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A Syntactic Analysis of Noun Incorporation in Cree

John Dean Mellow
Department of Linguistics
McGill University, Montreal

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Abstract

This thesis outlines a syntactic analysis of Noun Incorporation in Cree. In this construction, certain morphemes, 'medials', that appear as the nominal root of an external NP can alternatively appear within a verb. This thesis extends previous analyses of Algonquian medials by utilizing the theory of Incorporation developed in Baker (1988b). Within this theory of grammar, medials are base-generated as nouns within an 'object' NP and then optionally adjoined to the verb stem as a result of head (X^0) movement. Established restrictions on head movement can account for many properties of NI, including paraphrasing, doubling, bare modifiers, possible thematic relations, and differences between NI and compounds. The efficacy of the syntactic approach validates a modular account of polysynthetic word formation. In addition, the distribution of Cree NI validates several putatively universal principles of theta-role assignment.

Résumé

Le présent mémoire propose une analyse syntaxique de l'incorporation nominale en cri. Dans ce type de construction, la racine nominale d'un NP complément peut aussi apparaître à l'intérieur d'un verbe. Ce mémoire adresse plus précisément la question de la distribution des médianes algonquins et fait appel à la théorie de l'incorporation développée dans Baker (1988b). Il sera proposé que les médianes occupent en structure-D la position de NP objet et qu'ils peuvent par la suite être adjoints à la tête verbale. Les restrictions sur les mouvements de tête (X^0) peuvent rendre compte de plusieurs propriétés de l'incorporation nominale comme la paraphrase, le redoublement, l'échouage de modifieurs et l'éventail des relations syntaxiques possibles, ainsi que des différences entre l'incorporation et la composition. Finalement, la distribution des noms incorporés semble corroborer l'existence de plusieurs principes universaux régissant l'assignation des rôles thématiques.

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In a sense this thesis is for Yvonne and my sister Margaret. It is a tribute to their cultural heritage and hopefully it is also a first step to helping native people retain their identity in the face of the constant expansion of Western society.

"The teacher who walks in the shadow of the temple, among his followers, gives not of his wisdom but rather of his faith and his lovingness.

If he is indeed wise he does not bid you enter the house of his wisdom, but rather leads you to the threshold of your own mind." Kahlil Gibran

This thesis is dedicated to:

Ann Mahoney and Joe Hofmann

Long after I have forgotten the names of the Pharaohs, moved beyond elementary algebra, and realized that a metaphor is a bird taking flight, the spirit of your teaching continues to guide me.

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Chapter 1 Noun Incorporation - Introduction

1.0 Statement of the Problem

In many languages of the world, we observe an interesting alternation: a nominal element may appear either within an external noun phrase or as a morpheme within a complex verb. This phenomenon is illustrated below in the following sentences from Cree[1]:

(1a) nooc i -h -iiw wacaskwa
hunt Ci TA AGR muskrat
'He hunts the muskrat/muskrats.'

(1b) nooc i -h -acaskw -ii -w
hunt Ci TA muskrat AI AGR
'He hunts the muskrat/muskrats.'

(2a) pahpaw -ahow -iiw mistatimwa
brush TA AGR horse
'He brushes the horse/horses.'

(2b) pahpaw -astimw -ii w
brush horse AI AGR
'He brushes the horse/horses.'

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[1] In this thesis, I will use the following abbreviations:

NI = noun incorporation	IN = incorporated noun
IV = verb that has incorporated a noun	MU = morpheme unclear
TA = transitive animate final	TI = transitive inanimate final
AI = animate intransitive final	II = inanimate intransitive final
A = animate	I = inanimate
Ci = connective or epenthetic 'i'	TS = tense-aspect marker/prefix
COMP = complementizer or subordinator	DIR = direction/theme affix
BENE = benefactive	REFL = reflexive
LOC = locative suffix	[e] = empty category, trace

AGR = the inflectional/agreement affixes that indicate person, number, mode, order, etc.
AGR/OBV = agreement including obviative marking, verbal affix
OBV = obviative agreement, nominal affix
Long vowels are indicated by double letters: *aa*, *ii*, *oo* c = palatal affricate
'He', in glosses, is always used as an animate pronoun, gender neutral.
'It' is used as an inanimate pronoun.

(3a) saki -nam -w oo -stikwaan -iiw
seize TI AGR AGR head OBV
'He (3) seizes his (4) head.'

(3b) saki -stikwaan -ii -n -w
seize head AI TA AGR
'He (3) seizes his (4) head.'

In these examples, we see that Cree has two different structures for conveying the same meaning. In the (a) sentence of each example, the object noun phrase, *wacaskwa*, *mistatimwa*, or *oostikwaaniiw*, is the theme of the action of the verb. In the corresponding (b) sentence, a morpheme which is part of the complex verb is the theme of the action. Note that the nominal has the same semantic role, the theme of the action, in both the (a) and (b) versions. When the noun appears within the verb, this construction is called Noun Incorporation.

This construction presents a problem for linguistic theory because the facts are both morphological and syntactic in nature. Thus, the morpheme in the (b) versions of the examples is an affix within a complex word, and it is also the theme of the action.[2] The formation of words through affixation is traditionally thought to be the result of morphological rules, but the thematic relationship that this affix conveys is traditionally represented by the syntactic rules that are needed to account for the unincorporated structure in the (a) sentences. Indeed, Mithun (1984: 847) describes NI as "the most nearly syntactic of all morphological processes." While Mithun assumes that NI is a morphological process that looks like syntax, it may be that NI is a syntactic process that looks like morphology.

While it is not unusual to find that both compounding and syntax can produce similar forms, the criteria for distinguishing them may not provide unambiguous analyses. The following English examples demonstrate that both systems can juxtapose words to form very similar results:

[2] We will observe in Section 3.2 that 'theme' is one of only three semantic roles that the IN can take.

(4) Nero Wolfe has a [greenhouse]$_N$ on top of his home.

(5) The Mayor of Rimbey lives in a [green]$_A$ [house]$_N$.

We see that the compound [greenhouse]$_N$ in (4) and the syntactic construction [green]$_A$[house]$_N$ in (5) are formally similar.[3] However, these forms can be distinguished by differences in stress patterns, (greénhouse vs a green hoúse), and by differences in meaning (the compound is not semantically transparent). While distinguishing between these English forms is fairly straightforward, determining the nature of NI is more problematic. This thesis will examine possible criteria for making this determination and, thus, the research question guiding the thesis is as in (6) below:

(6) Which component of the grammar accounts for Cree incorporated medials?

After examining a variety of facts of Cree, we will conclude that a syntactic explanation can best account for Cree medials. This suggestion implies that word formation is modular and need not be attributed to only one component of the grammar. While this thesis differentiates between two types of medials (stem-bound and stem-free) according to another criterion, I will suggest in Chapter 5 that both types of medials are the result of syntactic processes.

In the remainder of this chapter, we will review different approaches to NI that have been proposed in the literature. Chapter 2 will provide a brief overview of Cree and then sketch a syntactic analysis of Cree morphosyntax. In Chapter 3, we will examine four frequently discussed characteristics of NI in relation to both the Cree data and the syntactic approach of Baker (1988b). Chapter 4 will differentiate between NI and compounds by examining the Cree facts in relation to a theory of compounding (Lieber 1983). Finally, Chapter 5 will summarize the issue and examine a few problematic areas.

[3] This same point is noted in Hopkins (1988: 234-5).

1.1 General Review of the Noun Incorporation Literature

Noun Incorporation has been observed in many languages of the world since at least 1819.[4] The term "noun incorporation" (NI) has been used since at least the early 1900's when this phenomena was so described in seminal works by Kroeber (1909) and Sapir (1911). Since that time, NI has often been studied and the research program has often been different than the one chosen for this thesis. Many studies have examined NI, both within a particular language and cross-linguistically, in order to determine its characteristics. For Plains Cree, Wolfart (1971) pursued a different research program: to investigate the nature of the relations that exist within the verb stem. Before reviewing the literature in regard to the question we are addressing here, we will briefly review some of the characteristics of NI and then summarize the different approaches to studying NI that were examined by Wolfart.

The term Noun Incorporation comes from the most obvious characteristic of this construction: a noun which may appear in an external object NP is attached to the verb root inside of the verb's other affixes, i.e. a noun is incorporated into a verb. In addition to its presence within a verb, many other characteristics of NI have been observed. These characteristics refer to phonology, morphology, syntax and semantics (e.g. Mardirussian 1975), as well as functional and historical considerations (Mithun 1984). Some of these characteristics, including the possibility of syntactic paraphrase, the apparent reference to syntactic relations, and the absence of the normal nominal affixes on the Incorporated Noun (IN), seem to be universally present in NI constructions.[5] Several recent studies have suggested that NI is not a unitary phenomenon and certain characteristics will distinguish between types of NI across languages (Mithun 1984, Rosen 1989) and between types of NI within a language (Mithun 1984, Hopkins 1988).[6] Some of these variable properties include: 1) the IN may be modified by a null head modifier; 2) the verb may take a lexical object NP; 3) the meaning of the IN may become

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[4] DuPonceau wrote of NI in 1819: his work is mentioned in Woodbury (1975), Hagege (1978), and Wolfart (1971).

[5] For more detail on the characteristics typical of NI, see, for example, Baker (1988b), Hagege (1978, 1980), Mardirussian (1975), and Miner (1982).

[6] In this thesis, we will not evaluate the different claims for categorizing types of NI. However, it is important to note that while there is some overlap between the categories suggested by Mithun, Hopkins and Rosen, each used different criteria to achieve different goals. In this thesis, we will use the criteria as they pertain to choosing between lexical and syntactic analyses of NI.

general; 4) the IN may become an anaphoric island; and 5) the morphology of the transitive verb may become intransitive. In Chapters 3, 4 and 5, we will consider the characteristics and their interpretations in relation to our goal of evaluating a syntactic analysis. We will suggest that all NI in Cree is the result of a single syntactic process.

Wolfart (1971) investigated the relations that exist within the verb stem and reviewed the positional analyses of NI by Bloomfield (1927, 1946) and the semantic analyses of NI by Geers (1917), Kroeber (1916), Voegelin (1938), and Whorf (1940). Finding that these analyses provide little insight into the problem, Wolfart (1971: 511, 514) remarked:

> While the problem has been under consideration at least since the times of DuPonceau, it is not much closer to a satisfactory solution today than it was in Kroeber's day....Thus the purely semantic studies of Voegelin and Whorf by themselves throw littler more light on the relations within an Algonquian verb than did Bloomfield's purely positional analysis."

Wolfart then combines both the semantic and the positional approach, looking specifically at Plains Cree, and notes that the derivational make-up of incorporating verbs (IVs) may be of two types ('overtly incorporative', with a complex transitive animate stem for a base; and 'simple incorporative', with a simple initial for a base[7]) and that there are two basic types of internal relations ('action-goal' and 'actor-local complement'). This thesis will address Wolfart's research question in section 3.2, and suggest that instead of positional and semantic analyses, a 'syntactic' analysis will not only characterize the nature of the internal relations of the verb, but will also explain why those relations and only those relations are possible.

As noted above, the research program in this thesis is to examine why NI, as a complex word whose structure is traditionally the exclusive domain of morphology, appears to make specific reference to syntactic facts, i.e. the syntactic position of the noun to be incorporated. This problem has often been discussed in the literature and was hinted at as early as 1911 by Sapir. Sapir struggled to explain why an account of NI, which he

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[7] I will suggest in section 5.1 that all stems to which medials are added are complex, i.e. they have a final, but that certain finals are deleted by rule of truncation.

thought was a morphological process, had to refer to syntactic relations in order to explain the limited range of this phenomenon (Sapir 1911: 257, 282):

> The sacrifice of syntax to morphology or word-building is indeed a general tendency in more than one American language. . . .The characteristic fact about the process is that certain syntactic relations are expressed by what in varying degrees may be called composition or derivation.

The problem forces us to question what we have been calling the 'traditional' division of linguistic structures. In this 'traditional' view, syntax is the component that accounts for the formation of sentences from words, and morphology accounts for the formation of words from roots, stems, and affixes. Presumably, these components have different rules and qualities, and are independent such that words are formed in a unique place in the grammar and then are inserted into syntactic structures to make sentences. This division of the grammar has been determined primarily on the basis of English or at least Indo-European evidence. However, evidence from polysynthetic languages suggests that these divisions of the grammar may not be correct: much of what is expressed by syntax in English is expressed by complex words in Cree and while English appears to use syntax more than morphology, affixation is paramount in Cree and the word order does not seem to make grammatical distinctions.[8] As the NI examples will indicate, a sentence with an agent, theme, verb, and perhaps even an instrument, may only be one word. Facts such as NI suggest that the 'word' may not be the exclusive domain of morphological rules. As a result, the relationship between morphology and syntax has been widely debated in recent literature.[9]

In this review of the literature, we will now examine two different approaches for dealing with NI. One approach suggests that NI is the result of the same lexical (or morphological) processes that produce compounds. We will call this the 'lexicalist' hypothesis. The other approach suggests that NI is the result of syntactic processes. We will call this the 'syntactic' hypothesis.

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[8] It is beyond the scope of this paper to discuss the full range of forms exhibited by Cree morphology or the richness of the grammatical distinctions that can be made by polysynthesis. For more on Cree morphology, see Wolfart (1973) and for more on polysynthesis, see Baker (1988b).

[9] See especially Baker (1988a, 1988b) and di Sciullo and Williams (1987).

The lexicalist hypothesis provides a unified account of word formation. The hypothesis suggests that NI is a type of compounding and that it results from the same component of grammar that produces derivation and inflection. In this view, syntactic rules are not capable of attaching, moving, and otherwise analyzing affixes. Proponents of this view include Mithun (1984), di Sciullo and Williams (1987), and Rosen (1989)[10]. The 'lexicalist hypothesis' of di Sciullo and Williams (1987: 46) is a well articulated summary of the claim:

> [T]he lexicalist hypothesis is not so much a thesis of grammar (like an island condition) as it is a statement about the global architecture of grammar: the theory of grammar has two subtheories, morphology and syntax, each with its own atoms, rules of formation, and so on. . . Morphology and syntax are different (though similar) sciences about different objects, so the idea that the derivations in one could get mixed up with those of the other should not arise in the first place."

According to this unified approach, morphology and syntax are separate, with the output of the morphology inserted as lexical items (syntactic atoms) into syntactic structures, perhaps at S-structure. The morphology has different mechanisms than the syntax, notably combinatory rules (affixation and compounding), and a theory of feature percolation which accounts for the properties of the entire word. These features include argument structure and thereby can explain how NI might appear to refer to 'syntactic' features. Furthermore, the basic building blocks or atoms which are combined in morphology are different from the atoms used in the syntax to build phrases.

The lexicalist hypothesis has the advantage that the formal mechanisms of affixation and compounding will only be part of the morphology and this eliminates some redundancy from the grammar. Proponents of the lexicalist approach argue that NI has the same properties as compounds and that all the properties of NI can be accounted for by a theory of morphology. Overall, the lexicalist approach is similar to the traditional view of the grammar outlined above: polysynthesis is merely a greater quantity of derivation and compounding. In this view, NI is not radically different than English compounding.

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[10] Rosen considers that some languages such as Southern Tiwa may have syntactic NI.

The alternative to the lexicalist approach to NI is the syntactic approach. Under such an analysis, medials are not attached to verb roots in the lexicon, but rather they are attached by a syntactic transformation. In this view, syntactic rules can manipulate affixes. A number of researchers have suggested such an approach. For example, Mardirussian (1975) concludes his examination of the universal characteristics of NI by noting: "For the time being I will leave open the question of the formalism involved in describing the type of transformation needed, i.e. whether it is a movement or copying transformation." The idea that a transformation is involved suggests that NI results from a syntactic mechanism[11]. Denny (1981: 23) also suggests a syntactic analysis of NI. In examining the medial morphemes of the Algonquian languages, Denny suggests that incorporated medials are joined to the verb by syntactic combination, not by derivational rules "because the medial expresses a semantic component of the noun and not the verb, and because any classificatory medial can be incorporated in the verb as long as it expresses a sort appropriate to the verb predicate." He then points out that syntactic rules can be realized by morphological processes. The syntactic analysis of NI has been clearly articulated in Baker (1988b). It is this theory that we will adopt in this thesis. According to this analysis, nouns, as heads of phrases, are moved and adjoined to other heads by the process of syntactic movement. The details of this analysis will be fully developed in Chapter 2. As we will argue in Chapters 3 and 4, the syntactic approach is required to account for some of the properties of NI and to explain why NI does not have the same properties as compounding.[12]

In suggesting that NI is the result of the same syntactic processes that result in phrases and sentences, we must claim that different rule systems are responsible for the different

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11 Mardirussian's claim illustrates a view common in early generative approaches: transformational rules apply to elements in the lexicon. This virtually entails that there is no morphology. This view has been largely replaced by the 'lexicalist hypothesis', the idea that syntactic processes cannot build or change words. For further discussion, see Baker (1988d).

12 Another example of the modular approach is the Autolexical theory suggested in Sadock (1985). In this theory, utterances simultaneously and independently have both a morphological and syntactic structure. Because these structures need not be identical, the syntactic object of a verb may have a morphological structure in which the noun is part of the verb. Both systems are actually responsible for certain aspects of the form and the crucial aspect of the theory is the simultaneous interaction of the two components of grammar. While Sadock (1980, 1986) refers to this as a syntactic approach to NI, my interpretation is that the key aspect is not syntax but the dual contribution of morphology and syntax. Thus, this view might be described as "interactionist". It is beyond the scope of this thesis to discuss the value of Sadock's approach to NI and grammar. Mithun (1986) argues that many of the examples that Sadock uses appear to be more like derivation (noun root + class changing affix) than what she (and presumably Sapir 1911) would refer to as NI. If this is true, then Sadock's claim would be that both derivation and polysynthesis are accounted for by the same aspects of this approach.

types of word formation. Thus, word formation is modular. While morphology does have different mechanisms than the syntax, both can contribute to the form of the word. This hypothesis has many potential variations depending upon which components of the grammar are said to govern which aspects of word formation. The modular approach adopted in this thesis will be developed further in section 2.2.1.

Chapter 2 A Syntactic Sketch of Cree Morphosyntax[1]

2.0 Introduction

In this Chapter, we will begin in 2.1 by examining the facts of Cree that will be relevant to the analysis. In section 2.2, we will outline the theory adopted in this thesis, first by outlining a modular theory of word formation and then by detailing the syntactic theory (Chomsky 1981, Baker 1988b) that will be used in this analysis.

2.1 A Grammatical Overview of Cree

Sources of the Data

This analysis of NI is based primarily upon the intuitions of a native Cree speaker from Northern Alberta. Her dialect is that of Plains Cree, also known as the 'y-dialect'. The dialect can be recognized by the reflex of Proto Algonquian **l* , such as in the first person personal pronoun, 'I': *niiya*. In addition, the variant of Plains Cree spoken in Northern Alberta differs slightly from other variants, most prominently in the merging of the /ee/ phoneme into the /ii/ phoneme. Additional Cree data for the thesis comes from Denny (1981, 1983, 1985), Ellis (1971, personal communications, and lectures), Mellow (1987), Starks (1987), Wolfart (1971, 1973), and Wolfart and Carroll (1981). Additional facts for related Algonquian languages have been drawn from Ojibwa (Denny 1981, 1983, 1985, Piggott 1979, 1989, Rhodes 1975). Ideas on Cree structure have come from many sources, but especially from the descriptive account in Wolfart (1973) and the syntactic account of Lees (1979). Clearly, there are phonological and lexical differences in the dialects that I am collectively referring to as "Cree" (e.g. Plains, Moose, Woods, Swampy). While I rely primarily upon data from the Northern Alberta dialect of Plains Cree, I assume that all of these sources can be used in postulating an account of these morphosyntactic facts.

Descriptive Overview

With about sixty-six thousand speakers (Burnaby and Beaujot 1986: 11), Cree is the most widely spoken indigenous language in Canada. Like all members of the

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[1] This chapter is only a sketch - many details of Cree morphosyntax are not discussed. Thus, details of the functional categories, inflectional affixes and other types of affixes are not developed here.

Algonquian language family to which it belongs, Cree is polysynthetic: in one long, complex word, usually a verb, Cree can express the meaning of an entire English sentence. There are three primary word classes in Cree: (1) nouns and pronouns, (2) verbs, and (3) particles. With some limitations, word stems may become either nouns or verbs, depending on the inflection. Nouns and verbs, but not particles are richly inflected. Particles may serve a variety of functions and convey various meanings and therefore include what we would call prepositions, numbers, and adverbs. Cree does not appear to have adjectives; copula verbs and preverb particles are used instead. The very rich inflectional system indicates six grammatical categories. Table 1 summarizes these six categories:

(1) gender - animate or inanimate; this is loosely based on real world animacy; (2) number - singular or plural; (3) person - in addition to the English first '1', second '2', and third '3' person singular and third plural '3P', Cree has: i) '4', the further third person, the obviative; ii) '21', "we" inclusive of 2; iii) '1P', "we" exclusive of 2; and iv) a distinctive second person plural, '2P'; in sum: 1,2,3,4,1P,21,2P, 3P; (4) transitivity - transitive or intransitive; however, this classification may reflect morphological classes rather than syntactic properties, see section 5.1; (5) order - i) independent, roughly relates to matrix clauses; ii) conjunct, relates to subordinate or embedded clauses and questions, but the distinction is not quite as in English; and iii) imperative; (6) direction - direct and inverse; agent and theme roles are not indicated by word order or by case marking on the nouns (NP's), but according to a person hierarchy (2>1>3>4): when two NPs occur in a sentence, the "higher" one is agent if the verb has a "direct" suffix, the "lower" one is agent if the verb has an "inverse" marking.[2]

Table 1 - Grammatical Categories in Cree

Nouns and verbs show markings for the categories of gender, number and person; in addition to those three categories, verbs vary for transitivity, order and direction. Verbs have a morpheme, the final, which traditionally is said to encode both the transitivity of

[2] Instead of overt case or word order, direction seems to indicate grammatical function .

the verb and the animacy of one argument: the subject if the verb is intransitive and the object if the verb is transitive. As a result, verbs fall into one of four morphological categories: TA, TI, AI, II. Being so richly inflected, the verbs carry much information and often stand alone as a clause or sentence.

The Internal Structure of the Verb

While the word order of sentences is quite free, Cree has other structures in which the order is much more restricted, including the particles and internally ordered morphemes of noun phrases[3]. In this thesis, we will discuss only the internal structure within the complex verb, in which the ordering of morphemes is quite fixed. Diagram 1 below indicates the structure of a Cree verb. This structure has been developed primarily from Wolfart (1973):[4]

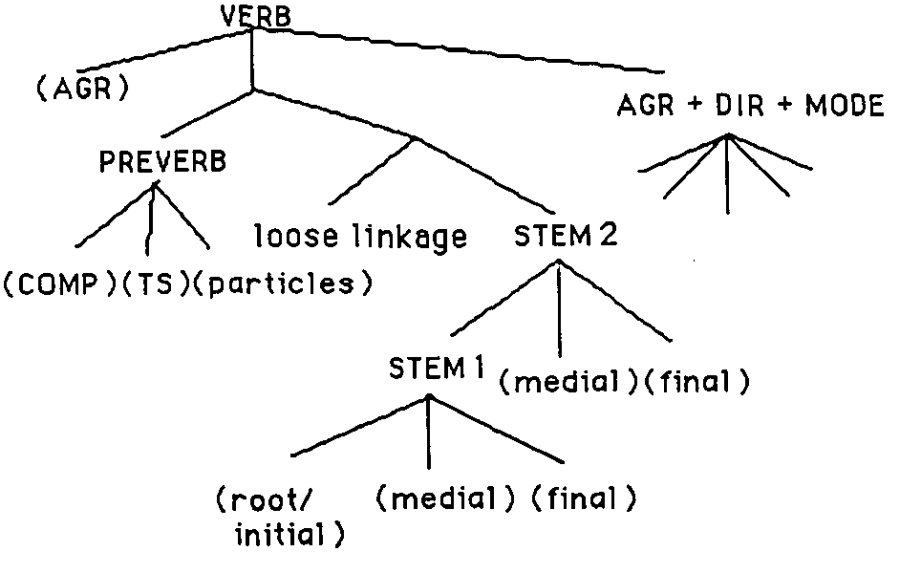

Diagram 1 The Internal Structure of the Cree Verb, based on Wolfart (1973)

[3] For further details, see Starks (1987).

