du-fut-ZP-[LIQUID-THROW]-punc P P

    ye-ka-yeri-Ø tsi
    trans-ZA-BE ENOUGH-stat P

    ni-ka-rihw-es-Ø
    part-ZA-[MATTER-BE A LENGTH]-stat

    wa-a?-t-yo-hnek-uti-? tho ne onv
    fact-H-du-ZP-[LIQUID-THROW]-punc P P P

    v-hs-hnek-a-teni-? v-hse-n-ohare-?
    fut-2A-[LIQUID-J-CHANGE]-punc fut-2A-nf-WASH-punc

12. akweku v-hse-n-ohare-? tsi
    all fut-2A-nf-WASH-punc P

    ni-yo-re-Ø kwah tho
    part-ZP-BE A DISTANCE-stat very P

kv?v yo-ate-n-ohare-Ø
P ZP-srf-nf-WASH-stat

13. sok tho ne? onv v-hs-st-ath-a-?t-?
P P P P fut-2A-nf-BE DRY-J-caus-punc

ne? o-nvst-?
P ZP-CORN-nsf

14. ne-onv kwah yo-tokv?-v
P P very ZP-BE SPECIFIC-stat

yo-st-ath-v
ZP-nf-BE DRY-stat

15. tho ne? onv v-hse-the?t-?
P P P fut-2A-GRIND-punc

16. sok onv v-w-atu-?
P P fut-ZA-BE POSSIBLE-punc

v-hse-na?tar-uni-? tanu? o-sahe?t-a?
fut-2A-BREAD-MAKE-punc and ZP-BEAN-nsf

ne?ne o-sahe?t-a?-uwe-Ø ne?
P ZP-BEAN-nsf-BE TRUE-stat P

t-v-hs-yest-?
du-fut-2A-MIX-punc

17. o-hnek-a? v-hse-na?ts-a-rv-?
ZP-LIQUID-nsf fut-2A-POT-J-PUT IN-punc

18. te-yo-hnek-utye-?s v-te-hs-aweru-?
du-ZP-[LIQUID-THROW]-hab fut-cis-2A-SPILL-punc

tanu? t-v-hs-awvrye-?
and du-fut-2A-STIR-punc

19. tho ne? onv v-hs-kwatakw-?
P P P fut-2A-PREPARE,FIX-punc

t-v-hs-hwe?n-uni-?
du-fut-2A-BE ROUND-MAKE-punc

20. sok t-v-hs-takwvhtv-st-? tanu?
P du-fut-2A-BE FLAT-caus-punc and

s-ate-na?t-a-har-? thoha
2P-srf-POT-J-HANG-stat almost

te-yo-hnek-utye-?s tho
du-ZP-[LIQUID-THROW]-hab P

y-v-hs-o-hw-?
trans-fut-2A-BE IN WATER-caus-punc

21. ne-onv akweku tho y-v-hs-o-hw-?
P P all P trans-fut-2A-BE IN WATER-caus-punc

v-te-w-at-ahsawv-? t-v-yo-hnek-uty-?
fut-cis-ZA-srf-BEGIN-punc du-fut-ZP-[LIQUID-THROW-punc

22. sok ne-onv y-a?-te-ka-yeri-ø tsi
P P P trans-H-du-ZA-BE ENOUGH-stat P

ni-yo-re-ø v-ka-ri-?
part-ZP-BE A DISTANCE-stat fut-ZA-BE RIPE-punc

v-ku-t-a?kerahkw-?
fut-FpP-srf-FLOAT-punc

23. onv ki ye-yo-he-ø v-w-atu-?
P P trans-ZP-BE A TIME(?)-stat fut-ZA-BE ABLE-punc

ne? v-hs-ek-?
P fut-2A-EAT-punc

CHAPTER 6

CONCLUSION

The approach developed in this thesis grew out of frustration with what I felt were the inadequacies of many current theoretical approaches to morphological structure, which were based primarily on English (e.g., Aronoff, 1976; Williams, 1981; Selkirk, 1982). Models based on English usually assume that words are the "building blocks" of syntax and that the overlap of morphology and syntax in the area of inflection is a problem to be finessed in various ways (e.g., "affix hopping," "pro-drop"). Under these assumptions, Mohawk and other polysynthetic languages are very problematic indeed.