[4] This diagram deviates from Wolfart slightly. For example, the suffixes appearing after Stem 2 are more complicated than indicated in the diagram. In addition, the morphemes that Wolfart refers to as 'subordinators' (1973: 72) are described here as 'complementizers' (COMP), following Lees (1979). Furthermore, the preverb positions have been simplified, ignoring for now the futurity marker in Wolfart's position 1 (COMP in the diagram), and a variety of other possible morphemes in Wolfart's position 2 (TS in the diagram). 'Loose linkage' refers to Wolfart's claim (1973: 76) that the "loosest point of linkage is after the last preverb and before the stem; other material may be inserted at this point." This loose material may be similar to the phenomenon that Dahlstrom (1987) refers to as 'discontinuous constituents'. Even if the material occurring in this loose linkage is nominal, Dahlstrom argues convincingly that this would not constitute NI.

The diagram above indicates that Cree words are very complex indeed. As the parentheses indicate, most of the elements are optional. Normally the root is required, but a medial and final may form a stem independently. In addition, the process of adding a medial and/or a final to a root is recursive. STEM 1 is referred to as "primary derivation". STEM 2 is "secondary derivation". Secondary derivation may be repeated, resulting in increasingly complex constructions. It is not entirely clear which affixes are productive and which simply reflect lexical regularities in the language. Medials and finals attached to STEM 2 seem to be the result of productive rules. Many medials and finals attached to STEM 1 seem productive. However, some of the medials and finals attached to the root/initial, within STEM 1, may be lexicalized. It is the positional class, 'medial' that we will examine in this thesis and explain with a syntactic analysis.

The body of this thesis will examine only a certain class of medials: the stem-free medials. The other medials, the stem-bound medials, will be discussed briefly in section 5.2. This binary classification is a slight variation on traditional Algonquian classifications, although it is based upon a criterion proposed in Sapir (1911).[5] Wolfart (1973: 63, 66) has divided Plains Cree medials into two types: 1) derived or deverbal, which are paralleled by 'independent' stems from which they are said to be derived; and 2) simple, which show no internal structure, consist of only one morpheme, and are not paralleled by 'independent' stems. Simple medials may be further divided into two classes: 'body-part' and 'classificatory'. We can further divide the body-part medials into those which may occur in 'dependent' nouns (i.e. nouns which must be possessed) and those which only occur as medials in verbs and in compounds with a stem. The classificatory medials are only attested as medials in verbs and in compounds with a stem; they do not occur as noun stems. Given this information, we can tentatively classify the medials into four classes:

STEM-FREE medials

(1a) deverbal, can occur as an 'independent' noun stem:
nooc-i-h-acaskw-ii-w 'He hunts the muskrat.';
wacaskwa 'muskrat'

---

[5] Sapir (1911: 251) suggests that true instances of NI must be related to "independent nouns or noun stems". I interpret Sapir's use of the term 'independent' to mean 'external to a verb' rather than the usage it has in terms of Algonquian noun stems, 'not requiring possession'. This criterion will be discussed further in 3.1 and 5.2.

(1b) simple, body part, can occur as a 'dependent' noun stem:
saki-stikwaan-ii-n-iiw 'He (3) seizes his (4) head by hand;
mistikwaan 'my head'

STEM-BOUND medials

(1c) simple, body part, cannot occur as a noun stem:
saki-nisk-ii-n-iiw 'He holds him by the hand'
micicii 'a hand'

(1d) simple, classificatory, cannot occur as a noun stem:
pakam-aaskw-ii-w 'He hits wood.'
mihti 'wood'

In this thesis, the medials will be classified based upon whether they may occur as a noun stem, no matter whether that stem is dependent or independent. Thus, we will group (1a) and (1b) together and call them 'stem-free' medials, implying that they do not need to be bound to a stem, although they may require a possessor. We will group (1c) and (1d) together and call them 'stem-bound' medials, implying that they must be bound to a stem. While I will argue that all medials are incorporated, since the 'stem-bound' medials differ according to Sapir's criterion, we will discuss them only in section 5.2.[6]

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6 Denny (1981: 23) has suggested a different division of Cree medials. While he believes that all 'incorporated' medials are the result of syntactic processes, he divides these medials into two classes based upon completely different criteria. Thus, the 'classificatory' medial is a noun classifier indicating a sort of argument and the 'incorporating' medial is a noun-forming suffix expressing a noun predicate. In addition, Denny (1981: 25) suggests that "the classificatory medials do not appear before ee, some other concrete or abstract final being used instead" and "the incorporating medials cannot occur without an AI final - it is usually ee, but in one case aap (eye) it is Ø." Since virtually all of the examples used here have the AI final -ii (> ee, in the dialects referred to by Denny), I assume that I am referring primarily to the 'incorporating medials discussed by Denny (however, cf. my examples 3.37, 3.38, 5.9, 5.10, 5.11). Denny's distinction can be illustrated in the following examples:

(1a) pakam -askw -ii -w oohi miikwac
hit wood(I) AI AGR these(I) right now
'He hits these wooden things right now.'

(1b) pakam -askw -aatam -w oohi
hit wood(I) TI AGR these(I)
'He hits these wooden things.'

(2) tihk -apisk -isiw -iiw askihkwa
melt metal TA AGR pot
'He melts the pot.'

In (1a) and (1b), we see two parallel forms, one with the usual *-ii* AI final and the other with a different final *-aatam* (or, as Wolfart [1973: 74] suggests, the alternate of AI *-ii*, *-aa*, added to the TI final).

2.2. Theoretical Framework

2.2.1 Introduction

Thus far, we have used the term 'word' to refer to a unit that is produced by the combination of roots, stems, and affixes. In this thesis, we will not define words based upon the processes that produce them, instead we will define them according to a structural criterion. i.e. that they comprise a particular type of structural unit. In the GB terminology that will be developed in this chapter, a word is the elements which at PF are dominated by an X^0 node.[7] In addition, while the form of word formation seems to be uniform (affixes or stems are recursively added to stems to produce larger words), we can distinguish several types of word formation. Although defining these categories is notoriously difficult because there are no clear dividing lines between them, we will suggest that there are three types of word formation: 1) derivation and compounding, 2) inflection, and 3) polysynthesis.[8] Derivation is the addition of an affix (to a stem) which may change the form class (N, V, A, etc.) or the meaning of the word, e.g. English, $[\text{crystal}_N + \text{ize}]_V$. Compounding is the joining of two roots to form a complex stem, e.g. English, $[\text{green}_A + \text{house}_N]_N$. Inflection is the addition of an affix which reflects the grammatical subclass (number, gender, person, tense, aspect, etc.) of the word, e.g. English, he [walk + s]. Polysynthesis is the addition of affixes which express complex predicates, i.e. that which is normally expressed in the syntax in English, e.g NI, causatives or applicatives.

Another example of an 'unusual' final is in (2) where we see the TA final *-isiw* with an incorporated stem-bound medial. Presumably, examples (1b) and (2) are the 'classificatory' medials suggested by Denny and can be distinguished according to semantic, as well as formal, criteria. In this thesis, will refer primarily to Denny's 'incorporating' medial.

[7] 'Word' can be defined in other ways. For instance, di Sciullo and Williams (1987) use other criteria to define 'word'. They differentiate between different types of words: morphological objects, syntactic atoms, listemes and phonological words. For them, only the morphological object refers to affixes, stems, and roots.

[8] My use of terms varies from that of some theorists. For instance, Bauer (1983) distinguishes word formation from inflection; Sapir (1911) suggests that polysynthesis and NI are two different types of phenomena.

Since we will be examining the Cree data in relation to a syntactic analysis, as noted above, this assumes a modular approach to word formation. The modules that I will propose to account for the different aspects of word formation are illustrated in Diagram 2 below:

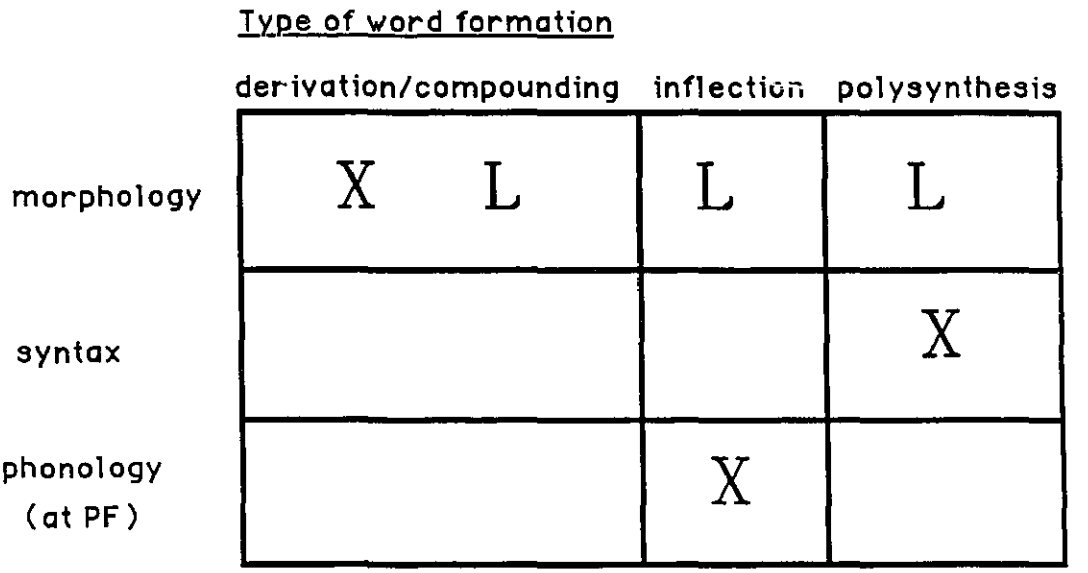

Diagram 2 - Approaches to Word Formation

In this diagram, the X's represent the modular approach adopted here and the L's represent how a lexicalist approach would deal with word formation.

I suggest that a morphological component is needed to provide the rules for derivation and compounding. The necessity of this morphological component is articulated in the literature regarding the lexicalist hypothesis (e.g. Chomsky 1970, di Sciullo and Williams 1987). Since the modular approach has two components which may manipulate affixes, it is possible to have some NI resulting from compounding and other NI resulting from syntactic adjunction (cf. Hopkins 1988).

In this thesis we will also suggest that a separate inflectional component is needed. We will suggest here, following Anderson (1982:592-3) that inflectional affixes are the result of features which are assigned at D-structure, potentially modified or added in the syntax and are then interpreted into the appropriate inflectional affix (spelled out) at PF. Having the inflectional component at PF accounts for four facts of Cree and other polysynthetic

languages: 1) Inflectional affixes occur outside of derivational affixes. This can be explained by maintaining that the inflectional affixes are added to the complex word after D-structure when the derivational affixes are already present; 2) Verbal inflectional affixes appear outside of INs. This can be explained by having the spell-out rules occur after the syntactic adjunction of the noun to the verb; 3) INs have no inflectional affixes. This can be explained by suggesting that the affixes on a noun are not spelled out at D-structure when the noun is external, and since the IN is internal to the verb at PF, those affixes cannot be spelled out[9]; and 4) The 'finals', the suffixes which are said to indicate the 'transitivity' of the verb, are 'intransitive' for verbs which have incorporated their noun. This can be explained by maintaining that the finals are not attached at D-structure, but are interpreted at PF so that they can be sensitive to changes in the syntax (see section 5.1 for further discussion).

This thesis adopts a syntactic approach to the polysynthetic aspect of Cree word formation. The details of this analysis, based upon the Government-Binding (GB) theory of Chomsky (1981) and the Incorporation theory of Baker (1988b), will constitute the remainder of this chapter. Before explaining the principles of the theory that we adopt here, we will provide a brief overview of GB syntax. GB sets out to define universal principles of grammar by examining the patterns of possible and impossible sentences. Expecting that certain aspects of a grammatical system should be general and universal instead of language specific, linguists have have proposed universal principles which are very simple. The interaction of these principles and a set of language-specific parameters should be able to characterize the grammatical system of any given language. Since the interaction of the rules of a language is very complex, determining the nature of the putative universals is a difficult task. In addition to its desire for simple, universal principles, another characteristic of GB is that the generalizations that it makes about the facts of language include two significant types of abstractions: 1) sentences have nontrivial phrase structures; and 2) sentences have "underlying" structures which may differ in form from the actual pronounced form.

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9 Presumably, the pairing of features and lexical representations occurs only to the X^0 that dominates either a compound or an incorporating verb. This parallels the view of Baker (1988b: 71-2), i.e. the rules of morphology apply to any structure dominated by an X^0 level node, independent of how or where the structure is formed.

The aspects of GB theory that we are considering in this thesis were largely developed for relatively-isolating, fixed word order languages, such as English, to represent the variable position of noun phrases and wh-question phrases. The variable position of phrases is characterized as the result of "movement" from a basic or "underlying" position to another position. The underlying position of an element is indicated by other aspects of the language, such as the requirement in many languages that a transitive verb has an object directly following it. The movement is extrinsically restrained, and, as a result, the phrase may appear in either the underlying, "base-generated" position or in an alternate position. Additionally, to restrict the sentences, the grammar has constraints which filter out constructions in which the movement has resulted in an ungrammatical formation. Since elements smaller than phrases may occur in variable positions, the theory has been extended to account for them. These "smaller" elements include nouns and verbs, the "heads" of noun phrases and verb phrases. This thesis utilizes head movement to explain the internal structure of Cree verbs. In sum, we are suggesting that a theory which has already been motivated to account for the word order of isolating languages is also able to partially account for the behavior of morphemes in a polysynthetic, free word order language.

My analysis will crucially involve a number of GB subtheories or modules which affect head (X^0) movement and D-structure. These will be defined below. Other subtheories of GB will not be especially relevant and I will not outline them here.

Levels of Representation

Based upon these initial concepts, the GB theory that is assumed in this thesis has four levels of representation which are derived from one another by the movement of elements, with principles at different levels restricting the formations. In this way, the theory generates the full range of possible utterances of a language. In other words, GB theory maintains that the best characterization of a sentence is a derivation which is represented graphically as a hierarchical structure whose elements are subject to three applications of movement. Diagram 6 in section 2.2.3 indicates the nature of a Cree sentence at each of these levels. Diagram 3 below indicates the overall form of the theory that is adopted here.

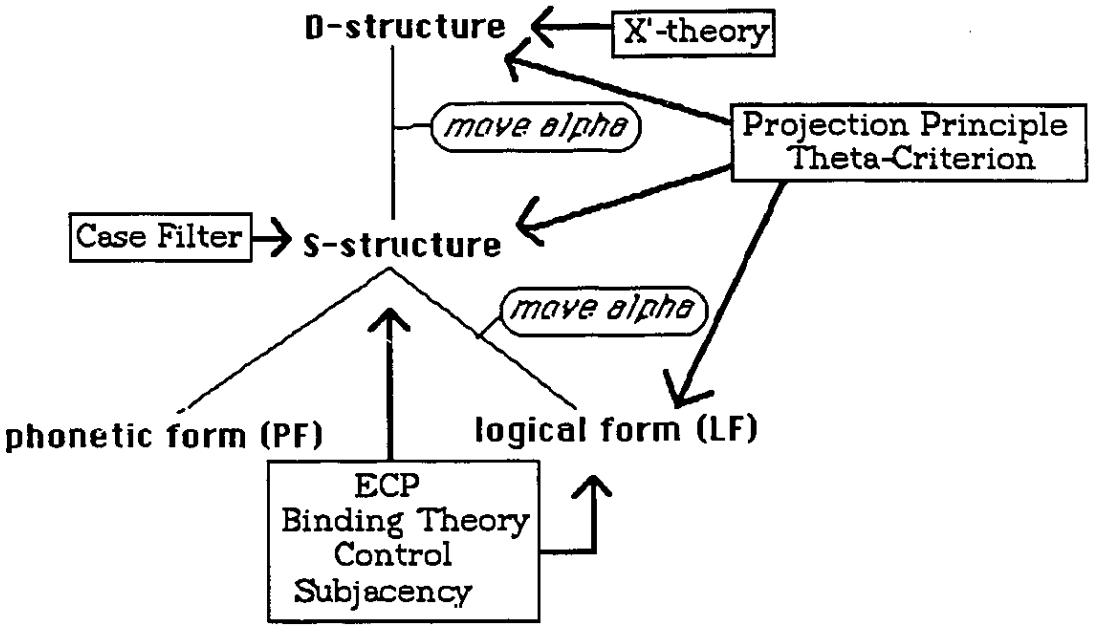


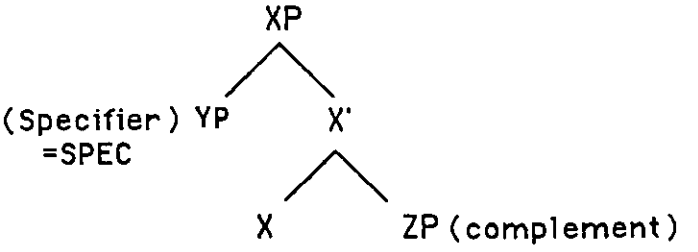
Diagram 3 - The Organization of Government-Binding Theory (cf. Sells 1985)

2.2.2. Defining D- Structure

X-Bar Theory

As illustrated above, the derivation of a sentence begins at D-structure. Thus, we claim that underlying syntactic relations can be represented by phrase markers: a branching tree structure. Cree phrases appear to be head initial. The categories that I assume are: verb (V), noun (N), INFL (I), COMP (C). These categories are the terminal nodes (or 'leaves') of the tree and lexical items are appropriately inserted into the structure. The form of the structures adheres to several simple principles of X-bar theory. Thus, where 'X' represents any category (N, V, etc.), X^0 = head or lexical item, and XP = X" = maximal projection = phrase, the form of the structure must adhere to the following guidelines:

(2) X-Bar Theory



Lexical items are inserted below the heads. Within this structural system, the object is an NP within the VP. The subject is the SPEC of IP. An adjunct may be adjoined to the VP.[10] These relations are illustrated below (ignoring some X' levels for convenience):

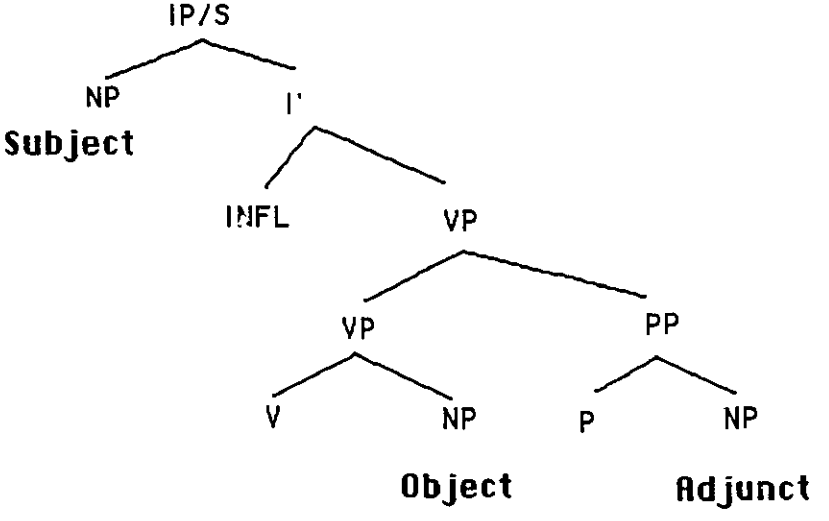


Diagram 4 - Subject, Object and Adjunct Positions in an X-Bar Framework

Theta Theory

Theta-theory states that among the lexical properties of each verb (and other heads as well), will be a set of arguments (agent, theme, goal, etc.[11]). In addition, each of these will be assigned to a NP (or another element such as a PP), according to the Theta-

[10] This is just one structural possibility for adjoined phrases. An alternative could be that adjuncts, or some adjuncts, are adjoined to IP/S.

[11] I will assume the definitions of these theta-roles as outlined in Jackendoff (1972), who builds upon work by Gruber (1965). For the purposes here, I will not distinguish between agent and actor, nor between theme and patient.

Criterion and other principles, such as universal principles of theta-role assignment. A phrase that receives a theta-role from a head is an argument of that head. Following Williams (1981, 1984), one of the arguments may be designated as the 'external argument' and must be assigned to an NP external to the maximal projection of the head, e.g. from the verb to the subject in Diagram 4 above. The remaining "internal" theta-roles of a head are assigned within the maximal projection of that head, e.g. the verb assigns an internal theta-role to the object in Diagram 4 above. An example of the argument structure of a verb is illustrated below with the external argument underlined.

(3) give : (agent, theme, goal)

To prevent ill-formed sentences, we have the following principle:

(4) Theta Criterion:
Each argument bears one and only one theta-role, and each theta-role is assigned to one and only one argument. (Chomsky 1981:36)

Several other principles relate theta-theory to D-structure. The following principle is proposed in Baker (1988b:46):

(5) The Uniformity of Theta Assignment Hypothesis:
Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

At this time, we will assume that there are the following universal principles of theta-role assignment: the semantic role of agent is canonically associated with the subject position, and the semantic role of theme is canonically associated with the object position. In response to NI asymmetries in Section 3.2, we will assume several other universal principles of theta-role assignment.

Theta-roles must be assigned at D-structure according to the guidelines stipulated by Theta theory. As a result, the lexical portion of the phrase markers reflects the thematic properties of these lexical items. In other words, since D-structure specifies the semantic roles that given referents perform in the action described by the utterance, D-structure is a structural representation of thematic relationships.

In sum, the approach taken in this thesis makes the following three assumptions about the nature of D-structure. First, it adheres to X-bar theory, and therefore has a well defined structural representation. Second, the lexical properties of some affixes create syntactic phrase structure in exactly the same way as those of roots do, i.e. the specifics of D-structure comes from the properties of lexical items; structure is projected from the lexicon, morpheme by morpheme, not word by word (Baker 1988b). Third, D-structure adheres to Theta-theory, and therefore reflects the argument structure of lexical items such as verbs.

Cree D-structure

This GB approach basically accepts Wolfart's division of the preverbal elements, but has them originate in a different type of hierarchical organization: a syntactic tree. Since I will suggest in the next section that free word order in Cree is the result of syntactic movement, I also suggest that linear order in D-structure is fixed and relevant. By suggesting that the linear order is fixed, we are able to say that the unmarked word order (SVO - Starks 1987), is a reflection of an unscrambled, underlying order. Given the components of GB theory outlined above and this description of Cree verbs, the following D-structure is proposed for Cree sentences:

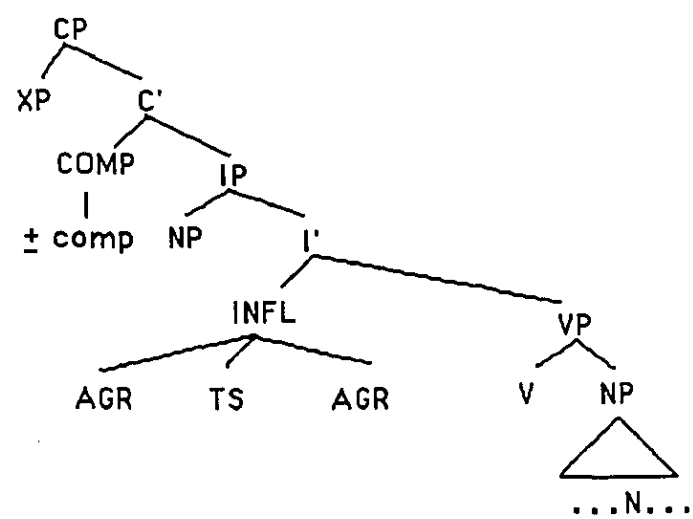


Diagram 5 - D-structure of a Typical Cree Sentence

2.2.3 Move-alpha and the Projection Principle

D-structure is related to or changed to subsequent levels by the only transformation in GB theory: Move-alpha - 'move anything anywhere'. Movement is restricted in the following manner: only substitution for empty positions and adjunction are allowed; XPs may only move to XP nodes, X^0s may only move to X^0s (Chomsky, 1986a: 4). Head movement is usually adjunction; XP movement is substitution for base-generated empty categories and adjunction such as postposing or topicalization.

S-structure, and LF are derived from D-structure by Move-alpha. PF and LF are the levels that relate to the phonological form and meaning, respectively, of a given sentence, respectively. In GB, a significant property is said to hold of these levels (or at least for S-structure and LF): while lexical material, heads and phrases, may move, the structure does not change and remains the same as the configuration at D-structure. This principle of structure preservation is known as the Projection Principle: the properties of lexical items project to all levels. The Projection Principle is necessary to force empty categories, preserve structure and constrain landing sites for movement.

> (6) Projection Principle:
> Representations at each syntactic level (i.e. LF, and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items. (Chomsky 1981: 29)

It is important to note, as we did for D-structure, that this principle holds of certain productive affixes as well as of roots and words that have only one morpheme. Since the structure remains constant, this will result in a phonetically empty position from which an item was moved. This abstract empty position is known as a "trace". For the structure to be preserved when it does not have phonetic material to identify it, some facts of the language must inform speakers that the nontrivial structure is present. We will see in section 2.2.4 that the ways in which empty positions may be identified have been formalized as the Empty Category Principle (ECP).

In our analysis of Cree, we see two important types of head movement: head movement of nouns to be adjoined to verbs (NI) and verb movement to INFL. Verb movement is the obligatory raising of a (potentially complex) verb to INFL where it joins with agreement affixes, possibly an aspect prefix and potentially a variety of other affixes.

This analysis also suggests that XP movement is very productive in Cree. In this thesis, I assume an analysis of free word order comparable to that suggested by Horvath (1986a, 1986b) for Hungarian. Thus, Cree is configurational and the 'scrambling' effects are due to instances of Move-alpha in the syntax, i.e. adjunctions such as subject postposing and topicalization.

Since all the morphemes that constitute a 'word' must be dominated by a X^0 node at PF, head movement to INFL conspires with another process to unify all the elements of the complex Cree verb under INFL. The other process is head feature transmission from COMP to INFL. I assume an analysis of head feature transmission similar to that developed in du Plessis (1986)[12]. The features in COMP are transmitted to INFL where they are realized as a complementizer prefix.[13] The interpretation of the complementizer prefix varies somewhat. For example, the subordinator (subor) *kaa-* , is characterized by Lees (1979) as a complementizer, but by Ellis (1961, 1971) as the 'changed form' of the tense/aspect (TS) prefix, *kii-*, i.e. an allomorphic variant that occurs in a sub-mode of the conjunct order. Wolfart (1973: 77) notes that *kaa-* "is historically the changed form of the preverb kii_1, 'past', but its primary role now is that of a subordinator, in which function it may in fact be followed by kii_1." We will assume here that conjunct forms have the feature [+ COMP] that is spelled out either as the morpheme *kaa-*, or that when the feature is added to the tense/aspect marker, the 'initial change' occurs. We have assumed the downward feature transmission analysis instead of a raising to COMP analysis in order to account for the unmarked SVO word order indicated in Starks (1987): if the verb was raised to COMP, the unscrambled order would be VSO. I am making the somewhat tenuous assumption that the unmarked word order reflects the absence of scrambling.

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12 Du Plessis (1986) develops a head feature transmission analysis for Germanic languages by building upon ideas of feature matching (Fabb 1984) and lexical insertion due to the realization of feature bundles at surface structure (Pranka 1983). In her analysis, the features of the functional category INFL, i.e. inflectional features such as person, number and gender, may be transmitted to the next lowest head and realized as affixes on the verb. Similarly, I am suggesting that the features of the functional category COMP may be transmitted to the next lowest head, INFL, where they are realized as affixes that are attached to the verb as a result of head movement into INFL .

13 The complementizer prefix, often *kaa-*, is in complementary distribution with the person prefixes (Wolfart 1973: 47). To explain why these morphemes are mutually exclusive, I will suggest that the person prefix is truncated when it follows the complementizer prefix. This process is similar to the truncation outlined in section 5.1 to account for the nature of the finals.

Given these processes, a sample derivation for the Cree sentence in (7), without NI, is illustrated in Diagram 6 below:

(7)	kiikwayiw	albert	kaa-	kii-	ataw	-ii [14]	-t
	what	Albert (3)	COMP	TS	buy	AI	AGR
	"What did Albert buy'?						

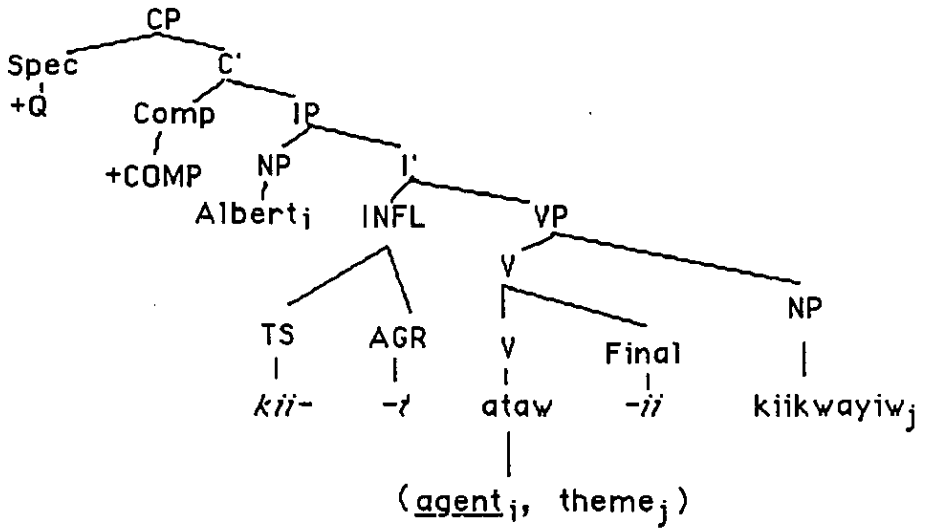

Diagram 6a - D-structure

[14] AI verbs of this type may be transitive and are often referred to as "pseudo-transitives". See Wolfart (1973: 39)

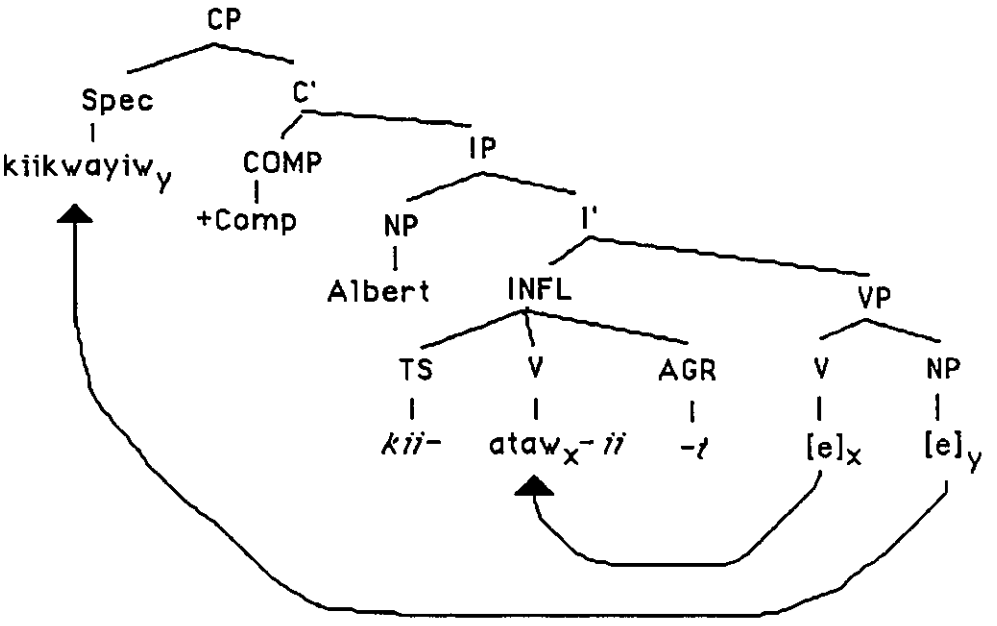

Diagram 6b - S-structure

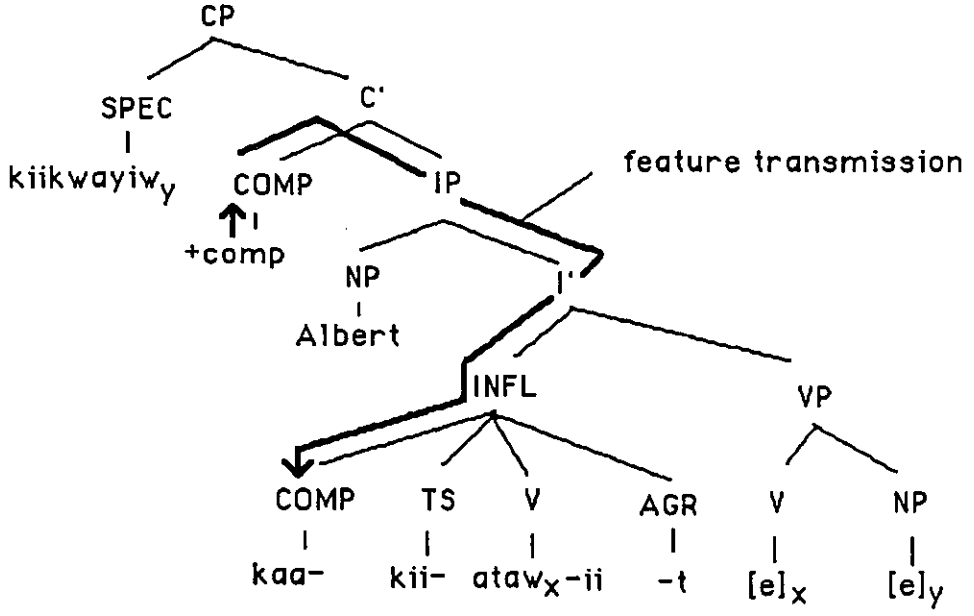

Diagram 6c - PF

In this example, we see a D-structure generated in accordance with the sub-theories listed above. The aspect and agreement affixes are spelled out here in italics because it is not clear which features they should have in order to generate the proper interpretation at PF. The [+Comp] feature is present because the sentence is in the conjunct order. The [+Q]

feature indicates that this is a question and wh-movement to SPEC of CP is required. Subsequently, two movements result in S-structure: 1) X^0-movement causes the verb to be adjoined into INFL, and 2) XP-movement places the wh-word into Spec of Comp. Thus, we have an S-structure in which the inflectional affixes are not spelled out, but the verb has been raised into INFL. Although not indicated here, scrambling may occur in the syntax, permitting free word order, especially in terms of the location of the NP "Albert". PF results after the [+Comp] feature is transmitted to INFL and all inflectional affixes are spelled out by interpretive rules. Note that the entire verbal complex is dominated by an X^0, INFL, and th. efore is a 'word'.

2.2.4 Constraints on Movement: the HMC and the ECP

Since GB theory searches for maximally simple and potentially universal principles, move-alpha is extremely general and not intrinsically restrained. Therefore, principles are needed to constrain the movement and provide a viable linguistic system. A number of mechanisms of GB contribute to eliminating some of the ungrammatical effects of movement, including Subjacency, the Case Filter, and the Theta-Criterion. However, the critical restriction for X^0 movement and NI is the Head Movement Constraint (HMC) which is derived from Empty Category Principle (ECP).[15]

As we noted above, the Projection Principle implies that when a linguistic unit moves, it leaves behind a trace in its D-structure position. This indication of its origin is more than nothing: it is an empty category which represents a continuing structural relationship between a moved element and the element in the sentence (usually a verb) which originally required that it be present and in a certain configuration. Since structure relates to meaning, the meaning will be lost if there is no way to determine the position in which the element began. The ECP responds to this concern by stipulating that an abstract trace can exist only if something nearby in the utterance provides information about the original position and qualities of the moved element. The ECP is defined in (8) below:

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15 In this section, we will use formulations of principles as suggested in Baker (1988b). Alternative definitions can be found in Chomsky (1981, 1986b), among others.

(8) Empty Category Principle (ECP):
a. Traces must be properly governed.
b. A properly governs B iff A governs B, and A and B are coindexed. (Baker 1988b: 39)

Proper government entails two significant aspects. The first, 'coindexation', determines the element in the utterance that provides the information about the empty position. Coindexation can occur in two ways, and either provides the necessary information to identify the trace: 1) theta-coindexing - the trace is coindexed with the lexical item that required and theta-marked the element at D-structure, and 2) chain coindexing - the trace is co-indexed with its antecedent (the moved element) as a result of Move-alpha.

The second consideration is that the proper governor must be "nearby", so that it can identify the trace. GB theory provides a definition of "nearby". The restriction on the "distance" of the relationship between the lexical item/antecedent and the trace is characterized by the structural notion of "government". Government defines the domain within which the identifier and its trace must be located:

(9) Government:
A governs B iff A c-commands B, and there is no category C such that C is a barrier between A and B. (Baker 1988b: 39)

The notion "barrier" requires a complex and technical definition (see Baker 1988b for further detail). For now, we will say that all and only maximal projections except S/IP are barriers, that a maximal projection is a barrier for everything inside it except its own head (cf. Belletti and Rizzi 1981), and that a node in the tree is a barrier if it contains B but not A. For our analysis, it is important to know that prepositional phrase is a barrier. C-command provides the notion "higher in the tree than" and can be defined as follows:

(10) C-Command:
A c-commands B iff A does not dominate B and for every maximal projection C, if C dominates A, then then C dominates B.(Baker 1988b: 36)

Roughly speaking, government entails that A is 'higher' than B, but not so far away that the wrong type of category intervenes.

In its syntactic analysis of NI, this thesis posits that a noun moves to be adjoined with a verb and leaves a trace behind. If so, this head movement should be subject to the ECP. This thesis follows Baker (1988b: 53) and hypothesizes that lexical items only identify their arguments, i.e. phrases, and not the elements which head those phrases. Thus, heads must be antecedent governed (chain coindexed) and may not move beyond the local domain defined by government. The Head Movement Constraint follows from the restrictions of government and maintains that a head may move only into the head which properly governs it.[16] This locality constraint on domain of X^0 movement is given below:

(11) The Head Movement Constraint (HMC):
An X^0 may only move into the Y^0 which properly governs it.
(Baker 1988b: 53, Travis 1984: 131)

As we will see below, this constraint correctly predicts that the types of phrases out of which heads can move.

2.2.5 A Sketch of Cree NI

Given the accounts of GB and Cree morphosyntax outlined above, the explanation of NI will follow quite easily. The proposal here, following Baker (1988b), is that various X^0 elements, nouns in this case, are base generated in positions indicated by the principles which lead to D-structure. Since movement may be X^0 to X^0, a lower head may be moved to another head and adjoined under that X^0 node: a noun is incorporated into a verb. In Cree, the noun is adjoined to the right of the verb. The distance and direction or 'domain' of the movement is restricted by the Empty Category Principle (ECP) and its consequence, the Head Movement Constraint (HMC): therefore a head may only move to the next head above it in the hierarchical structure.

16 Travis (1984) proposes the HMC, but bases the generalization on different observations and assumptions than Baker (1988b). However, both approaches validate an identical constraint.

In terms of the positions which were indicated in the outline of Cree verbal morphology that was developed from Wolfart (1973), i.e. Diagram 1, it is the medial of either Stem 1 or Stem 2 which may be incorporated into the verb from a lower position in the hierarchical structure.[17] The process of adjunction results in a structure in which both heads are dominated by the X^o. Recall that, in this theory, a "word' is those elements which are dominated by an X^o at PF. Thus, including NI, the construction of a complex Cree word would appear as:

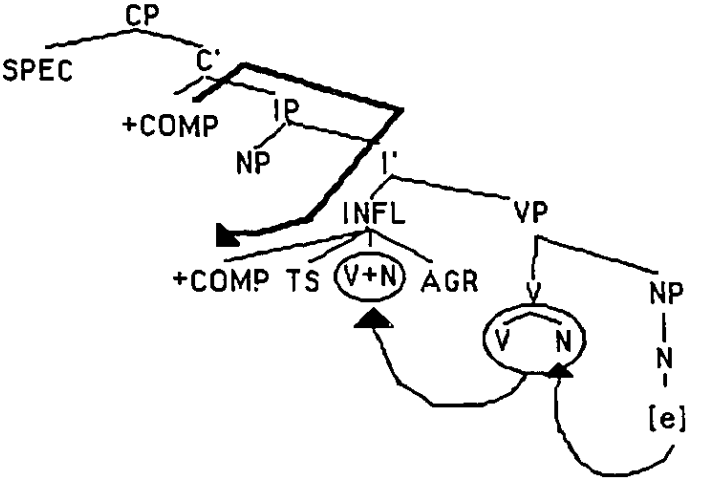


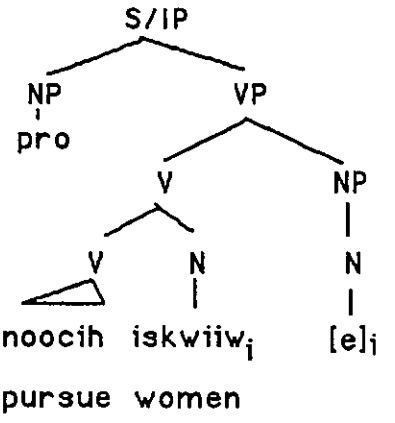
Diagram 7 The Construction of the Complex Verb, Including NI

Diagram 7 above indicates the sequencing of many of the morphemes of the complex verb: COMP+ TS+ verb+ noun/medial+(final)+AGR. Sentence (1a) is repeated in (12) below with its S-structure tree (omitting inflections, the -ii AI final and morphophonemic rules such as i-epenthesis)[18]:

[17] If more than one medial is present, I assume that only the 'outermost' medial is incorporated.

[18] 'pro' is an empty category that is posited where there appears to be a missing NP. Generally, the person and number features of the NP are clear from other facts of the language such as agreement markers.

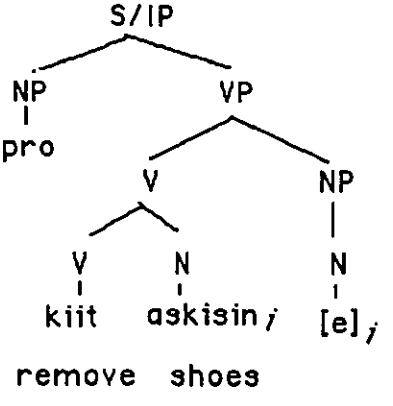
(12)



noocihiskwiiwiiw
noot i -h -iskwiiw -ii -w
pursue Ci TA women AI AGR
'He pursues/chases women'

The verb stem to which the noun is attached is a complex stem consisting of a verb root and a final. An example with a simple stem or 'initial' is :

(13)



kiitaskisiniiw
kit -askisin -ii -w
remove shoes AI AGR
"He takes his (own) shoes off"

In sum, this analysis provides a constrained, structural account of NI. It defines the process of incorporation, defines the structures and positions from which and to which elements may be incorporated, and can explain several formal characteristics of NI. First, the IN does not have its normal nominal affixes because these affixes are spelled out only at PF; when the noun is adjoined to the verb, those affixes cannot be spelled out. Second, the IN is attached to the verb root inside of the verb's other affixes because adjunction occurs before raising to INFL and before PF. In the next two chapters, we will examine the empirical value of this account of Cree word structure.

Chapter 3 Arguments for a Syntactic Analysis: Four Characteristics of NI

3.0 Introduction

We have seen above that different types of explanations can account for the facts of word forms. In this chapter, we will look at four characteristics of Cree medials which can be explained if we adopt the syntactic approach as outlined in Chapter 2. In Chapter 4, we will explore three facts of Cree medials which differentiate these word forms from compound words in Cree and from a compounding/lexicalist approach in general. In these two chapters, we will discuss only the 'stem-free' medials. In Chapter 5, we will discuss these facts in relation to the 'stem-bound' medials. In Chapter 5, we will also discuss another fact of Cree which is often discussed in relation to NI: the transitivity of the verb.

3.1 Variable Position - Syntactic Paraphrase

One of the goals of a generative theory of grammar is to account for the variable position of elements within sentences that display the same thematic relationships. In GB theory, these similar sentences are derived from the same underlying structure through movements of certain elements. An example of this is English "wh-movement":

(1a) We've got a groovy kind of love.
(1b) We have got **what**? (with stress on what)
(1c) What have we got?

The questions in (1b) and (1c) have the same thematic relationships, and yet the 'object' NP, the question word *what*, may appear after the verb or preposed at the front of the sentence.

As we noted in the introduction, a Cree sentence with an incorporated noun can alternate with a sentence in which the nominal element appears as a noun stem outside of the verb. This is illustrated in (2) and (3) below:

(2a) nooc -i -h -iiw wacaskwa
hunt TA AGR muskrat
'He hunts the muskrat.'

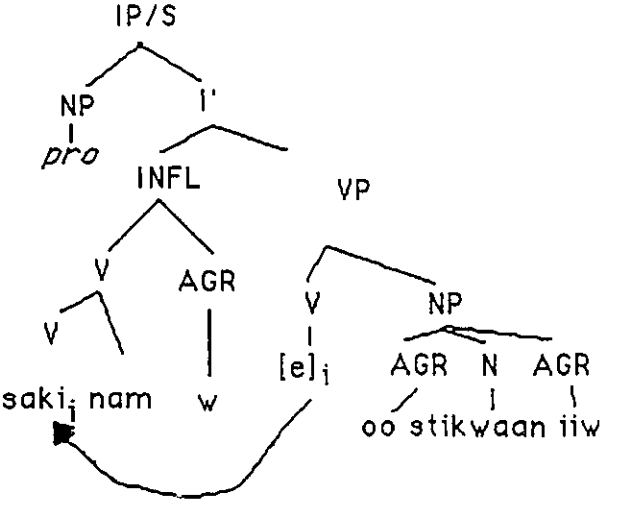
(2b) nooc -acaskw -ii -w
hunt muskrat AI AGR
'He hunts the muskrat.'

(3a) saki -nam -w oo- stikwaan -iiw
seize TA AGR AGR head OBV
'He (3) seizes his (4) head.'

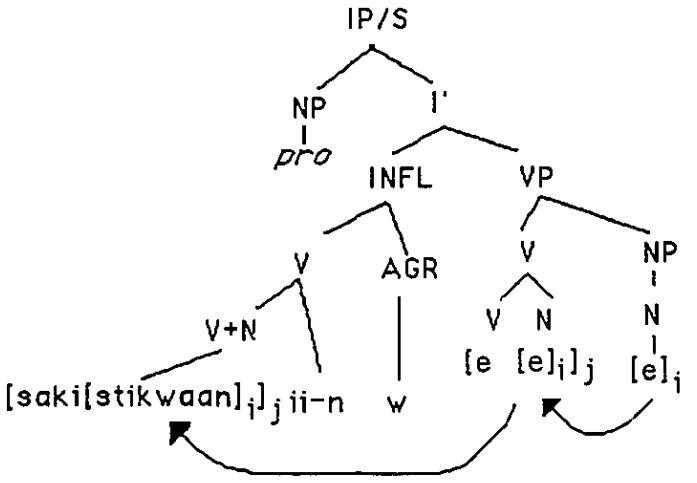
(3b) saki -stikwaan -ii -n -iiw
seize head AI TA AGR
'He(3) seizes his (4) head by hand'

In these sentences, we see that medials such as *-acaskw* or *-stikwaan* are paralleled by noun stems which occur outside of the verb stem. This alternation can be explained by the optionality of the syntactic movement illustrated below:

(4a) saki -nam -w oo -stikwaan -iiw



(4b) saki -stikwaan -ii -n -w



In (4a), the verb moves to INFL to attach to the agreement morphemes and the noun remains in its base generated position to yield the unincorporated sentence. In (4b), the noun incorporates into the verb and then the complex verb moves to INFL. These two sentences have the same D-structure, and the structural relationships are maintained by the empty categories. Thus, these structures explain why incorporated sentences are thematically equivalent to unincorporated sentences. In this way, the syntactic approach can effectively account for this characteristic of noun incorporation in Cree. As noted above, (Section 2.1, fn. 4), the possibility of syntactic paraphrase was Sapir's definitive criterion of NI. This criterion will be discussed in more detail in section 5.2.