A different approach to the various types of word formation found in natural languages is typological. Sapir's (1921) discussion of "analytic," "synthetic," and "polysynthetic" languages is basic to such an approach. Languages are classified along a spectrum or continuum, depending on how much of the contents of a clause can appear within word boundaries. Although this typological approach, in itself, does not answer questions concerning language universals, it does provide, I feel, a more realistic basis for studying linguistic universals than attempts to extend to other languages the properties found in a single language.

For example, a linguist working on a polysynthetic language is forced to rethink many of the traditional definitions of the basic units of grammatical description. Rather than assuming that such languages are aberrant, if one begins with the assumption that this type of language should be just as easily accounted for as any other language, a number of interesting conclusions follow.

It is clear that the interaction of what has usually been called "morphology" (i.e., word formation) and what has usually been called "syntax" (i.e., rules governing constructions signalling grammatical relations in a domain larger than the word) varies considerably across different language-types. The fact that some languages use word-internal modification extensively to signal grammatical relations (a phenomenon that has traditionally been called "inflection"), whereas other languages use little or no word-internal modification to signal such relations, is one indication that word boundaries are not relevant to a description of grammatical relations.

In this thesis, I have tried to describe Mohawk, a polysynthetic language, in its own terms. Observing the interaction of parts of words with elements outside the word, I hypothesized that word boundaries were not relevant for syntactic rules. However, this hypothesis must be accompanied by a clear definition of "word" and must also take into account a central aspect of

polysynthetic languages: the difficulty of differentiating lexical (derivational) processes from inflectional processes. Since so many constructions take place within word boundaries or across word boundaries, it is important to determine just how far syntactic rules can go--that is, if word boundaries can be violated by syntax, is there a stopping point within the word beyond which syntactic rules cannot go? I think that the derivation/inflection distinction provides the best answer to this question. To use Postal's term, derived items are "anaphoric islands"; and, in Anderson's words, inflection is "what is relevant to the syntax." The lexicon is the repository of the material content (in Sapir's (1921) terminology) of the language--the basic, minimal pairings of sound and meaning, as well as the derived idiosyncratic pairings. Rules governing the relational aspects of language constitute the syntax.

The apparent irrelevance of word boundaries per se to syntactic rules led me to a phonological definition of word, as the smallest independent phonological unit that has meaning--a variation of Bloomfield's "minimal free form." This, in turn, led to an appreciation of Fudge's (1969) concept of grammar as two hierarchies--one phonological and one grammatical--that meet at various points, depending on the language-type. The word, as a phonological unit with meaning, will always match some unit or units on the grammatical hierarchy; however, which

unit or units it matches will depend on the language-type.

This approach was described in detail in Chapter 1. In Chapter 2, the nature of word-formation rules was addressed. Although "morphology" as a component of grammar does not have a place in the model used in this thesis, nonetheless the term morphology can be used to describe the combinatorial rules that apply within the phonological domain of the word--i.e., the word-formation rules. The phonological and morphophonemic rules of Mohawk were described using the model of natural generative phonology, which clarifies the nature of phonological (P) rules: i.e., P rules are "true generalizations" about surface forms. By dividing word-formation rules into the traditional types--phonological, morphophonemic, internal sandhi--extrinsically ordered rules (which have been used in previous descriptions of Mohawk) are eliminated. A natural intrinsic ordering, based on the layered construction of words, is achieved.

In Chapter 3, the construction of verbal and nominal expressions was described, using the essential difference between derivational and inflectional processes as a way to clarify the structure of complex words in Mohawk. Postulating derivational frames for verbs was found to illuminate the co-occurrence possibilities and position classes of the inflectional affixes.

Chapter 4 addressed the same issue--differentiating lexical from syntactic processes--by focusing on a single construction in Mohawk: noun incorporation. Criteria were given for recognizing two different types of noun incorporation. Lexical noun incorporation creates derived lexemes, whereas syntactic (inflectional) noun incorporation has grammatical and discourse-related functions. It was shown that syntactically incorporated nouns can serve as antecedents for anaphora and, hence, are not anaphoric islands. Also, an incorporated noun was shown to be in phrasal construction with elements outside the verb in which the noun is incorporated. These phenomena provide evidence in support of the hypothesis that word boundaries are not barriers to syntactic rules.

Finally, three narratives were presented in Chapter 5 to provide data to test the assertions made in the first four chapters, under the assumption that naturally occurring utterances, rather than utterances elicited out of context, are the preferred way to obtain accurate data.

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