3.2 Possible Thematic Relations of Incorporated Medials

An interesting fact of NI has been widely discussed in relation tc NI: not all nouns in a sentence may be incorporated into the verb. Universally, only a limited range of semantic relations exist within the verb stem. As Mithun (1984: 848) points out: "The N bears a specific semantic relationship to its host V -- as patient, location, or instrument." The distinction is richer than either a subject/nonsubject asymmetry, an external/internal argument asymmetry, or a stipulation that only themes incorporate. In this section, we will apply the analysis of Baker (1988b) to Cree NI and find that it can account for the thematic relations that are possible within the Cree verb.

As noted in section 1.2 above, Wolfart (1971) summarized several traditional approaches to classifying the relations between an IN and the verb in Algonquian and Amerindian languages and then identified two types of internal relations in Cree: action-goal and action-local complement. Denny (1981) divided Wolfart's action-goal relation into 'patient', the thing affected, and 'goal', the thing towards which action is directed. An example of the 'goal' relation is *muskrats* in *He hunts muskrats.* In this thesis, we will refer to the 'goal' relation of both Wolfart and Denny as the 'theme' in order to distinguish it from the 'goal' in a sentence such as: *Leslie gave John the flowers.* In addition, Denny suggests that agents may incorporate. However, I believe he is referring to the subject of an intransitive verb, *taapitaaw-aakonak-aa-w* 'it is level snow' or *saapo-p-ee-w* 'it is water soaked' (Denny 1981: 24, 25). According to the definitions of theta-roles outlined in Jackendoff (1972), I would interpret *snow* or *water* as themes, not agents, because they do not have will or volition to perform these actions. Given these qualifications on the definitions of Wolfart and Denny, and noting the theta-roles which they do not mention, we can combine their work with the field work illustrated below to suggest the following restrictions on the distribution of NI in Cree: 1) thematically speaking, patients/themes, instruments, and some locatives do incorporate, but agents, benefactive/goals, temporals and other locatives do not incorporate, and 2) structurally, subjects never incorporate, except for the subjects of some intransitive verbs. The 'thematic' facts will be discussed in relation to several other facts of syntax in sections 3.2.1 and 3.2.2. The second 'structural' observation will be discussed in section 3.2.3. The thematic facts are indicated in Diagram 8 below:

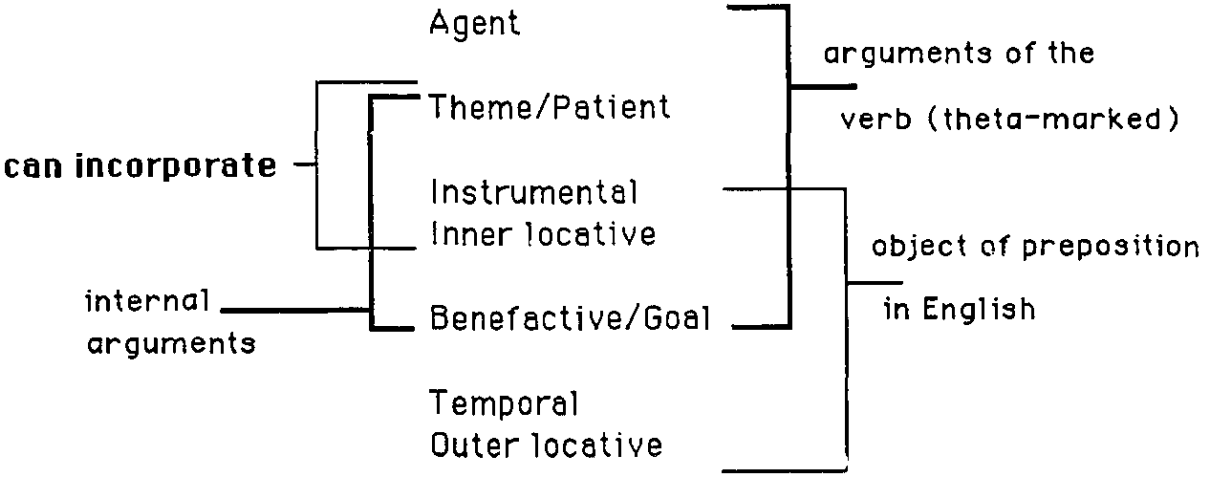


Diagram 8 - Incorporability, Argument Status and Thematic Relations

The diagram indicates that different criteria will divide the thematic relations in different ways. The facts of incorporability will be substantiated in the sections to follow. Determining the 'arguments' (and hence the internal arguments) of the verb will be justified in section 4.4.2.2 below. The criteria 'has a preposition in English' cuts across these other criteria and, we will argue, is not necessarily an accurate indication of the structural status of the NPs to which these theta-roles may be assigned. These facts are quite complex, but this section will demonstrate that the syntactic account can provide a principled explanation of why certain NPs can incorporate and why these criteria diverge as they do. We will first discuss the theta roles which are assigned to relatively uncontroversial structural positions: agent, theme, temporal and certain adjunctive locatives. Next, we will discuss benefactives, instruments and (argument) locatives. These theta-roles appear confusing when we compare them to their English counterparts, but seem fairly straightforward when we compare them to the facts of the Bantu language Chichewa (Baker 1988c). Finally, we will look at the question of intransitive verbs.

3.2.1 Agents, Themes and Adjuncts

Given this account of NI, we can now begin to account for the characteristics of Cree NI. Thus far in the thesis, our examples have incorporated nouns whose role is 'theme/patient'. Consider the following sentences:

(5) nooc -i -h -acaskw -ii -w
hunt Ci TA muskrat AI AGR
'He hunts the muskrat.'

(6) kiit -askisin -ii -w
remove shoes AI AGR
'He removes his own shoes.'

In these examples, the incorporated medial is a theme, i.e. a muskrat is being hunted, a shoe is being removed. As noted above, we do not find any examples of incorporated agents or temporals with prepositions in either Wolfart (1971, 1973) or Denny (1981). In fact, agentive and adjunctive interpretations of medials are ungrammatical (parentheses indicate the optionality of the preposition):

(7) *noocih -iskwiiw -ii -w wacaskwa
hunt woman AI AGR muskrat
'The woman hunts the muskrat.'

(8) *noocih -awas -ii -w wacaskwa
hunt child AI AGR muskrat
'The child hunts the muskrat.'

(9) *kiit -awas -ii -n -iiw maskisina
remove child AI TA AGR shoes
'The child removes the shoes.'

(10a) noocihiiw sisonii siipiy
he hunts them beside river
'He hunts them beside the river.'

(10b) *noocih -i -siipiy -ii -w (sisonii)
hunts Ci river AI AGR beside
'He hunts them beside the river.'

(11a) noocihiiw ciki siipiy
he hunts them near river
'He hunts them near the river.'

(11b) *noocih -i -siipiy -ii -w (ciki)
hunts Ci river AI AGR near
'He hunts them near the river.'

(12a) noocihiiw paamiiyisk pipon
he hunts them before winter
'He hunts them before winter.'

(12b) *noocih -i -pipon -ii -w (paamiiyisk)
hunt Ci winter AI AGR before
'He hunts them before winter.'

(13a) noocihiiw miikwaa kisikaak
he hunts them during day
'He hunts them during the day.'

(13b) *noocih -i -kisikaak -ii -w (miikwaa)
hunt Ci day AI AGR during
'He hunts them during the day.'

In examples (7) - (9), we see that agents cannot incorporate. In examples (10) and (11), we see that locatives which periphrastically are objects of prepositions cannot incorporate. In examples (12) and (13), we see that temporals cannot incorporate. Overall, Cree limits the semantic relations that may occur within an incorporating verb: the incorporation of agents and adjuncts results in ungrammatical constructions, but the incorporation of themes is permitted.

These facts about the distribution of NI follow from the HMC, (2.11) above, and from the structures of Cree sentences that we developed in Chapter 2. The HMC restricts the locality of incorporation such that a head may only move up to the next head. The diagram below illustrates which nouns may incorporate:

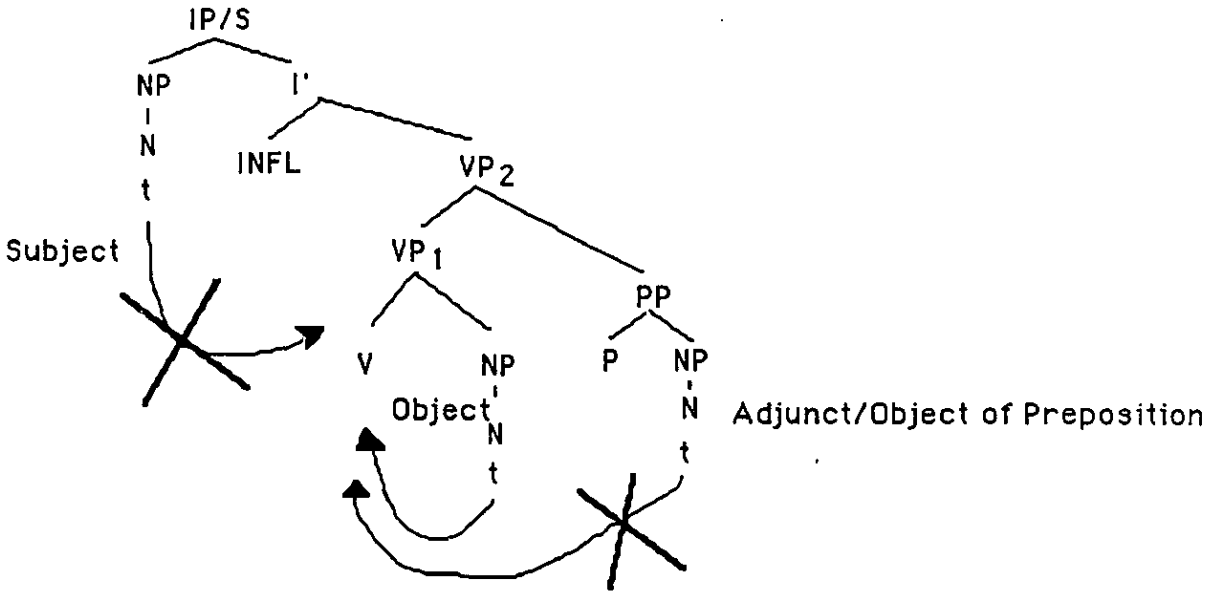


Diagram 9 The Head Movement Constraint -Restrictions on Incorporation

From this diagram, we see that only structural objects can incorporate; subject incorporation and incorporation of the object of a preposition are not allowed. Subject incorporation is not allowed due to the first requirement of government: the antecedent must c-command the trace. If the subject was moved and adjoined to the verb, then the first maximal projection which dominates the antecedent would be VP_1 and VP_1 does not dominate the trace in the Spec of IP position. Since the antecedent cannot properly govern the empty category, the ECP is violated and the incorporation of subjects is prohibited. In general terms, the subject cannot incorporate because a head cannot adjoin to the head below it. In the example of the adjunctive object of the preposition, the movement violates both conditions of government. Adjuncts violate the first clause because the antecedent cannot C-command the trace. The first XP above the antecedent is VP_1, and VP_1 does not dominate the adjunctive NP. In general terms, adjuncts cannot incorporate because the movement would be too far for the antecedent to identify the trace. The second clause of government is also violated because the PP is a barrier which intervenes between the antecedent and its trace. Objects of prepositions, such as these locatives and temporals, cannot be adjoined to a verb because the preposition is the first head above these nouns. Incorporation of the object of a preposition would violate the HMC because the noun would have to move up so that it skips the first head above it. As a consequence of the ECP, the HMC provides a clear and accurate characterization of the nouns which may be incorporated.

The syntactic analysis and the HMC also provides a principled explanation of the range of semantic relations within an incorporating verb. The structural distinctions are reflected in semantics because of the above mentioned universal principles of semantic (theta) role assignment (Section 2.2.2). The distribution of Cree NI and NI in general supports the following principles of theta assignment: agents are canonically associated with the subject position, themes/patients are canonically associated with the object position, and locatives and temporals are adjunctive objects of a preposition. Since the incorporation of subjects, adjuncts and objects of prepositions is not permitted by the HMC, this explains their absence in NI. Since objects are permitted by the HMC, we expect and find them to be incorporated. Thus, agents, themes, and adjuncts behave as our theory of NI predicts.

3.2.2 Locatives, Instruments and Benefactives

3.2.2.1 Overview of the Problem

In the previous section, we explained certain asymmetries of Cree NI by assuming universal structural positions to which the agent, theme, and adjunct theta-roles are assigned. In this section, we will examine three theta-roles whose structural assignment is less clear: instruments, benefactives and nonadjunctive locatives. The facts of NI display an asymmetry within this group: non-adjunctive locatives and instruments do incorporate, but benefactives do not incorporate.[1] Building upon an analysis of asymmetries between instruments and benefactives in the Bantu language Chichewa (Baker 1988c), we will claim that there is a structural difference that explains the NI asymmetry. In this section, we will first examine the Cree facts and then briefly outline the solution that we adopt for these NPs. After this, we will use cross-linguistic evidence to justify the two primary assumptions of the analysis. Since incorporated instruments appear confined to Cree stem-bound medials, we will discuss the theory of instrument theta-roles below but not examine the data until section 5.2. For now, we will simply state that instruments do incorporate in Cree.

We noted above in (10) and (11) that some locatives do not incorporate. However, a number of locatives can incorporate in Cree. These incorporable locatives are illustrated below[2]:

(14a) micimw -askoow -ii -w (> micimoskoowiiw)
stuck mud AI AGR
'He is stuck in the mud.'

(14b) micimw -oyoo -w asi꞉ -ihk
stuck AI AGR mud LOC
'He is stuck in the mud.'

---

[1] In fact, we can use the asymmetries of these NPs in Cree as a diagnostic to determine the structural position of these elements.

[2] As noted in Wolfart (1971), Algonquianists have suggested that many of the body-part medials can be interpreted as locations instead of themes, e.g. *saki -piton-ii-n-ii-w* 'He holds him (4) at his (4) arm.' vs 'He holds his arm.' or *cahk-i-stikwaan-ahow-iiw* 'He pokes him in the head.' vs 'He pokes his head.' My consultant prefers the theme interpretation.

(15a) micimw -aakwan -ii -w
stuck snow AI AGR
'He is stuck in the snow.'

(15b) micimw -oyoo -w koon -ihk
stuck AI AGR snow LOC
'He is stuck in the snow.'[3]

(16) niim -iskot -ii -n -iiw
hold fire AI TA AGR
'He holds him over/near the fire by hand.'[4]

While these locatives do incorporate, benefactives never incorporate. This is illustrated in the examples below:

(17a) noocih -acaskw -ii -stamow -iiw okimawa
hunt muskrat AI TA-BENE[5] AGR chief
'He hunts muskrat for the chief.'

(17b) *noocih -okimawa -ii -stamow -iiw
hunt chief AI TA-BENE AGR
'He hunts for the chief.'

(18) *noocih -okimawa -ii -w
hunt chief AI AGR
'He hunts (it) for the chief.'

(19) noocih -iskwiiw -ii -w
hunt woman AI AGR
*'He hunts for/on behalf of his woman.'

---

[3] *-aakwan* and *koon-ihk* differ considerably in phonetic form. While *-aakwan* may not be a stem-free medial, it is still a locative in this example and a productive medial, cf. *tim-aakwan-iiw* 'The snow is deep.'

[4] In (16), the precise location is not clear. Certainly there is not a clear prepositional meaning as we see in the periphrastic examples in (10) and (11). Also, the morphological divisions in this sentence differ from other theorists, see section 5.1.

[5] As noted by Wolfart (1971: 75), these finals create benefactive verbs.

Thus, we must explain why certain Cree locatives and instruments incorporate but benefactives do not. Instead of simply listing those theta roles that may be incorporated, we will suggest that these NPs have universal structural positions and that the asymmetry is caused by the restrictions of the HMC. Determining these universals of theta assignment is problematic because locatives and instrumentals are permitted to incorporate and the semantic roles of location and instrument, like the benefactive, are associated in English with the structural position "object of a preposition". If these nouns are the objects of prepositions, then we would expect locatives, instruments, and benefactives to be excluded by the ECP.

Using cross-linguistic evidence, in this account we provide an alternative to the suggestion that locatives and instruments are universally objects of prepositions. Instead, following Baker (1988b, 1988c), we will suggest that benefactives (as PPs), instruments, and certain locatives receive their theta-role from the verb and are therefore arguments of the verb. We will call the incorporable locatives 'ARG-locatives' (for Argument). The unincorporable locatives are not arguments of the verb and receive their theta-roles exclusively from their preposition. We will call these AJT-locatives (for Adjunct). In addition, we will also suggest that, of these four phrases, only the benefactive and the AJT-locatives are prepositional phrases at D-structure. Thus, the benefactive NP compositionally receives its theta-role from both the V and the P. As a result, a benefactive NP cannot be incorporated because it would violate the HMC by moving over a head, the P, in order to adjoin to the verb. Since the ARG-locatives and instruments are not the object of a preposition, but are NPs and are arguments of the verb, they may be incorporated. These suggestions regarding the universal nature of these thematic roles are illustrated below:

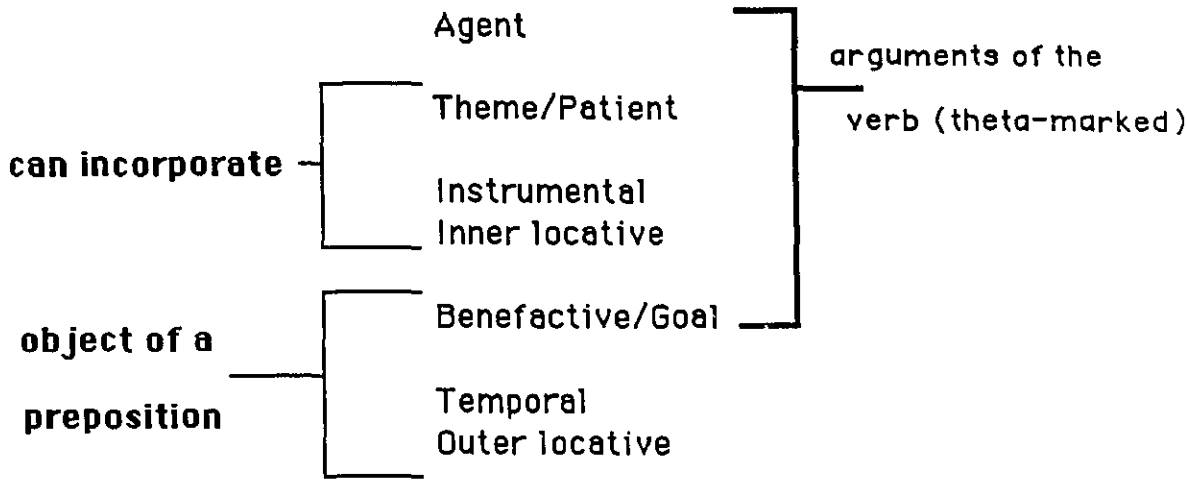


Diagram 10 - Universal Facts about Theta-Roles

Diagram 10 suggests that in order for an NP to incorporate, it must be an internal argument of the verb and it must not be the object of a preposition. In sum, this structural explanation of this characteristic of NI involves three essential components: a) differentiating between external arguments, subjects, and internal arguments, objects; b) differentiating between NPs that are universally arguments of the verb and those that are adjuncts; and c) differentiating between NPs that receive their theta-role exclusively from the V and those which compositionally receive it from the V and a P. As noted in Section 2.2.2, the first distinction assumes the work of Williams (1981, 1984). The other two claims will be discussed in the next two sub-sections.

3.2.2.2 Determining the Arguments of the Verb

In this section, we will first review three arguments from Baker (1988b, 1988c) which indicate that ARG-locatives, instruments and benefactives are universally optional arguments of the verb. Since a locative asymmetry is evident in Cree, we will then consider locatives in more detail by examining further evidence which supports the assertion that there are two classes of locatives. Subsequently, we will provide evidence which suggests that only the ARG-locatives receive their theta role form the verb. In all, this section should validate the cross-linguistic claim that some locatives are arguments of the verb and other locatives are both objects of prepositions and adjuncts.

Baker's first argument that these three types of phrases are arguments involves semantic dependencies of interpretation (Baker 1988b:239): "The first reason for saying that these constructions are arguments of the verb is based on semantic intuitions about what factors the exact semantic role of the NP in question depends upon. It seems BOTH the prepositional element and the specific verb together play a significant role in determining the reading of the NP in this class of cases." Baker then demonstrates this with examples from Chichewa and English. If the meaning of the NP is related to the verb then presumably it is theta-marked by the V and is an argument of the V. Baker (1988: 242) concludes: "theta-role assignment is supposedly a formal grammaticalization of compositional semantic dependencies. Therefore, it seems that these semantic facts indicate that in benefactives, instruments, and some locatives, the P theta-marks the NP and the V theta-marks the resulting PP."

The second argument that these three NPs are arguments of the verb involves asymmetries between these NPs and the adjuncts in terms of possible positions in the sentence in which they may appear, i.e. extraction facts. Arguments may be moved 'long distances', but the adjuncts may not. We can explain this asymmetry by invoking the ECP. Recall that the ECP requires that an empty category must be governed or identified by either a lexical element that requires it (assigns a theta-role to it) or by its 'nearby' antecedent. Thus, if an NP (the antecedent of a trace) can be moved a 'long distance' (i.e. so far that the antecedent cannot govern the trace), then it must be lexically governed and must be an argument of the verb, because that is the only way that the trace could be properly governed. Baker (1988b: 242-243) cites data from English which indicates that benefactive, instrument and ARG-locative PPs can be moved beyond the range of antecedent government, but that an adverbial adjunctive phrase cannot be long-extracted.

Finally, we can consider Baker's analysis (1988b, 1988c) of applicatives to constitute evidence that these constructions are arguments of the verb. He gives examples from a variety of languages (1988b: 237-9, 244-45) which indicate that applied objects may be only benefactives, instruments, and the ARG-locatives, but not the AJT-locatives. Assuming that applicative morphemes are incorporated prepositions[6], then this range of thematic values results because only PPs which are arguments of the verb may have their

[6] Citing historical reasons, Baker (personal communication) suggests that while all applicatives may not be incorporated Ps, this assumption seems valid for some languages, such as locatives in Kinyarwanda.

preposition incorporated. Overall, these three facts suggest that, cross-linguistically, these three thematic roles are assigned from the verb and therefore the NPs are arguments of the verb.

We will now look at the structure of locatives in more detail, first motivating the two classes and then demonstrating that one of them is an argument of the verb. In the last section, we noted that the evidence from the Chichewa applicatives demonstrated an asymmetry between two types of locatives. A similar division has been found for English locative PPs (Hornstein and Weinberg 1981: 87-9; Baker 1988: 244). Baker (1988: 467 fn.) notes that while the distinction has traditionally been one between PPs dominated by the VP ('inner locatives') and PPs dominated by the S ('outer locatives'), this can be extended to theta-marking and argument status; we will refer to them as arguments and adjuncts, respectively. Hornstein and Weinberg summarize four asymmetries between these two types of locatives. They illustrate these differences with the following optional PPs in English:

(20) I slept (in my bed).
(21) I slept (in New York).

The first difference in syntactic behavior between these two types of locatives is the possibility of passivization:

(22) The bed was slept in.
(23) *New York was slept in.

In these examples, only the inner locative 'in the bed' may be passivized. Another asymmetry involves preposition stranding/ bare modifiers:

(24a) I slept in my bed in New York.
(24b) Which bed did you sleep in *t* in New York?
(24c) *Which city did you sleep in your bed in *t*?

These examples suggest that preposition stranding is possible with ARG-locatives (24b), but is more difficult with AJT-locatives (24c). A third argument results from Hornstein and Wienberg's claim that extraposed phrases do not allow stranding. Thus, in the

following examples, we assume that the inner locative 'in my/your bed' has been extraposed to the end of the sentence:

(25a) I slept in New York [in my bed].
(25b) *Which bed did you sleep in New York [in *t*]?
(25c) ??Which city did you sleep in *t* [in your bed]?

The analysis suggests that (25b) is ungrammatical because the extraction of 'which bed' has stranded a preposition in an extraposed PP. The questionable status of (25c) indicates that the constraint for both (24c) and (25b) is not merely a restriction against having a stranded P at the end of a sentence. The questionable grammaticality of (25c) is presumably due to the prohibition of extraction from an adjunct PP. The judgements in the fourth construction are also subtle but suggest a difference:

(26) In the oak bed slept a man in a purple nightdress.
(27) ??In New York slept a man in a purple nightdress.

In the examples, an ARG-locative allows inversion but the AJT-locative does not. In sum, these four asymmetries indicate a difference between argument and adjunct locatives.

So far in this section, we have reviewed three arguments from Baker (1988b) which demonstrated that the ARG-locatives, instruments and benefactives are arguments, and we have argued cross-linguistically from Chichewa (Baker 1988c) and English (Hornstein and Weinberg 1981) that there are two classes of locatives. According to our analysis, AJT-locatives, such as *beside the river*, do not receive a theta-role from the verb and occupy a structural position that is different from the ARG-locatives. We will now consider two additional facts which suggest that the ARG-locatives are actually arguments of the verb and the other locatives are not. First, the subcategorization of certain verbs provides an argument that verbs may directly assign theta-roles to locatives: locatives are obligatorily required by different kinds of verbs. Such subcategorization implies that the locative phrases are theta-marked by the V. In English, we have several verbs in which the locative NP/PP is obligatory:

(28a) Robert Frost reached a fork in the road
(28b) *Robert Frost reached.

(29a) Seb crossed the finish line.
(29b) *Seb crossed.

(30a) Rod loaded the truck with hay.
(30b) *Rod loaded with hay.

(31a) Andy put the control flag on the tree
(31b) *Andy put the control flag.

These examples show that locatives can be obligatory and must therefore be arguments of the verb

A second argument that these locatives are arguments is the presence of locative NPs in English and Cree. These locatives must be arguments of the verb, because it is the verb and not a preposition that indicates that the thematic role of the NP is a location. Sentences (28) - (30) provide English examples in which the location is an NP. Examples (32), (33) and (34) below indicates that Cree also has locatives that are NPs:

(32) asow -aham -w siipiy
cross TI AGR river
'He crosses the river.

(33) noocihiiw sisonii siipiy
he hunts them beside river
'He hunts them beside the river.'

(34) nistaapaaw -ii -w siip -ihk
drown AI AGR river LOC
'He drowned in the river.'

Example (32) illustrates that some Cree verbs have locatives that are NPs. These verbs contrast with the other examples: (33) requires a preposition and (34) requires the locative suffix *-ihk*.

In sum, these cross-linguistic facts indicate that some locatives are theta-marked by the verb and are therefore arguments of the verb, appearing in a structural position governed by the verb. In addition, this analysis claims that these locatives are universally NPs, not PPs. Only the AJT-locatives are PPs at D-structure. This claim extends the analysis of Baker (1988c: 371-2) for Chichewa instrument prepositions and suggests that in English, the prepositions for these ARG-locatives (and instruments) are inserted in the syntax just as 'of' is inserted to mark genitive case in derived nominals. While we have examined only locatives in detail, I will suggest that instruments, in Cree and universally, have the same status as the ARG-locatives and are argument NPs. This analysis accounts for the incorporation facts. If these locatives and instruments are NP arguments of the verb, and are not the object of a preposition, then they would not violate the HMC when they move to adjoin to the verb.

Overall, we have seen above that instruments, ARG- locatives and benefactives behave similarly in relation to certain facts of language and have interpreted this to mean that all are arguments of the verb. In addition, we have argued for a universal distinction between ARG-locatives and AJT-locatives. By analyzing ARG-locatives and instruments as argument NPs, we can explain why the instruments and the ARG-locatives incorporate when AJT-locatives and adjunctive temporals do not.

3.2.2.3 Benefactives - Object of a Preposition

We must now explain why benefactive NPs do not incorporate in Cree. We cannot classify benefactives with the unincorporable adjuncts, i.e. the AJT-locatives and temporals, because the evidence from applicatives, semantics and long distance movement (Baker 1988: 239-243) indicates that benefactives (and ARG-locatives and instruments) are arguments of the verb, i.e they must receive their theta-role at least partially from the verb. If they are arguments, they should be c-commanded by the verb. This satisfies the first part of the requirement for government and hence the ECP and HMC. However, since benefactives do not incorporate, such movement must violate the second component of government, i.e. there is a barrier between the benefactive and the verb. Therefore, following Baker (1988b, 1988c) we suggest that, universally, the

benefactive is the object of a preposition and therefore it violates the HMC by skipping over the P in order to adjoin to the V. Thus, benefactive theta-roles are assigned to NPs of a different structural status than the ARG-locatives and the instruments: they are governed by the verb, but are also the object of a preposition at D-structure. Benefactives receive their theta-role both from the verb and from a preposition. By contrast, the ARG-locatives and instruments are NP objects without a preposition.

At the end of the previous section, we suggested that locatives do not have a preposition at D-structure universally. Instead, a preposition is sometimes spelled out after D-structure for case reasons, just as in English 'of'. Thus, while instruments and some locatives appear as objects of prepositions in English, many languages treat instruments and some locatives as if they were objects of the verb. For benefactives, we will claim the opposite, that they have a preposition universally and that this preposition is sometimes null. Thus, the preposition does not appear in some languages, e.g. Southern Tiwa (Baker 1988c: 364-5), and is optional even in English:

(35a) I baked a cake for Margaret,
(35b) I baked [e]p Margaret a cake.

In this instance, we would say that the preposition in (35b) has been abstractly incorporated into the verb and the NP is governed by a null preposition (Baker 1988c: 365, 375). According to Baker's analysis (1988c: 375-6, 1988b: 294-99), even though the preposition has been incorporated into the verb (perhaps as an applicative), the extraction of the benefactive is blocked the Non-Oblique Trace Filter. This analysis seems consistent with the Cree facts since the morpheme *stamow* must appear as part of the verb when the object is a benefactive. Thus, we might consider *stamow* to be the obligatorily incorporated preposition whose trace governs the benefactive NP and blocks incorporation. Overall, our claims for the universal D-structure positions to which these thematic roles are assigned and, hence the incorporation possibilities, are illustrated in Diagram 11 below.

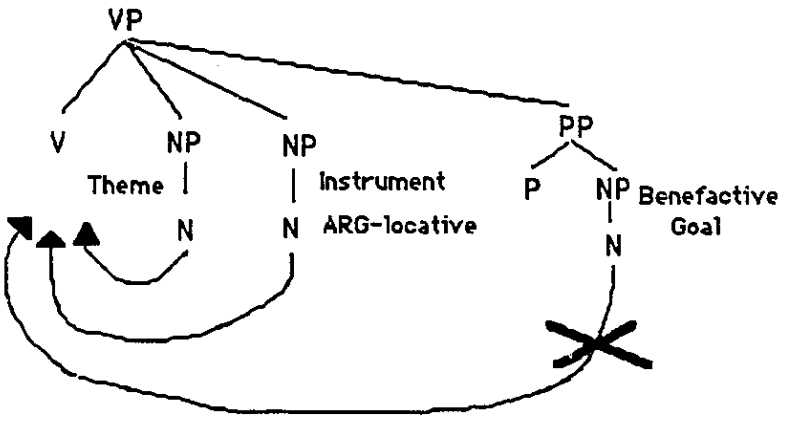


Diagram 11 - The Incorporation of Arguments

To justify this analysis of benefactives, we will consider cross-linguistic arguments from Chichewa and English. Baker (1988b, 1988c) argues for this different structural position by demonstrating that benefactives behave very differently from instruments in several respects other than the NI asymmetry. Building on work by Czepluch (1982), Baker demonstrates that five asymmetries of Chichewa can be explained if we adopt this analysis. Baker compares instruments and benefactives, but I assume that ARG-locatives will behave the same as instruments. Briefly, the five facts include: asymmetrical NI (1988b: 300, 1988c: 362-365), object prefix agreement (1988c: 354-5, 370-1, 1988b: 300-1), relativization/extraction possibilities (1988b: 294-8 [for Chamorro and English as well], 301-2, 1988c: 355-6, 374-7), the order of NPs (1988c: 369-70), and applicatives and their agreement in intransitive verbs and indefinite transitive verbs (1988c: 377-81).

The facts of English prepositions do not illustrate this asymmetry because English has prepositions with arguments (*Andy put the control flag on the tree, Houdini opened the lock with a key*), adjuncts (*Ed runs beside the Elbow River*) and benefactives (*John cooked the salmon steak for his girlfriend*). However, English deverbal compounding does show a similar asymmetry between benefactives and the other arguments of the verb. Rosen (1989:47) and Baker (1988c: 365, fn. 12) point out that instrumentals but not benefactives can appear in deverbal compounds. In addition, Sapir (1911: 255) and Hopkins (1988: 233) suggest that themes, instruments and locations may appear in English compounds. Thus, we see the following pattern in English compounds:

(36a) song writer
(36b) laser cut diamonds
(36c) concert singer
(36d) *child made scarves

Thus, the examples in (36) include NPs which are the theme, cf. *write songs*; instrument, cf. *cut with a laser*; location, cf. *sing in concerts* (presumably an ARG-locative); and benefactive, cf. *scarves made for children*. Only the benefactive is ungrammatical. It is not clear how morphological rules would account for these facts. Baker (1988c: 365, fn) suggests that this asymmetry may be due to a fact of syntax rather than word formation: "Presumably the benefactive compounds are impossible because no preposition can be generated in a word-internal structure; thus, the benefactive theta-role cannot be assigned". Overall, the different structural position for benefactives seems well justified by a variety of cross-linguistic facts in addition to NI asymmetries.

In sum, we have seen that the syntactic analysis can account for the complex distribution of NI in Cree. The Cree facts of locatives and benefactives are easily explained by an analysis which is already required to explain facts pertaining to the argument status of NPs and facts of benefactives in languages such as Chichewa and English.

3.2.3 Intransitives, Unergative and Unaccusative

An apparent exception to our stipulation that only objects may incorporate is that the 'subjects' of some intransitives seem to incorporate. The incorporation of intransitive subjects has been illustrated in related Algonquian languages of Menomini (Miner 1980) and Ojibwa (Rhodes 1975, Denny 1981). This is also possible in Cree:

(37) siipihk -was -kwaa -w
is blue sky/clouds II AGR
'The sky is blue.'

(38) siiphk -oomin -aa -w
is blue berries II AGR
'They are blue berries! > It is a patch of ripe blue berries.'

Syntactic theory can account for this type of incorporation because it is claimed that some intransitive verbs are "unaccusative' (e.g. Perlmutter 1978). In unaccusatives, the sole argument of this type of intransitive verb is base-generated as an object and is then moved into subject position. This also allows us to retain our claim that universally objects are themes. Since these verbs have similar meanings in different languages, we can illustrate this with the English verb 'break':

(39a) Bill broke the vase.
(39b) [e] broke the vase.
(39c) The vase$_i$ broke [e]$_i$.

(39a) is the transitive form of the verb in which the object, 'the vase', clearly plays a theme role. (39b) is the base generated D-structure of the intransitive in which the vase occupies the object position and the subject NP position is empty. After 'the vase' moves to the subject position, (39c) is the surface form of the unaccusative intransitive. If this analysis is correct, then it explains why the 'subjects' of some intransitives can incorporate in Cree: they are structural objects.

Syntactic theory also makes a prediction about the other class of intransitives, unergatives, whose subjects begin in subject position: these nouns should not be able to incorporate. The Cree data supports this prediction:

(40a) iskwiiw pimipah -taa -w
woman runs AI AGR
'The woman runs'
(40b) *pimipah iskwiiw -ii -w
run woman AI AGR
'The woman runs'

Due to the unaccusative/unergative asymmetry, this apparent counterexample to the syntactic account actually provides further support that the analysis is correct.

Assuming the validity of the HMC, the facts of Cree and other languages suggest the following universals of theta-role assignment: agent is canonically assigned to the subject position; theme, instrument and ARG-locative are assigned to objects of the verb;

benefactive is assigned to an argument that is also the object of a preposition; and temporal and AJT-locative are adjuncts and objects of prepositions. The structural positions to which theta-roles are assigned and the corresponding facts of incorporation can be illustrated in the following diagram :

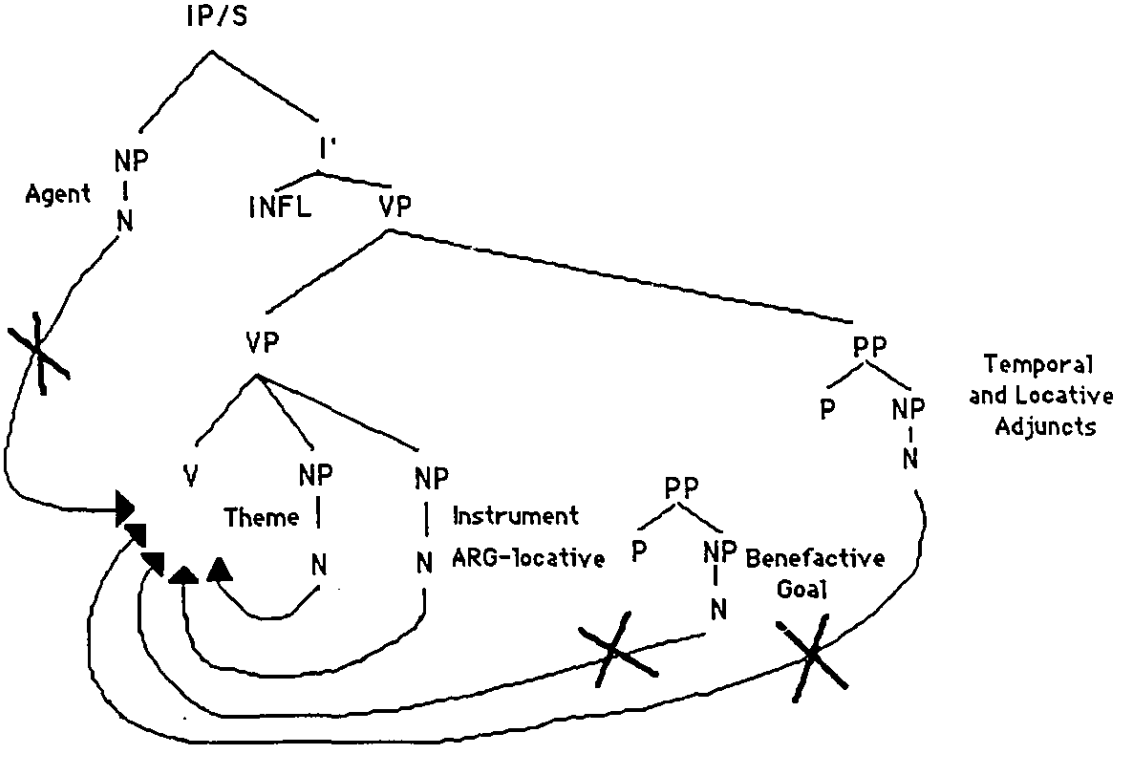


Diagram 12 Incorporation Possibilities of Various Structural Positions

Overall, the syntactic account has provided a principled explanation of a range of facts. It will be a challenge to any lexical theory to match the syntactic explanation of the distribution of NI.

3.3 Bare Modifiers

Another characteristic of NI is the possibility of bare modifiers, elements which are external to the verb but modify the IN. The discontinuous dependencies of bare modifiers and the IN can readily be explained by the syntactic analysis. According to the

syntactic analysis, certain morphemes are base generated together as a phrase at D-structure, and then when one or more other elements, such as a noun, move to another position in the sentence, these elements remain 'stranded' in their D-structure position. We see this pattern in English preposition stranding:

(41a) Shakespeare wrote his sonnets with quill and ink.
(41b) Shakespeare wrote his sonnets with what? (stress on 'what')
(41c) With what did Shakespeare write his sonnets?
(41d) What did Shakespeare write his sonnets with?

In these examples, we see that the preposition 'with' and the NP 'what' occur together as a prepositional phrase in (41b) and (41c). However, in (41d), wh-movement has moved "what" to the front of the sentence and the preposition has been stranded.

3.3.1 Bare Modifiers with NI

In Cree NI, a variety of bare modifying elements co-occur with an IN. These bare modifiers include demonstratives, quantifiers, and relative clauses:

(42a) kiic -ikonam -w oohi niiso maskisina
remove TI AGR these two shoes
'He removes these two shoes.'
(42b) kiit -askisin -ii -n -iiw oohi niiso
remove shoes AI TA AGR these two
'He removes these two shoes.'

(43a) noocih -ii -w oohi niiso wacaskwa
hunt AI AGR these two muskrat
'He hunts these two muskrats.'
(43b) noocih -acaskw -ii -w oohi niiso
hunt muskrat AI AGR these two
'He hunts these two muskrats.'

(44a) kiic -ikonam -w maskisina kaa-osihtaayit John -a
remove TI AGR shoes that made AGR John AGR
'She removes the shoes that John made.'

(44b) kiit -askisin -ii -n -iiw kaa-osihtaayit John -a
remove shoes AI TA AGR that made AGR John AGR
'She removes the shoes that John made.'

In (42) and (43), we see demonstratives and quantifiers which modify 'shoes' and 'muskrats', respectively, but appear separate from the medial. In (44), we see a relative clause whose head is the incorporated medial.[7]

Structurally, we represent the relationship between these modifiers and their head by base generating them together at D-structure. When movement occurs, the Projection Principle stipulates that this structure must be preserved, and that an empty position, a trace, remains at S-structure to represent the continuing relationship between these elements. The syntactic analysis for (42b) is illustrated below:

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[7] It is not clear whether possessors may also be stranded in Cree. The examples below would have an ambiguous interpretation for the NP *John*:

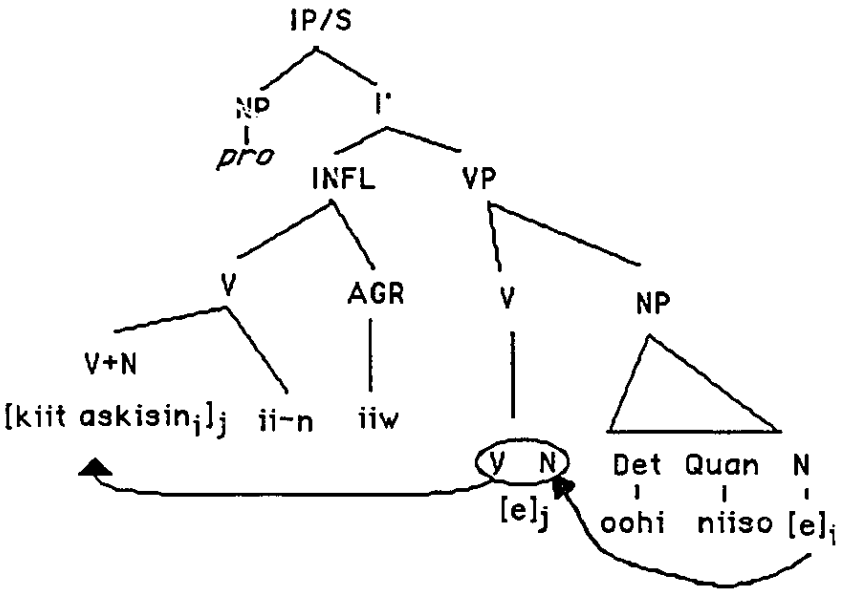
(1a) kiic -ikon -am John -a oo- maskisin -iiyiwa
remove TI AGR John-OBV OBV shoe OBV
'She removes John's shoes.'

(1b) kiit -askisin -ii -n -iiw John -a
remove shoes AI TA AGR John OBV
'She removes John's shoes from John'

(2a) post -isk -ahow -iiw John -a o- maskisin -iyiwa
put on TA AGR John OBV OBV shoes OBV
'He puts John's shoes on John.'

(2b) post -askisin -ii -n -iiw John -a
put on shoes AI TA AGR John OBV
'He puts John's shoes on John.'

In (1) and (2), John, as the possessor of the incorporated nominal 'shoes', may remain outside the verb while the element it modifies is adjoined to the verb root. Alternatively, we might suggest the John is a goal or source object and that the possessive interpretation is pragmatic. If further research were to reveal sentences in which the bare NP was clearly a possessor, then this would be convincing evidence for the syntactic approach because stranded possessors do not occur without NI.



[kiit[askisin]$_i$]$_j$iiniiw [e]$_j$ oohi niiso [e]$_i$

Diagram 13 - A Syntactic Account of Bare Modifiers

In the derivation of this sentence, *askisin* begins as the head of the object NP. To become an incorporated medial, it is moved and adjoined to the verb, leaving a trace behind. The complex verb then moves into INFL to attach to the agreement morphemes. The determiner and quantifier are left 'stranded' in their base generated position.

In three ways, the facts of bare modifiers validate the syntactic approach to NI. First, the syntactic approach explains the variable position of the nominal, i.e. the existence of thematically equivalent counterparts. In examples (42) - (44) above, the (a) and (b) pairs demonstrate the variable position. Second, words which are stranded as a result of head movement are semantically linked to their head, i.e. they modify the incorporated noun. The gloss in the (b) sentences above, the incorporated sentences, demonstrates the semantic unity of the phrases. Third, the stranded elements are grammatically dependent on the IN for gender agreement. Normally, such agreement takes place in a local configuration. This local configuration still occurs in a syntactic analysis because the trace and the modifier are within the same phrase. The dependency is illustrated in the gender agreement between Cree demonstratives and the noun to which they refer. The

grammatical relationship is indicated by the ungrammaticality of those examples in which the animacy of the demonstrative does not agree with the animacy of the noun[8]:

(45a) kiit -askisin -ii -n -iiw oohi niiso
remove shoes-(I) AI TA AGR these-(I) two
'He removes these two shoes.'

(45b) *kiit -askisin -ii -n -iiw ooki niiso
remove shoes-(I) AI TA AGR these-(A) two
'He removes these two shoes.'

(46a) saki -stikwaan -ii -n -am ooma
pull head-(I) AI TI AGR this-(I)
'He is pulling this head (wig).'

(46b) *saki -stikwaan -ii -n -am awa
pull head-(I) AI TI AGR this-(A)
'He is pulling this head (wig).'

(47a) noocih -acaskw -ii -w ooki niiso
hunt muskrat-(A) AI AGR these-(A) two
'He hunts these two muskrat.'

(47b) *noocih -acaskw -ii -w ooma piiyak
hunt muskrat-(A) AI AGR this-(I) one
'He hunts these two muskrats.'

In examples (45) and (46), the IN is inanimate and therefore requires an inanimate demonstrative. In example (47), the IN is animate and requires an animate demonstrative. These discontinuous dependencies of the apparent phrasal units are both expected and explained by the syntactic account (if we assume that modifiers must agree in gender with the head of their phrase). Overall, we see that these facts of bare modifiers are easily explained by the syntactic account.

8 The issue is slightly complicated because *oohi*, 'these', can be both animate and inanimate.

3.3.2 Bare Modifiers Without NI

Mithun (1984) and Rosen (1989) have both suggested alternatives to the syntactic analysis. The primary motivation for these alternative approaches is the observation that bare modifiers may appear in sentences where there is no IN. In addition, these bare elements agree with the gender of a pragmatic referent. The possibility of bare modifiers occurring without an IN is illustrated below in both English and Cree:

(48) I like that.

(49a) kiic -ikonam -w oohi niiso
remove TI AGR these two
'He removes these two (shoes-I).'

(49b) *kiic -ikonam -w ooki niiso
remove TI AGR these-(A) two
'He removes these two (shoes-I).'

(50) kiic -ikon -iiw ooki niiso
remove TA AGR these-(A) two
'He removes these two (buttons-A).'

(51) kiic -ikonam -w kaa-osihtaayit John -a
remove TI AGR that made AGR John AGR
'She removes (the shoes) that John made.'

In example (48), we see that even in English, where there is no NI, a demonstrative such as 'that' may occur without the noun that it modifies. The same pattern is seen in Cree for demonstratives and quantifiers in (49) and (50), and for a relative clause in (51). In these Cree sentences, there must be a pragmatic referent that the speaker can point to or the referent must have been mentioned very recently.

Several different proposals have been made to account for the bare modifiers without an IN. Since bare modifiers must be explained independently of NI for these examples, some researchers have suggested that the presence of bare elements is not related to NI. According to this hypothesis, bare modifiers and NI are independent processes which

happen to coincide in some sentences. I will discuss two explanations of bare modifiers without NI.

The first possibility is that bare elements are NPs and therefore are referential. For instance 'these' would be considered an NP. Mithun (1984: 870) argues this point: "Demonstratives and adjectival V's can serve as independent NP's, whether or not an IN is present. . . [Bare modifiers] would be appropriate any time the type of object (here a dress) was clear from context, linguistic or pragmatic. The N itself need not have been explicitly mentioned in preceding discourse." While it may be possible that demonstratives and quantifiers are nominalized in these instances, it is not clear that a bare relative clause could be an NP. In addition to maintaining that these modifiers are NPs, Mithun suggests that bare elements modify a pragmatic referent. However, it is not clear whether it is linguistic or pragmatic reference that is occurring in the NI constructions. As Hopkins (1988: 271) notes: "it is one thing to say that pragmatic reference 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."

A second analysis of the bare elements is that of Rosen (1989). She suggests that bare modifiers exist because of an independent phenomenon of language: the existence of 'null-head modifiers'. She assumes that sentences with bare modifiers have an object NP, and that this NP has a null head: the N or N' can be empty. Thus, the bare modifiers will modify this null head. Significantly, the analyses of both Rosen and Mithun would claim that the null head modifiers of all kinds should occur independent of NI. Examples (49) - (51) above show that this is true for demonstratives, quantifiers and relative clauses in Cree.

In this section, we have examined three analyses of bare modifiers. They are illustrated in Diagram 14 below:

Mithun (1984)	BM = NP	[V - (N_i) - affixes]$_V$ [this]$_{NP\,i}$
Rosen (1989)	BM = NHM	[V - (N_i) - affixes]$_V$ [this e]$_{NP\,i}$
Mellow (1989)	BM = stranded	[V - N_i - affixes] [this t_i]$_{NP}$

Diagram 14 - The Status of Bare Modifiers

As we see in the diagram, Mithun claims the bare modifiers (BM) are NPs which are pragmatically coreferent with the medial. Rosen claims they are null head modifiers (NHM) and that as an NP, the modifier and the head are pragmatically co-referent with the medial. Alternatively, we are claiming here that the bare modifier is a stranded element which modifies the trace, and hence the moved noun. The syntactic approach suggests that, in addition to linguistic reference, pragmatic reference is possible. All three approaches have explanatory value for these facts. Further research could reveal facts of grammatical dependency which occur only with NI, and therefore argue for the syntactic analysis.[9]

3.4 NPs External to an Incorporating Verb - Doubling

3.4.1 The Absence of External NPs

The fourth characteristic of Cree NI that we will examine is that IVs which are normally transitive do not have lexical external NP objects[10]. We see a very similar pattern in English deverbal compounding:

(52a) *Gerald is a music teacher of Bach organ fugues.
(52b) *Bill is a coin-collector of Loonies.
(52c) *Gerry is a science teacher of polymer chemistry.
(52d) *Nero is a beer-drinker of Molson Brador.

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[9] Potential facts which argue for the syntactic analysis include stranded possessors (see fn. 3.7, fn. 5.9) or stranded locatives (see Section 5.2).

[10] I am following the analysis of the previous section and assuming that bare modifiers are not NPs.

In these examples, normally transitive verbs such as *teach*, *collect* and *drink* may not have an object when they are part of a deverbal compound.

The Cree sentences that we have seen in this thesis have had either an IN or an external NP, but not both. Since Cree has rich agreement morphology on the verb, we might attribute the absence of external NPs to pro-drop, the tendency to omit external NPs when the referent is clear from the agreement morphemes. However, pro-drop cannot explain the omission of the NPs because the absence of the external NPs is often obligatory, not optional. The examples below indicate that forms with both an IN and an external NP are usually ungrammatical:

(53a) kiit -a,owinis -ii -w
remove clothes AI AGR
'He removes his clothes.'

(53b) *kiit -ayowinis -ii -w o- pakoyaan -iyiw
remove clothes AI AGR OBV shirt OBV
'He clothes-removes his shirt.'

(53c) *kiit -ayowinis -ii -w o- mitas -iyiw
remove clothes AI AGR OBV pants OBV
'He clothes-removes his pants.'

(53d) *kiit -ayowinis -ii -w o- maskisin -iyiwa
remove clothes AI AGR OBV shoes OBV
'He clothes-removes his shoes.'

(54a) kanaw -astimw -ii -w
keep horse AI AGR
'He keeps the horse (or the horses).'

(54b) *kanaw -astimw -ii -w Secretariat -a
keep horses AI AGR Secretariat OBV
'He horse-keeps Secretariat.'

(55a) kanaw -i -m -aawas -o -w
keep/watch TA child AI AGR
'He is watching children/baby-sitting.'

(55b) *kanaw -i -m -aawas -o -w John -a
keep/watch TA child AI AGR John OBV
'He is baby-sitting John.'

In the same way that we explained the variable position of nouns, this absence of external objects in Cree IVs is easily explained by a syntactic approach to NI. Under this account, the direct object, which receives the theme theta-role of the verb, has been incorporated into the verb and has left an empty NP position (a trace) in the syntactic structure. We would not expect an additional lexical direct object for two reasons: 1) the structural object position is already occupied by the trace; and 2) an additional NP would violate the Theta-Criterion because it could not receive a theta-role from the verb since the theme theta-role has already been assigned to the IN at D-structure. This is illustrated for sentence (53b) in the diagram below:

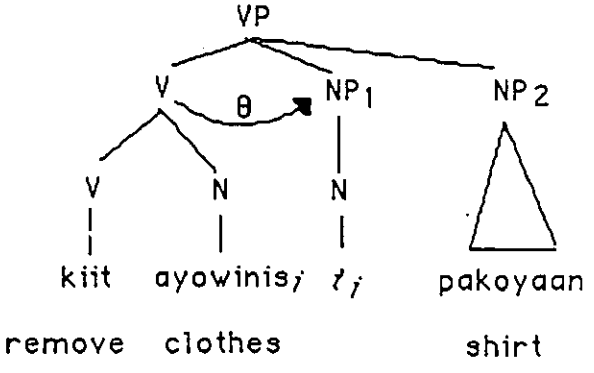

Diagram 15 - Doubling with NI

This diagram illustrates that NP_1 is theta-marked by the verb and is occupied by the trace. NP_2 , *pakoyaan*, does not receive a theta-role. Overall, the absence of these external NPs appears dependent on the process of incorporation thus indicates the syntactic nature of NI.

3.4.2 The Presence of External NPs

The absence of external NPs in Cree is only a tendency. As the examples below illustrate, IVs may occasionally have an external direct object.

(56) nooc -i -h -iskwiiw -ii -w Mary -wa
pursue woman AI AGR Mary OBV
'He pursues his woman (=wife/girlfriend), Mary.'

(57) nooc -i -h -aawas -ii -w Mary -wa
spank child AI AGR Mary OBV
'He spanks the child, Mary.'

(58) nootin -iskwiiw -ii -w Mary -wa
fight woman AI AGR Mary OBV
'He fights his woman, Mary.'

(59) kanaw -i -m -iskwiiw -ii -w Mary -wa
keep/watch TA woman AI AGR Mary OBV
'He is watching his woman, Mary.'

(60) noocih -acaskw -ii -w o- wacaskw -im -iyiwa (>wacaskomiyiwa)
hunt muskrat AI AGR OBV muskrat poss OBV
'He (3) hunts his (4) muskrats.'

(61) saki -stikwaan -ii -nam -w ooma mistikwaan -ihkan
pull head AI TI AGR this head pseudo
'He is pulling this head/mask/wig.'

(62) kiit -ayowinis -ii -w ayowinis -a
remove clothes AI AGR clothes OBV
'He removes his clothes.'

(63) niim -askw -ii -w John -a o- paskisikan -iyiw
carry wood AI AGR John OBV OBV gun OBV
'He carries John's gun.'

While it is possible to have these external NPs in Cree, they are neither obligatory nor common. The presence of both an IN and an external NP is often called "doubling" and has been reported to be quite common in a number of incorporating languages, including

Northern Iroquoian languages, Caddoan languages, and the Australian languages of Rembarnga and Gunwinggu (Mithun 1984, Rosen 1989).[11] In those languages where doubling occurs, the phenomenon appears to be quite productive and, as an obvious characteristic of NI in that language, is usually reported when discussing NI in that language. By contrast, reports of Cree NI by Wolfart (1971), Denny (1979) and Miner (1981, 1983) make no mention of doubling, nor do their examples of NI include external NPs.[12] Thus, while Cree does have some doubling, it contrasts with typical doubling languages because the external NPs are quite rare. To account for this difference, I will argue that doubling in Cree is due to factors which are independent of NI, and that Cree NI does not permit a direct object. Baker (1988a,1988b) and Hopkins (1988) have argued that even the productive doubling in languages such as Mohawk is due to factors independent of NI. After looking at two factors which could lead to doubling, we will briefly examine the lexicalist explanations of doubling and notice their difficulties in explaining the Cree facts.

The first possibility for explaining the Cree doubling is that these complex verbs are lexicalized transitive verbs and therefore may take a direct object and therefore can assign a theta role to an argument of the verb.[13] We see a similar form in the following English sentence:

(64) We will baby-sit the twins next weekend.

In this example of deverbal compounding, the complex verb may have an object. However, *baby-sit* appears to be a lexicalized unit whose meaning has become specialized or even opaque; anyone who has ever baby-sat knows that infants rarely sit still. A lexicalized analysis seems possible for examples (56) and (57) above. In (56), the meaning of the verb is 'chase or pursue' and it cannot be the homonym 'beat or spank'. On the other hand, the meaning of (57) is 'spank' and cannot be 'pursue'. In

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[11] It is not clear how to distinguish between languages that allow doubling and those that do not. Presumably, all languages allow some external NPs as adjuncts (e.g. appositives) or because a verb with an IN may become lexicalized. As a result, all languages should have some external NPs. Baker (personal communication) has suggested that other tests could be developed to determine if an NP was an adjunct or an argument, e.g. questioning the doubled position.

[12] However, Rhodes (1975) reports fairly productive doubling for the classificatory medials in the related Algonquian language, Ojibwa.

[13] 'Lexicalized' here means listed in the lexicon, as opposed to 'lexical', which is the result of morphological or compounding processes.

addition, the examples with *iskwiiw* 'woman', (56), (58), and (59), also have a special meaning: they do not refer to any woman, but to the wife or girlfriend of the man involved. The specialization of meaning may indicate lexicalization and we might therefore suggest that *noocih+iskwiiw* functions as a unit, a verb stem. Generally, the possibility that Cree has lexicalized complex verbs does not seem unusual or unwarranted.

Another possible explanation of doubling is that suggested by Baker (1988a, 1988b) and Hopkins (1988) for Mohawk: these external NPs are adjuncts, not arguments of the verb. Baker suggests that these adjuncts are doubles of the null external object, similar to some analyses of clitic doubling, external NPs in antipassive constructions, and by-phrases in passives. Thus, the IN will transmit its theta-role to an external adjunct which 'doubles' it. Hopkins (1988) notes some limitations on doubling in Mohawk and argues that these external nouns are appositives. Set off by 'comma intonation', appositive constructions are adjunct NPs that are used to further modify a previously introduced noun. Although it is not clear that there is comma intonation, the adjunct explanation seems possible for some of the doubling forms listed above. In (56) - (59), the English gloss uses an appositive to describe the external NP. My Cree consultant points out that for all of these doubling examples the NPs are unnecessary as it is already understood who or what you are talking about. While the use of an external NP 'sounds unusual' in these examples, it is possible, especially if the listener needs some extra information such as the person's name or the obviative markers to indicate the fourth person. Overall, the independent factors of lexicalization and adjunct NPs may conspire to create doubling in Cree.

The lexicalist approach (Mithun 1984, 1986, di Sciullo and Williams 1987, and Rosen 1988) offers a different account of the presence or absence of external nouns. The approach suggests that, in languages which permit doubling, NI is the result of a compounding process in which the IN restricts the argument structure of the verb but does not satisfy it (di Sciullo and Williams 1987: 30, 64). As a result, an external NP is needed to satisfy the argument structure by receiving the theta-role. This NP could be null in a pro-drop language. Rosen calls this Classifier NI and Mithun refers to it as Type IV Incorporation. The lexicalist approach also suggests that, instead of Classifier NI, languages may have a second type of NI in which the IN actually satisfies the argument structure of the verb. As a result, an external NP is not permitted. This is similar to English deverbal compounding which we saw in (52) above. Rosen refers to this second

type of NI as Compound NI, and it would include Types I, II, and III of Mithun's functional classification. The Micronesian and Polynesian languages have NI with this property. These two types of NI are illustrated below:

Compound NI [V+N] No NP 'He removes-clothes'	Satisfies ARG Str.	[remove+clothes]$_V$ | (Agent)
Classifier NI [N+V] NP 'He child-spanks Mary'	Modifies ARG Str.	[spank+child]$_V$ | (Agent, Theme) | child

Diagram 16 - Two types of NI, According to a Lexicalist Analysis

As illustrated, the complex verb in Compound NI has had its theme argument satisfied by the nominal in the compound, resulting in only an agent theta-role to be assigned to an external NP. Alternatively, Classifier NI only qualifies the theme argument of the verb, setting conditions on the reference of the theta-role. As a result, the theme theta-role can be assigned to an NP outside of the compound, presumably only to an NP that has the appropriate properties.

Looking at the doubling facts alone, Cree appears to have the doubling properties of Compound NI, i.e. a general absence of doubling. If we accepted that Cree had Compound NI, Rosen's analysis could explain the exceptional cases of doubling in much the same way as we have done above. However, Rosen's lexicalist approach encounters a much more serious problem because of the relationship between bare modifiers and doubled NPs. In her approach, null head modifiers and lexical NPs are both instances of NPs which may follow a transitive verb, whether the verb is incorporating or not. Thus, she expects that bare modifiers and doubling will always occur together and that the

combination will be evidence of Classifier NI.[14] Alternatively, if a language has Compound NI, it should display neither bare modifiers nor doubling. Cree presents a serious problem for this view because it allows completely productive bare modifiers (section 3.3) but almost no doubling.

A possible solution to this problem would be to emphasize the completely productive bare modifiers and maintain that only Classificatory NI exists in Cree. Under this view, the widespread absence of doubling is due to an independent factor. This is the opposite of the syntactic approach in which we argued that the occasional presence of doubling is due to independent factors. Rosen explores the possibility of independent factors that lead to the absence of doubling. Her main suggestion is that, in some languages, external nouns should not duplicate either the information or the 'noun-like' (referential) features of the IN. However, it is not clear why some languages allow the duplications of information, some do not, and others require more specific information. Additionally, it is not clear why INs will carry more of noun-like features in some languages than in others. To further complicate matters, this account suggests that doubling should be allowed, but it is blocked by another factor. Thus, yet another factor would have to be invoked to explain why sometimes doubling is allowed or is not blocked.

Clearly the simplest explanation of the Cree facts, is, as Rosen considers for Southern Tiwa and West Greenlandic, that Cree NI is the result of syntactic movement. This can explain why the facts do not cluster as she predicts, and why there seems to be a dependency between the morphological structure of the verb (NI) and the internal structure of the object NP; null heads are allowed but lexical heads are not. In sum, the lexicalist approach of Rosen predicts that doubling and bare modifiers should cluster together, but in Cree they do not. The syntactic approach does not encounter this problem since it predicts that these properties will be independent because bare modifiers result from movement and doubling is due to independent factors such as lexicalization and adjunct NPs.

In the last two sections, we have seen that certain facts about Cree syntactic arguments are dependent upon the process of incorporation. Thus, there are grammatical and

[14] Rosen claims that transitivity also clusters with stranding and doubling. This will be discussed in section 5.1 below.

semantic links between the bare modifiers and the IN. In addition, the presence of a lexical head in the object NP is roughly correlated to the absence of an IN. This dependence between NI and syntactic structure indicates that Cree NI is a syntactic process rather than a lexical or morphological process. Overall, this chapter has examined four characteristics of Cree NI and found that each is compatible with a syntactic analysis.

Chapter 4 Facts Which Distinguish NI From Compounds

4.0 Introduction

One of the reasons that there has been so much debate about the status of NI is because NI and compounding look so much alike. If both result from the same word formation rules, then the similarity is expected. Alternatively, Baker (1988b, 1988d) has claimed that NI will always look like lexical compounding because both are subject to independent morphology theory. This chapter disputes Baker's claim and and the general observation that these forms are 'very similar' by suggesting that there are significant differences between NI and compounding. We will examine three differences between the two structures: specificity of reference, anaphoric islandhood, and ungrammatical intermediate forms. These differences can be explained if we maintain that NI is the result of syntactic adjunction instead of compounding rules.

4.1 Specific Reference of INs

Mithun (1984: 849) and Mardirussian (1975: 387), among others, have noted that the N in a compound does not refer to a specific entity; instead it narrows the scope of the verb. This can be illustrated in the following English compound:

(1) Doug and Ed went girl-watching.

In this sentence, it is understood that 'Doug and Ed' are going to watch girls in general and not one specific girl. The examples below indicate that Cree compounds do not have specific reference:

(2) kohkoos- i -miitisow Nero
pig Ci he eats Nero
'Nero eats like a pig.'

(3) iskwii- -pimipahtaaw Butch
woman he runs Butch
'Butch runs like a woman.'

Sentence (2) does not mean that Nero eats like any particular pig, but just like pigs in general. In the same way, sentence (3) does not suggest that Butch runs like one specific woman, but like women in general. The Ns in these compounds are nonreferential and serve to limit the scope of the verb to a kind or style of eating or running.

Mithun (1984: 848, 856, 871) and Mardirussian (1975: 386-7) claim that INs are like compounds in that they are non-referential and do not refer to a specific entity. However, Cree NI can be different from compounding in this regard.[1] While the incorporating verbs may refer to a general activity and to entities in general, the IN can also refer to one specific entity. This is true in the example below:

(4) noocih -acaskw -ii -w
hunt muskrat AI AGR
'He hunts the muskrat.'

The 'muskrat' in (4) can be one particular muskrat. The specific reference can be strengthened by the presence of a bare demonstrative: *noocih-acaskw-ii-w oohi* : 'He hunts this muskrat.' If INs are different from compounds and similar to periphrastic forms, then the syntactic analysis seems appropriate.[2]

4.2 Absence of Anaphoric Islandhood

Closely related to specificity of reference, the anaphoric islandhood of compounds is another characteristic which distinguishes between Cree compounds and NI. Compound words are generally considered to be anaphoric islands: a pronoun such as 'he' or 'she' cannot refer back to a constituent of a compound. Compounds may have this property because they cannot refer to specific entities. Anaphoric islandhood can be seen in the following English compounds:

(5a) Doug and Ed watched the girl. She was beautiful!
(5b) Doug and Ed went girl-watching. ?She was beautiful!

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[1] Likewise, Hopkins (1988) argues that one type of NI in Mohawk describes particular entities and activities.

[2] This is compatible with a syntactic analysis because, in a non-incorporated sentence, a noun modified by a determiner will be referential.

In (5a) 'She' can easily refer to 'the girl' in the previous sentence. In (5b), it may be possible to interpret 'She' as the 'girl that Doug and Ed watched', but such an interpretation is much more difficult, and seems to involve pragmatic inference rather than simple reference. In Cree, the elements within a compound do not normally act as antecedents for pronouns:

(6) Kohkoos- i -miitisow. *Misikitii -yit.
pig Ci he eats (AI) is big(AI) AGR/OBV
'He eats like a pig.' 'He-obviative (the pig) is big.'

(7) Iskwii- -pimipahtaaw. *Misikitii -yit.
woman he runs (AI) is big(AI) AGR/OBV
'He runs like a woman.' 'She-obviative (the woman) is big.'

In (6) and (7), the N stem in the compound cannot act as the antecedent for the following sentence. Although Cree does not have independent pronominals, it is still clear that the N in the compound cannot act as an antecedent.

Mithun (1984: 871) claims that, as in compounding, INs are not normally used to establish discourse referents. However, in Cree, sentences can refer back to antecedents which are INs. This is illustrated in the following examples:

(8a) Noocih -acaskw -ii -w. Misikiti -w.
'He hunts the muskrat. He-proximate (hunter) is big.'

(8b) Noocih -acaskw -ii -w. Misikitii -yit.
'He hunts the muskrat. He-obviative (muskrat) is big.'

(9) kici -pakoyan -ii -w. Misaa -yiw
remove shirt-(I) AI AGR is big AGR/OBV
'He removes his own shirt. It -obviative (the shirt) is big.'

In (8b), the 'muskrat', being obviative, is clearly the antecedent for 'he', the subject of the second sentence. We see same possibility of reference with the inanimate IN *pakoyan* in (9). This is possible even when the referent has not been previously

mentioned in the conversation as an independent NP, or is not in the immediate vicinity of the speakers. If complex verbs with NI are not anaphoric islands in Cree, this would seem to indicate that Cree NI differs from compounding.

Proponents of the compounding approach to NI (Mithun 1984: 871, di Sciullo and Williams 1987: 67-8) claim that these exceptions to anaphoric islandhood are not an argument for the syntactic approach because a verb without any nominal constituent may introduce discourse referents. Example (10) below indicates that this is true in Cree:

(10)	Nooc i -h -iiw.	Misikitii -yit
	hunt Ci TA AGR	is big(AI) AGR/OBV
	'He hunts (him).	He (obviative) is big.'

In this example, since *noocihiiw* does not have an IN or a lexical NP object, the antecedent for *misikitiiyit* is not grammatical but pragmatic. According to such an analysis, these examples of pragmatic reference demonstrate that the ability to refer is a process independent of INs. They argue that if an IN appears to be an antecedent for pronouns (or sentences), this is actually due to the independent factor of pragmatic reference. Mithun (1984: 871) concludes that "It is the pronominal system of polysynthetic languages that differs from English, not the word formation processes." However, such a claim only confuses the issue further. First, it is not entirely clear that English is so very different from Cree and Mohawk. The partial acceptability of (5b) above may be due to pragmatic reference. In addition, English pronominals can find their reference pragmatically:

(11) Jimmy Buffett went sailing yesterday. However, when she started taking on water he had to turn back.

(12) We went to eat at the Minute-Man Cafe last night. However, it was so greasy that I couldn't finish.

In (11), 'she' can be interpreted as a boat that has a leak. In (12), 'it' may be interpreted as the food that they serve at the Minute-Man Cafe, probably a hamburger and fries. These examples indicate that English pronominals can refer to a pragmatic antecedent. A second problem with the lexicalist counterargument is that even if a language has

pragmatic reference, it may still have grammatical co-reference as well. Hopkins (1988: 259-260) makes this same point: "the possibility of pragmatic antecedents in Mohawk (and probably all languages) does not preclude the possibility of overt syntactic antecedents." Thus, Cree (and English) may have both pragmatic and grammatical reference. While we can maintain that INs can be grammatical antecedents, clear tests need to be developed to distinguish between the two types of coreference. For now, the asymmetry between (6, 7) and (8b) suggests a difference between NI and compounding. This asymmetry further supports our claim that the process of NI is qualitatively different from the word formation rules found in compounding.

4.3.0 Ungrammatical Intermediate Forms

Theories of compounding generally suggest that complex words have hierarchical structure: words are formed by the addition of a single affix or one other stem to a stem and then this process may be repeated as another affix (or stem) is added. Since each derivational stage of a complex word is formed by the same rules, it would seem logical that the intermediate stages of a derivation should also be possible words. If an intermediate stage could not be produced by the rules of compounding, then it would follow that the final complex form should also be ungrammatical.[3] Thus, if a grammatical IV includes a [V+N] form, but the same [V+N] compound is not acceptable, this would suggest that NI is not the result of compounding and that compounds and IVs are the result of different processes. Intermediate [V+N] compounds are ungrammatical in Cree. To validate the argument of this hypothesis, we will first describe a theory of morphology (Lieber 1983) that can account for the facts of Cree compounds. Importantly, the theory includes a statement of headedness and we will verify that Cree words are right headed. This will be followed by a demonstration that [V+N] is an intermediate form for IVs. Finally, after examining the facts of Cree, we will suggest that

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[3] An exception to this conclusion could result if the word formation rules were restricted by a constraint that held only on their final output; it might then be possible that the intermediate form would violate the constraint in a way that the final form would not. An example of such a constraint can be seen in the analysis of deverbal compounds that is developed in 5.3.1. Even though the compound verb *cabinet-make* is eliminated by the theory, the compound *cabinet-maker* is possible with [cabinet make] as an intermediate form: [[cabinet make]$_V$ er]$_N$. This occurs because the node dominating [cabinet-make] in *cabinet maker* is not the topmost node of the word, and therefore the argument structure of that node must be satisfied inside of the compound. Alternatively, the node dominating [cabinet-make] in the compound *cabinet-make* is the topmost node of the word and therefore the argument structure must be satisfied outside of the compound. This results in a difference between intermediate and final forms in [N+V] compounds, but will not apply to the [V+N] incorporating verbs that we will examine in Cree

this compounding theory cannot account for the absence of these forms and that IVs must therefore be the result of processes other than compounding.

4.3.1 A Theory of Compounding: Lieber (1983)

To verify our prediction, we will adopt the theory of morphology proposed in Lieber (1983). This theory is able to explain many characteristics of both English and Cree compounds. Lieber suggests that complex words, including compounds, have a hierarchical internal structure: "Morphemes are inserted into unlabeled binary-branching trees, subject to their subcategorization restrictions, and trees are then labeled by means of. . . . four *Feature Percolation Conventions*" (Lieber 1983: 252). To examine the [V+N] unit in IVs in relation to compounding, we will make crucial reference to three aspects of Lieber's system: feature percolation in compounds, language specific headedness, and a principle of argument linking.

Lieber's four Feature Percolation Conventions (FPCs) combine so that the highest branching node in the tree of a word is labeled with the category and features of the outermost affix or of the right-hand stem if the tree contains only stems. In this thesis, we will be concerned in particular with the FPC that refers to compounds, FPC IV (Lieber 1983: 253): "If two stems are sisters (i.e. they form a compound), features from the right-hand stem percolate up to the branching node dominating the stems." This convention is illustrated in (13) below:

(13) The labeling of a branching node that dominates two stems:

We see that the right-hand member of the compound, an adjective, percolates its category feature to the entire compound. Crucial for our analysis, the argument structure of the right-hand stem is included in the features which percolate to the compound as a whole.

FPC IV also includes a statement of headedness. The head is the element which gives the compound its features. Lieber indicates that FPC IV is language particular: Indo-European languages such as English and German are right-headed, whereas other languages, such as Vietnamese or Thai, label compounds on the basis of the leftmost stem. The data below indicate that Cree compounds are right-headed:

(14a) siipiy 'river' - N
(14b) misaaw 'it is big' - V
(14c) misi-siipiy 'big/great river' - $[V+N]_N$

(15a) oskatask 'carrot' - N
(15b) mihkwaaw 'it is red' - V
(15c) mihk-oskatask 'red carrot, beet' - $[V+N]_N$

(16) kohkoos- i -miitisow
pig Ci he eats
'He eats like a pig.' - $[N+V]_V$

(17) atimw- i -hkaasow (>atimwohkaasow)
dog Ci he pretends/acts like
'He acts like a dog.' - $[N+V]_V$

(18) awaas- i -hkaasow
child Ci he pretends
'He acts like a child.' - $[N+V]_V$

(19) iskwii- -pimipahtaaw
woman he runs
'He runs like a woman.' - $[N+V]_V$

These examples demonstrate that when elements of different categories are combined in Cree, it is the category feature of the rightmost member that percolates and determines the overall category of the word.

In addition to specifications of word structure, feature percolation and headedness, Lieber uses an Argument-linking Principle (ALP) to delimit the set of possible compounds. Basically, the ALP insures a) that the lexical items that have argument structures are able to satisfy or link their argument structures in any tree into which they are inserted, and b) that N stems in a compound are correctly interpreted as either internal or semantic arguments. Lieber (1983: 256) states the principle as in (20) below:

(20) Argument-linking Principle

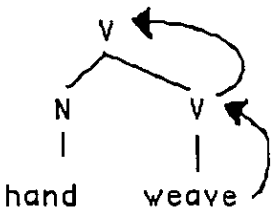
a. In the configuration $[\ ]_{\{V\}_P}\ [\ ]_\alpha$ or $[\ ]_\alpha\ [\ ]_{\{V\}_P}$, where α ranges over all categories, $\{V\}_P$ must be able to link all internal arguments.

b. If a stem $[\ ]_\alpha$ is free in a compound which also contains an argument-taking stem, α must be interpretable as a semantic argument of the argument-taking stem, i.e. as a Locative, Manner, Agentive, Instrumental, or Benefactive argument.

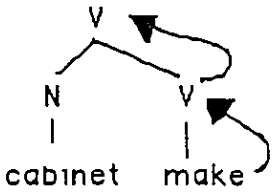
Several definitions and claims are assumed within the ALP. Lieber (1983: 255) provides the following three definitions: all obligatory (i.e. lexically specified) arguments with the exception of the subject are 'internal'; 'semantic arguments' are phrases which are not obligatory or lexically specified; and 'free stems' are stems that are left unlinked by an argument-taking lexical item. The distinction between internal and semantic arguments is different from the distinction that we motivated in section 3.2. In this case, the primary concern appears to be whether an argument is obligatory, not whether it receives its theta-role from the head. Another important assumption inherent in this principle is that nouns and adjectives generally are not argument-taking and that verbs and prepositions are argument-taking. Finally, ALP conspires with the FPCs so that, if a stem percolates its argument structure to the entire compound, then its argument structure is normally satisfied "outside" the compound. On the other hand, if the V or P is not the head and does not percolate its argument structure, or cannot percolate it to the entire compound, then it must satisfy or link its arguments within the compound.

The ALP will explain various properties of compounding, including the possible thematic relations within a compound and the restricted productivity of certain combinations of

lexical elements. The value of the ALP as a constraint is illustrated in the following English compounds:



(21) Terry hand-weaves tapestries.

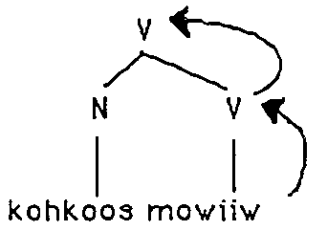


(22) *Terry cabinet-makes credenzas.

Both (21) and (22) can be generated by Lieber's basic morphological rules by inserting the morphemes into binary branching trees and then labeling nodes according to the FPCs. In (21), we see that the argument structure of *weave*, the right-hand stem, percolates to the compound as a whole and therefore the internal argument, a theme, is satisfied outside of the compound by the NP *tapestries*. The N *hand* is free and therefore must be interpreted as a semantic argument, in this case as an instrument. Alternatively, (22) has the same structure, but the free N stem *cabinet* is not easily interpreted as a semantic argument. The ungrammaticality of (22) would seem to result because *cabinet* can only be interpreted as an internal argument, the theme.[4]

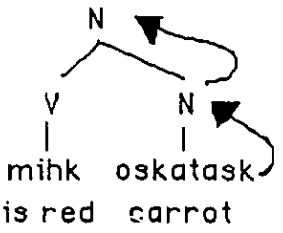
[4] By this same reasoning, in languages that have NI structures with the form [N+V], such as Mohawk and Southern Tiwa, the N stem should only be a semantic argument and not an internal argument. However, Mithun (1984: 868), Baker (1988b: 81-88) and others have noted that the N stem can be the theme in Mohawk and Southern Tiwa. If this is correct, then this suggests that NI is not compounding in these languages.

The ALP also accounts for the facts of Cree compounds. Consider the following [N+V] compound:



(23) kohkoos-i-mowiiw pro
pig he eats him (TA) null NP
'He eats him like a pig.'

In this compound, the argument structure of the verb *mowiiw* percolates to the node above it and then to the branching node dominating the compound. As a transitive verb, *mowiiw* has one internal argument (cf. *kohkoosimowiiw siisiipa*: 'He eats the duck like a pig.'). In example (23), the internal argument is assigned outside of the compound to an null NP, pro. Since the N stem *kohkoos* is left unlinked, it can only be interpreted as a semantic argument, in this case a Manner argument. Thus, the ALP explains why this sentence must mean 'He eats like a pig' and not 'He eats the pig.' In addition, the ALP can account for facts of Cree [V+N] compounds, such as (24) below:



(24) mihk-oskatask
'red carrot, beet'

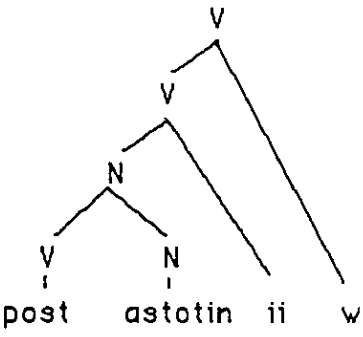
In this compound, the argument structure of the N stem *oskatask* percolates and therefore the internal arguments of the V stem *mihk* must be linked within the compound. As an unaccusative intransitive, *mihk* will have one internal argument, a theme. Since *oskatask* bears this relation in (24), the compound is grammatical. Thus, these examples indicate

that we can extend Lieber's theory to account for many facts of Cree compounding. Further effects of the ALP will be considered below.

In sum, we have outlined a theory of compounding that includes binary branching tree structures for complex words, FPCs, language specific headedness, and an Argument-linking Principle which constrains the output of the word formation rules. Crucial for our argument, the ALP operates on all branching nodes on a tree and any labeled node can be a word.[5] As a result, these rules should produce intermediate forms that can be grammatical words on their own.

4.3.2 Confirming the Status of the [V+N] Intermediate Form

Before comparing [V+N] compounds with IVs, we must verify that, within a lexical account, the [V+N] is an intermediate form in an IV. A complex word may be ambiguous and have several possible structures because the overgenerating nature of the system of compounding that we are using. Fortunately, the principles outlined by Lieber allow us to determine that, in a lexical account, the [V+N] is an intermediate derivation of a Cree IV. The structure is illustrated in (25) below.



(25) put on hat AI AGR

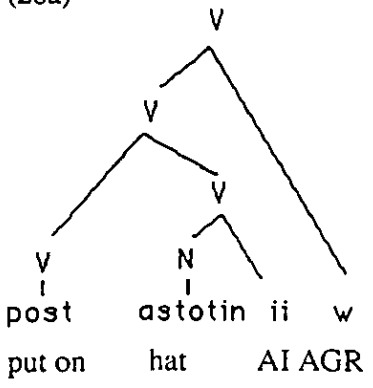
The structure in (25) follows from Lieber's ALP and the right-headed nature of Cree. The V *post* has one internal argument, a theme and, according to the ALP, *it is in a configuration* that requires that its argument structure to be linked. Since the argument structure of *post* cannot percolate because it is the left-hand stem, the internal argument

[5] This second point follows from the nature of FPCs I and II, and from Lieber's definition of 'stem' and 'affix'. These two terms are very similar to 'free morpheme' and 'bound morpheme', respectively. See Lieber (1983: 252-253).

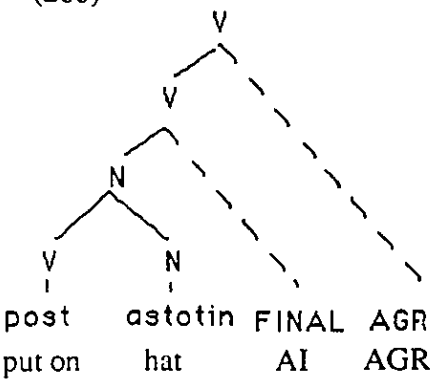
must be linked within the compound. This is easily satisfied by the N *astotin*. This also explains why the N bears the relation of 'theme' to the V in the grammatical compound.

The alternative to the analysis in (25) would be that the medial combines with the final and then as a unit the [medial+final] would combine with the verb stem. As noted in 2.2.1, it is not clear whether the final is added in the lexicon or interpreted at PF. As the structures below indicate, it would not be possible for the medial to combine with the final in either account.

(26a)



(26b)



In (26a), the N combines with the final and then this complex unit combines with the verb root. Assuming for now that the final and AGR morphemes are attached in the lexicon according to Lieber's framework, (26a) would be ruled out because *post* is the left member of the compound *post-astotinii* and its argument structure cannot percolate and, therefore, must be satisfied internally. However, there is no N to serve as the argument of this argument-taking morpheme: the sister of *post* is a V. As a result, the structure in (26a) should be ungrammatical. Given the assumption that the final is added by the same word formation rules that produce compounds, we see that [V+N] must be an intermediate unit.

With a modular account, illustrated in (26b), we would expect [V+N] to be an intermediate stage. We can suggest that the V and the N are joined in the lexicon, either because the V and the N are the only two morphemes that are available to be combined or, if the final is at least partially attached in the lexicon, because the final would have to be on the 'outside' of the other elements so it could be 'visible' or accessible to the facts

of the sentence that might change in the syntax. For either or both of these reasons, this modular analysis clearly suggests that the [V+N] is an intermediate derivation.

Overall, a compounding approach to IVs in Cree must have the [V+N] as an intermediate structure, either because of the ALP or because the final should be on the "outside" according to a modular approach.

4.3.3 The Evidence - The Absence of [V+N] Compounds in Cree

If IVs are produced by the word formation rules that produce compounding, intermediate [V+N] constituents of a IVs should be possible compound words. We have justified three important assumptions of this hypothesis: 1) morphology is word-based: all stages of a derivation are subject to the same rules therefore the intermediate forms should be possible words; 2) there is a rightward direction of compounding in Cree; and 3) IVs should have [V+N] as an intermediate structure. When we examine the Cree data, the hypothesis that IVs are compounds is not verified. Not only are most [V+N] compounds unattested, they are ungrammatical. These facts are illustrated below:

(27a) noocih -iskwiiw -ii -w
chase women AI AGR
'He chases women.'

(27b) *noocih- -iskwiiw (-a)
chase woman
'a chased woman'

(28a) niimi -sooniyaaw -ii -w
carry money AI AGR
'He carries money.'

(28b) *niimi- -sooniyaaw (-a)
carry money
'carried money.'

(29a) noocih -acaskw -ii -w
hunt muskrat AI AGR
'He hunts muskrat.'

(29b) *noocih- -acask (-wa)
hunt muskrat
'a hunted muskrat.'

(30a) post -astotin -ii -w
put on hat AI AGR
'He puts on hats.'

(30b) *post- -astotin
put on hat
'hats that are put on'

(31a) wana -sooniyaaw -ii -w
lose money AI AGR
'He loses money.'

(31b) *wana- -sooniyaaw (-a)
lose money
'lost money'

(32a) wana -iskwiiw -ii -w
lose woman AI AGR
'He loses his woman.'

(32b) *wana- -iskwiiw (-a)
lose woman
'lost woman'

(33a) pahpaw -astimwa -ii -w
brush/dust horse AI AGR
'He dusts his horse.'

(33b) *pahpaw- -astim (-wa)
brush/dust horse
'a dusted horse'

These examples clearly illustrate that intermediate [V+N] forms are ungrammatical. The nouns are ungrammatical as either proximate (no suffix) or obviative (animate: *-a*,

inanimate: no suffix). If these assumptions about the nature of compounding are correct, then these results imply that NI is the result of syntactic rather than morphological rules.[6]

4.3.4 Possible Explanations for the Absence of [V+N] Forms

It is not clear why these [V+N] compounds are not permitted in Cree. However, before concluding that IVs are not the result of compounding, we should consider some reasons internal to compounding theory which could account for their absence. In examining the limited productivity of English compounds, Lieber (1983: 261-2) suggests five reasons why [V+N] compounding is not and should not be completely productive. We will examine the value of these reasons for explaining the Cree facts. The first restriction follows from right-hand headedness and the ALP. The features of the right-hand element, the N, percolate to the compound as a whole. As a result, the other element, the argument-taking V, must satisfy its internal arguments within the compound. Thus, the Ns in [V+N] compounds cannot be semantic arguments. However, this is not the problem with the Cree compounds in (27) to (33) above: those Ns would be an internal argument of the V, a theme.[7] Lieber notes three other restrictions on [V+N] compounds

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[6] While it is true that most of the anticipated [V+N] compounds are unacceptable, there are a few exceptions. The following examples illustrate these exceptions:

wan -astimw -ii -w	wan- -astimwa
lose horse AI AGR	lose horse
'He loses the horse.'	'lost horse'
kanaw -astimwa -ii -w	kanaw- -astimwa
watch horse AI AGR	watch horse
'He watches the horse.'	'watched horse'
miskaw -astimw -ii -w	miskaw- -astimwa
find horse AI AGR	find horse
'He finds himself a horse.'	'a found horse'

These acceptable examples indicate that [V+N] compounds are not prohibited entirely in Cree. Apparently, *astimw-*, 'horse', is the only possible nominal that can appear with a V root as a compound noun, although even it is not entirely productive as we can see in (33b) above. It is not clear why these forms are allowed when the majority are not. However, one reasonable possibility is that the acceptable forms are back formations.

[7] Interestingly Rosen (1989) makes a division between two types of incorporating structures which can be explained by this same aspect of headedness and the ALP. In her examples, Classificatory NI is always [N+V] and Compound NI is always [V+N]. This is predicted by Lieber's theory since Vs in [N+V] satisfy their arguments outside of the compound and the necessary presence of this external argument results in doubling, stranding and transitivity. The IN must be a semantic argument and therefore behaves more like a 'classifier' than an obligatory argument of the verb. Alternatively, the [V+N] compounds should be intransitive and not have external NPs because their arguments are satisfied internal to the compound. This assumes that all of the languages in Rosen's sample are right-headed. In addition, this

that result from variations in the argument structure of the V: a) a V that has two internal arguments (e.g. English *put*) could not have both arguments satisfied within the compound and should be ungrammatical; b) a V that requires a clause (S/IP) as its internal argument (e.g. English *seems*) could not be satisfied in a [V+N] compound; and c) a V that has no internal arguments (e.g. English *die*) would leave the N constituent unlinked and therefore may not have an internal argument interpretation. These three considerations are not relevant to the unacceptable examples in (27) to (33) because the Vs involved are all transitive and require a nominal as the internal argument. Finally, Lieber suggests that, in English, some Vs allow [V+N] compounds and other Vs prefer compounds with a present participle. This kind of restriction appears to be language specific. Although it may be that the exceptions in Footnote 6 are backformations, they involve some of the same verbs as in the ungrammatical [V+N] compounds. As a result, the verbs illustrated do not appear to be part of a class that resists this specific type of compound.[8]

If IVs are compounds, we have seen that Lieber's theory of compounding cannot account for the absence of the [V+N] compounds. However, if we assume that IVs are not compounds, then we do not require that the [V+N] compounds be grammatical. The syntactic approach suggests that the [V+N] in the IVs is not a N (as required by FPC IV), but a V because it results from head movement and adjunction. This still does not provide an explanation of the ungrammaticality of the [V+N] compounds, but their absence does not contradict the assumptions of the syntactic approach.

In this chapter, we have adopted a theory of compounding which accounts for properties of the Cree compounds in examples (14) to (19). We also discussed the following three structures as possibilities for Cree IVs:

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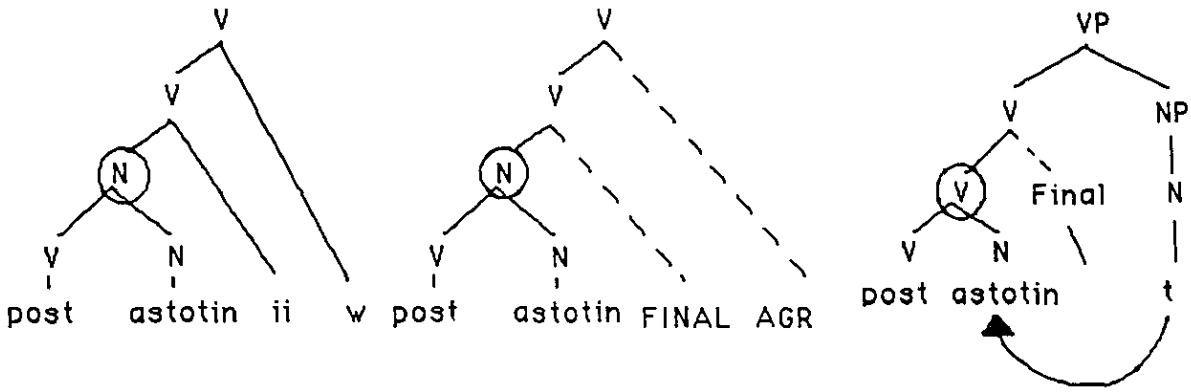
prediction only holds if NI is the result of compounding in these languages. Some languages do not appear to have these diagnostics cluster in the manner that Rosen suggests. It may be these that are the clearest cases of syntactic NI, and these languages may have either the [V+N] order (Cree) or the [N+V] order (Southern Tiwa, West Greenlandic). Even with assumptions and the limited sample, the ALP nonetheless accounts for an interesting asymmetry.

[8] There are two other possible explanations internal to compounding theory which are due to restrictions on the output: a) these forms could be 'blocked' by the prior existence of synonymous forms; and b) the [V+N] form may be prohibited by a surface filter, although the presence of the compounds in Footnote 6 suggests that this is unlikely.



(34a) compounding/unified (34b) compounding/modular (34c) syntactic/modular

(34a) and (34b) illustrate a compounding approach in which the [V+N] is a N as a result of FPC IV. Both of these analyses, (34a) with a unified theory of word formation and (34b) with a modular theory, require that the [V+N] should be a grammatical word. This requirement is not validated by the language facts. Alternatively, we can adopt the syntactic solution in (34c). This analysis does not require that the intermediate [V+N] form should be grammatical compound noun. Instead, this unit is actually dominated by a V. Overall, the empirical contradiction of the assumptions of the compounding approach, combined with the referential and anaphoric asymmetries between compounds and NI, supports the hypothesis that Cree NI is a syntactic phenomenon.

Chapter 5 Conclusions, Problems and Implications

5.1 Transitivity and the Nature of the 'Finals'

5.1.1 The Status of Transitivity Markers in Cree

The transitivity of a verb with an IN has been widely discussed in the literature (for example, see Miner 1982, Baker 1988b, Rosen 1989). According to a compounding approach to NI, an IV could be intransitive since the theme of a transitive verb can be satisfied by the nominal member of the compound (e.g Rosen: 1989).[1] Alternatively, complex verbs that result from syntactic incorporation are transitive because they have an NP object position, although it is phonetically empty. Thus, if a language has morphology that indicates if a verb is transitive, this could provide a method for determining the nature of NI. If the language shows transitive agreement both when the direct object is incorporated and when it is not (e.g. Southern Tiwa and Mohawk, Baker 1988b: 125), then either the lexical or syntactic account is possible. However, if the language has intransitive markers for IVs and transitive markers when the N is not incorporated, then this would indicate that lexical and not syntactic NI was involved.

The problem with this diagnostic is that it is not clear when a language is actually marking transitivity. Some polysynthetic languages have morphemes which appear to mark transitivity, but may actually reflect other grammatical contrasts. For example, verbs with INs in Greenlandic Eskimo have intransitive agreement suffixes (Baker 1988b: 124 - 129, Rosen 1989: 23). However, Baker argues that the IN requires Case from the verb, and it is this absorption of Case that causes the verb to take intransitive agreement morphology. This analysis is confirmed by the absence of subject incorporation in unaccusative verbs and by the marking on stranded possessors.

Cree appears to pattern like Greenlandic: all verbs with an IN have a suffix, the final, that appears to be an intransitive marker. The positional category 'final' is a suffix which

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[1] If the ALP discussed in Chapter 4 is correct, then this prediction is not clear. In a [N+V] compound, the features of the verb percolate and the argument is satisfied outside of the compound. The complex verb remains transitive. Alternatively, in a [V+N] compound, the features of the V do not percolate at all. Thus, we expect all of the verbal features to come from the final, e.g. the *-ii* AI final of possession: X-*ii*-*w* 'He has a X' (cf. Wolfart 1973: 71-2). Since there is no reason for such a complex verb to bear any of the features of the verb root, it is not clear why lexical NI should yield a detransitivized verb.

appears after the verb root or [verb root + medial], and before the inflectional affixes. Recall from Chapter 2 that Cree is traditionally said to have four types of finals: TA, TI, AI, and II. Thus, Cree appears to have a morphological marking that indicates whether a V is transitive or intransitive. However, Cree finals indicate more than transitivity; they also encode animacy of the subject or object, may have lexical content and may be lexically selected by verbs. In all of the examples thus far in this thesis, we have followed the analysis of Denny (1981) and suggested that the '*-ii*' that follows the incorporated medial is an AI final. Wolfart (1971) also suggests that most verbs with an incorporated medial are intransitive, although further transitive derivatives may be formed.[2] Two examples of the AI final in IVs are illustrated below:

(1a) kiic -i -koonam -w maskisina
remove Ci TI AGR shoes-(I)
'He takes shoes off.'

(1b) kiit -askisin -ii -w
remove shoes AI AGR
'He (3) takes his (3') shoes off.'

(2a) saki -nam -w ostikwaan
hold TI AGR head-(I)
'He holds his own head.'

(2b) saki -stikwaan -ii -n -iso -w
seize head AI TA AI-REFL AGR
'He seizes his own head by hand.'

Examples (1b) and (2b) have the AI final, while the unincorporated forms in (1a) and (2a) have a TI final.

To explain the apparent intransitivity when the syntactic analysis predicts a transitive form, we might suggest that the finals are like Greenlandic and reflect the fact that INs require Case. However, Cree does not appear to have stranded possessors and we have

2 Wolfart (1971: 516-7) suggests that all IVs with the action-goal relation are intransitive, but that verbs with the actor-local complement relation are typically transitive. However, his transitive examples could be analyzed as having the AI abstract final, *-ee*. For example, in *niim-iskot-ee-n-eew* (my divisions), he suggests that the medial is *-iskotee* and not *-iskot(e)* + the final *-ee*.

already seen above (Section 3.2.3, and also see Section 5.2) that unaccusative verbs do incorporate their 'subjects'. Thus, we do not thave evidence to support such an analysis for Cree.

A better answer to the transitivity question may be found in the work of Piggott (1979, 1989) which challenges the traditional four-way distinction of Algonquian finals. Observing a variety of facts about the closely-related Algonquian language Ojibwa, Piggott (1989: 8) suggests that the "morphologically marked classification of verbs is not between transitives and intransitives but between verbs that must take animate objects (TA's) and those that do not have this restriction." If something like this is also true for Cree, then an IV is not intransitive, but rather, it patterns with those verbs which do not require an animate object. Piggott (1979, 1989) argues that the agreement markers for all of the TI, AI, and II verbs are the same, and that syntactic transitivity is not reflected in these inflections. We can make the same claim for Cree. For example, the independent, indicative neutral, third person subject marking would be *-w* for AI, II and TI verb stems.[3] The TA stem takes a different marker, i.e. *-eew* (or *-iiw* in the dialect reported here). In addition, these markers do not appear to reflect syntactic transitivity. Prior to discussing the pseudo-transitives (AI finals that take a syntactic object) and the possibility of pseudo-intransitives (TI stems without an object), Wolfart (1973: 39) notes that "the syntactic and semantic properties implied by the label "transitivity" are not always shared by the entire class. The morphological basis of the present classification needs to be emphasized." Denny (1985: 243, 252-53, 257) also supports the extension of Piggott's analysis of Ojibwa to Cree. Overall, if these Cree morphemes do not reflect transitivity, then this alternation and the presence of AI finals does not shed light onto the effect of NI on transitivity.

5.1.2 The Status of Finals Within the Grammar

The status of Cree finals is unclear because they sometimes appear to have lexical content and be lexically selected by verbs (Miner, personal communication, and Piggott 1989)

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[3] This is the traditional analysis of these forms, except for the TI form which Ellis (1971: 93) has as *-amw* and Wolfart (1973: 43) has as *-am*. However, Wolfart (1973: 58, 75) also discusses *-am* as a theme marker for TI verbs. Following Piggott's analysis of Ojibwa, we would suggest that *-am* is a final, not an agreement marker, and the *-w* marker is deleted word finally by a regular phonological rule (e.g *mistatimw-* -> *mistatim* 'big dog, horse'; vs *mistatimw+ak* -> *mistatimwak* 'horses').

and yet finals also seem to be sensitive to syntax because they may change to AI as a result of NI. Finals appear to be both lexical and sensitive to the syntax at the same time. A solution to this problem may come by dividing finals into two classes: those that are lexically selected and those that are not. Thus, lexically selected finals are attached in the lexicon by word formation rules and the other finals could be grouped with the inflectional affixes and 'spelled out' after the syntax. In addition, we would claim that the medial is not adjoined between a verb root and its lexically selected final. Instead, a lexically selected final always remains attached to the root, then the medial is attached to the root+final, and subsequently another final is added to the 'outside' of the medial. We will suggest that the inner or lexical final is often absent because of a truncation rule.

The two essential claims of this analysis, that an abstract final is added after a medial is incorporated, and that the inner final is truncated, are extensions of analyses proposed by Piggott (1979, 1989). First, Piggott suggests that abstract AI (=TI) finals are added to the verb stem after either of two morphemes (*-d* and -Ø) have been added to Ojibwa TA stems. We see a similar process in Cree where an AI final always appears after an incorporated medial.[4] In both cases, the final has the same features as the entire verb. A significant difference is that Piggott's process presumably occurs in the lexicon where the final is the head that percolates the proper categorial features to the verb. In this analysis, the final following an IN would be the PF interpretation (spell-out) of the features of the verb. Suggesting that the AI finals in the incorporating verbs are not lexical allows us to account for the features of the final that are sensitive to NI.

To explain why the inner, lexically selected final is not present in the surface form, we adopt the analysis of Piggott (1979). He suggests that certain TA finals are truncated before the morphemes *-d* and *-Ø* in Ojibwa. We therefore suggest that some Cree TA finals are truncated before an incorporated medial. Forms such as *nooc-i-h-acaskw-ii-w*, 'He hunts the muskrat', with the TA final *-h* before the medial, suggest that not all finals are truncated. The Ojibwa finals, -d and -Ø, are very similar to incorporated medials because both may lead to truncation of a preceding medial and, since neither satisfies the Algonquian requirement that all verb stems must have a final, a final is added to each.

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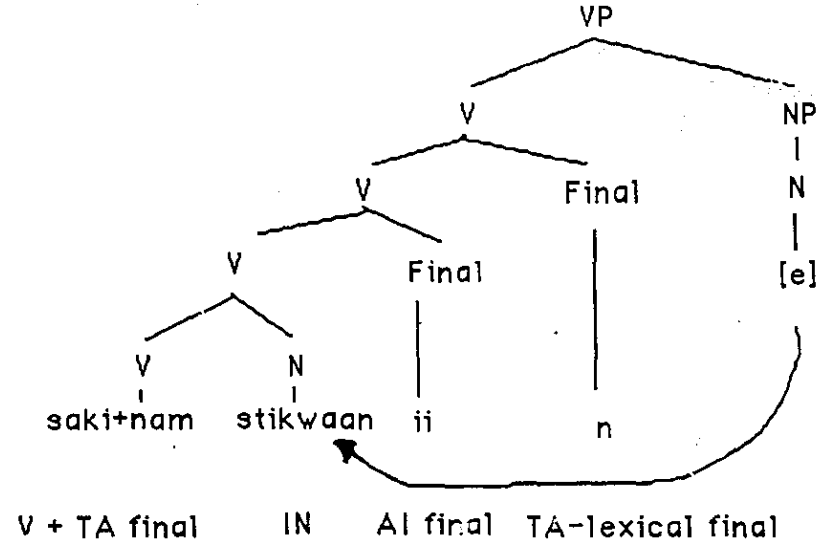
[4] There is even overlap between the AI medials that are added in Cree and Ojibwa: *-am* is often added after *-d* and -Ø to produce Ojibwa TI (=AI) stems, and the *-ii* (<*-ee*) that we often see in Cree IVs could be the same morpheme; Denny (1985: 252) suggests that the morpheme *-am* has the allomorph *-ee* in the indicative.

This analysis allows us to posit an explanation for where finals are assigned in the grammar. We might assume that a verb root and its lexically selected final are a unit, a stem, which is inserted under a X^0 node. If a medial is incorporated, it is added to that unit in the syntax. Ultimately, the AI final is added at PF to spell out the features of the unit: [+V] and perhaps [-obligatory animate object]. As a result, we find an AI final, often '*-ii*' on incorporating verbs.[5] Secondary derivation may add further forms, and often adds the concrete/lexical TA final '*-n*' "by hand." We would expect that lexically selected finals should not occur after a medial. Given this, the structure of a complex verb is illustrated below:



saki -stikwaan -ii -n -iiw
seize head AI TA AGR
'He seizes his (4) head by hand.'

Diagram 17 - The Position of Finals in a Complex Verb

In this example, the final *-nam* may be lexically selected by the verb *saki*. NI then adjoins *-stikwaan* to the verb+final. After this, the AI final *-ii* is spelled out at PF. In

5 The final '*-ii*' could be either the 'general process' AI final '*-ii*' or the 'agent as subject' AI final '*-ee*' described by Denny (1985) for IV's. Recall that [e -> i] in the dialect of Cree presented here.

addition, the lexical element '*-n*', present since D-structure, appears outside this unit.[6] After *-nam* is truncated, the correct surface form results.

To summarize this section, we have suggested that finals do not reflect transitivity and therefore do not provide a morphological indication of the effect of NI on the transitivity of the verb stem. In addition, the sensitivity of the finals to a syntactic process, i.e. NI, suggests that the some final morphemes cannot be spelled out until at least S-structure, thus reaffirming the validity of the modular approach to word formation.

5.2 The Nature of the 'Stem-bound' Medials

We noted above in section 2.1 that medials can be divided into two classes: 'Stem-free' - those which can also be found as the root of an external inflected noun phrase, either as dependent or independent stems; and 'Stem-bound' - those which are not paralleled by external noun stems. We have seen examples of the syntactic paraphrase of stem-free medials in Section 3.1 above. In the examples below, the stem-bound medial has no external counterpart:

(3) saki -nisk -ii -n -iiw
hold arm/hand AI TA AGR
'He holds him by the hand.'

(4) pakam -aaskw -ii -w
hit wood AI AGR
'He hits wood'

The medials in these examples,*-nisk* and *-aaskw*, never occur as noun stems. Instead, the external nouns would be *micicii* 'a hand' or *mihti* 'wood'.

Since only some INs can occur independent of a verb stem, some researchers have suggested that only those that have syntactic paraphrases are incorporating. For Sapir (1911: 251), this was the crucial criteria for NI "verbal affixes that refer to nouns. . . are

[6] It is not clear how this morpheme is attached and how it remains independent of the other processes.

not instances of noun incorporation if they are etymologically unrelated to the independent nouns or noun stems with which they seem logically connected."[7] This approach has since been adopted by Wolfart (1971), Miner (1982), among others. If we maintain that this criteria is of paramount importance, then we will classify the stem-bound medials as not incorporated; presumably, they would result from lexical processes. Hopkins (1988) suggests a similar bipartite division for Mohawk.

Alternatively, we could consider other criteria and suggest that all medials in Cree are the result of syntactic processes. As noted in section 1.2 above, Denny (1981) takes this approach. In such an analysis, the stem-bound medials would be bound morphemes in the sense that they had to attach to a stem; a stem-bound medial could not be a root. Such an analysis has some support because, stem-bound medials such as *-aaspiskw*, stone or metal, and *-iikinw*, cloth, can appear in compounds (cf. Wolfart 1973: 67):

(5) ospwaakan-aapiskw-
pipe stone
'pipestone, the hard stem of pipe'

(6) moos-iikinw-
moose cloth
'moose hide'

In this section, we will briefly demonstrate that, other than variable position, the stem-bound medials possess the same characteristics as the stem-free medials.

First, the thematic role of the stem-bound medials shows the same limitations as the stem-free medials. In addition, we see examples of incorporated instruments with the stem-bound medials. Consider the following examples:

(7) pakam -aaskw -ii -w
hit wood AI AGR
'He hits wood'

[7] Sapir also assumed that NI was a morphological, not a syntactic process.

(8) saapo -p -ii -w
to be all the way through water AI AGR
'He is soaked with water, He becomes watersoaked.'

(9) pakam -aapisk -ahw -iso -w
hit metal TAwith tool AI-REFL AGR
'he brands himself with a metal tool.'

(10) kip -aapisk -aham -w
close metal TI AGR
'He seals it with metal.'

(11) miihkw -aapw -iyaa -w
is red water II AGR
The water is red.'

Example (7) shows that the stem-bound medial can be the theme of the action. Examples (8) - (10) show that the thematic role may be an instrument.[8] (11) is an example of an unaccusative intransitive verb whose subject is a theme. I have found no examples of agents, temporals, benefactives or outer locatives. Overall, we expect themes and instruments to incorporate and thus we see the same pattern that we saw for the Cree stem-free medials.

The second criteria that we examined was the possibility of bare modifiers that agree with the animacy of the IN. The examples below illustrate that bare modifiers are possible with stem-bound medials:

(12a) saki -nisk -ii -nam -w oohi niiso
hold arm-(I) AI TI AGR these-(I or A) two
'He holds these two arms (of a mannequin).'

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[8] As noted above, (Section 3.2.2.1, fn) some Algonquianists have interpreted the body-parts, including stem-bound medials, as locatives (for discussion see Wolfart (1971: 517)). For example, in *saki -nisk -ii -n -iiw* , 'He (3) holds his (4) hand.', this has been interpreted as 'He holds him at the hand.' An interpretation as either a theme as as a locative is compatible with the syntactic analysis. My consultant prefers the theme reading rather than the locative interpretation.

(12b) *saki -nisk -ii -nam -w ooki niiso
hold arm-(I) AI TI AGR these-(A) two
'He holds these two arms (of a mannequin).'

(13a) pakam -askw -ii -w ooma piiyak
hit wood-(I) AI AGR this-(I) one
'He hits this one wooden thing.'
*'This one animate thing hits a wooden thing.'

(13b) pakam -askw -ii -w awa piiyak
hit wood-(I) AI AGR this-(A) one
*'He hits this one wooden thing.'
OK as 'This one, he hits a wooden thing.'

These examples show that there is a grammatical dependency between the IN and the bare modifier.[9]

With a stem-bound medial, we see yet another example of a dependency between the IN and a bare modifier:

(14) mihkw -aapw -iyaa -w siipiy
is red water II AGR river
'The water or liquid in the river is red.'

In example (14), the external NP modifies the incorporated medial by describing its location. In addition, this type of bare modifier does not appear to be possible without NI:

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[9] In addition, it may be possible that possessors may be stranded, although the interpretation is not clearly a possessor:

saki -nisk -ii -n -iiw Johna
hold arm/hand AI TA AGR John
'He holds John's hand.'

If this is actually a possessor, then this a pivotal example. However, the interpretation is ambiguous with "He holds John by the hand.' In addition, the TA final seems to agree with the animate object John rather than the inanimate object, *nisk*, hand. If the interpretation was clear, then this could be an instance of possessor raising.

(15) mihkw -aa -w siipiy
is red II AGR river
'The river is red.'
*The 'stuff', something, in the river is red.'[10]

In example (15), this sentence has a different meaning than the sentence with an IN in (14) above. While logically 'the water is red' because 'the river is red', and vice versa, in (14) we suggest that the 'water or liquid' is the theme that is modified by the location, 'the river', whereas in (15) 'the river' is the theme and cannot be modifying 'something' in the river. Apparently, without NI, the bare locative NP cannot be a 'null-head modifier'. However, this type of construction does not appear to be general or regular, nor do there appear to be productive locative NP modifiers ('it is red [river water]'). For now, these facts remain suggestive rather than conclusive.

In terms of doubling or additional external NPs, the stem-bound medials appear to pattern with the stem-free medials and prohibit the extra NP. This is illustrated below:

(16) *pakam -aaskw -ii -w mistik
hit wood AI AGR stick
'He wood-hits the stick.'[11]

We also compared NI to three characteristics of compounds. The first characteristic was the possibility of specific reference. This is illustrated for stem-bound medials below:

(17) paw -aapisk -ahow -iiw
brush metal TA by tool AGR
'He brushes the metal object (e.g. the stove) (with a feather).'

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[10] This issue is somewhat confused by the following possibility: *mihkwaaw siip-ihk* 'Something in the river is red.' Thus, when the locative suffix *-ihk* is added, 'the river' can no longer be the theme and 'something else' must be the theme. Thus, the external locative can be a modifier without NI, although this locative appears to be a PP rather than an NP. An NP with the locative suffix is possible with an IN as well, although the meaning is changed somewhat: *mihkw-aapw-iyaaw siip-ihk* 'Some of the water (a stream or pool) in the river is red.' The status of these locative modifiers is not clear.

[11] There are also exceptions to this prohibition, although they may be lexicalized or adjuncts:
pakam -aapisk -ahw -iso -w ahcanisa
hit metal with tool AIreflex AGR ring
'He brands himself with a metal ring.'

In this example, the medial can refer to a specific piece of metal or a specific stove, thus suggesting that these forms are not like compounds.

The second characteristic that we examined in relation to compounds was anaphoric islandhood. The examples below illustrate that, unlike compounds, verbs with stem-bound medials are not anaphoric islands:

(18) paw -aapisk -ahow -iiw Misikitiyit.
brush metal TA by tool AGR He is big.
'He brushes metal (e.g. a stove). He, the stove, is big,'

Finally, we suggested that if medials were lexical, they should have grammatical intermediate forms. The examples below illustrate that stem-bound medials do not have grammatical intermediate forms and therefore are not the result of compounding:

(19a) saki -nisk -ii -n -iiw
hold arm/hand AI TA AGR
'He holds him by the arm/hand.'
(19b) *saki -nisk
a held arm

(20a) pakam -aaskw -ii -w
hit wood AI AGR
'He hits wood'
(20b) *pakam -aaskw-
wood that has been hit

(21a) niim -aaskw -ii -w
carry wood AI AGR
'He carries wood/a weapon.'
(21a) *niim -aaskw
a carried weapon/piece of wood

(22a) paw -aapisk -ahow -iiw
brush metal TA by tool AGR
'He brushes the metal object (e.g. the stove) (with a feather).'

(22a) *paw -aapisk
brushed metal

Overall, these facts indicate that variability of position is the only characteristic that distinguishes stem-bound medials from stem-free medials. These six criteria suggest that stem-free medials and the stem-bound medials are the result of syntactic incorporation.

5.3 Configurationality

This thesis has been concerned with structure. Human linguistic utterances have a nontrivial structure that conveys meaning in a systematic fashion. In Cree, a polysynthetic language, the structure is most obvious in the highly complex words which then seem to be assembled into a sentence in an unconstrained fashion[12]. This thesis has characterized certain aspects of Cree word structure by employing grammatical principles which were developed to explain the facts of syntax in relatively isolating languages such as English.

This thesis makes an important assumption about the nature of linguistic structures which is somewhat controversial. This analysis assumes that all languages, including free word order languages such as Cree, have an underlying configurational structure. As noted above, GB theory maintains that a sentence has a complex hierarchical structure, consisting of both dominance and precedence relations. This theory of constituent structure is well motivated for languages with reasonably fixed word order. For Cree, however, it is not clear whether this same type of configurational analysis is correct, since the order of the major constituents is relatively free. While not fully justified at this point, this thesis assumes that Cree has an underlying configurational structure[13]. While the purpose here is not to justify the configurationality assumption, I will outline three reasons that pertain to this thesis. First, configurationality for all languages is desirable

[12] Of course discourse considerations, such as focus, affect sentence structure.

[13] For further discussion on the question of configurationality, see Speas (1986).

because it permits a more universal theory: the powerful machinery developed for "syntax" would otherwise be unnecessary for many languages of the world. In addition, crucial principles such as the Projection Principle or X-bar theory would require dramatic modification. Second, learnability considerations indicate that a parameterization of configurational structure would lead to considerable problem for acquisition (Williams 1984, Mellow 1989b). Finally, a configurational approach appears to be needed to account for the facts of NI in Cree and other languages. The elegance and simplicity of the incorporation account, with its assumed configurational approach, can be considered to be an argument in favour of a configurational analysis of free word order languages.

5.4 Conclusion, Implications and Beyond

In this thesis, we have detailed a syntactic analysis of NI in Cree. Using the Government-Binding framework (Chomsky 1981) and the theory of Incorporation (Baker 1988b), we examined a variety of facts of Cree, most of which have been examined in relation to NI structures crosslinguistically. We found that several facts argued strongly for the syntactic analysis, i.e. the possible internal relations of the verb and the differences between NI and compounds. We examined other facts, variable position, doubling and bare modifiers, which were easily compatible with the syntactic analysis, but did not allow us to chose between the syntactic analysis and the lexicalist analysis. In sum, the facts of Cree validate a syntactic 'Incorporation' analysis of the Cree medial morphemes.

This thesis has also made several suggestions about the nature of the principles by which language is organized. The efficacy of the approach validates a number of principles of GB theory, including Head-movement and the ECP. In addition, we found the need for different levels of representation: to allow for movement from a base generated structure, and to allow the inflectional system and the finals to be sensitive to these changes. We have also suggested that a number of facts of Cree and other languages can be explained if there are universal principles of theta-role assignment. Finally, we have indicated that word formation is not a uniform process, but rather, that different components of the grammar may manipulate stems and affixes, and the output of the different systems can be distinguished by certain characteristics.

In adopting a generative framework, the goal of this thesis has been to not only adequately describe the facts of Cree morphosyntax, but to also provide a rule system that explains those facts. It has also been the goal of this thesis to contribute to the facts which can be used to determine the universal nature of the linguistic rules. Eventually, a grammar of rules might be expressed in such a way that it characterizes how speakers actually produce and understand these forms. While obviously ambitious, such an achievement could explain how our species acquires such a highly sophisticated rule system, with seemingly effortless ease and in the face of apparently limited and often impoverished data: the general principles which apply to all languages may reflect the processing of the human brain. We might be able to determine the cognitive mechanisms that allow us to perform so well with such obviously inadequate training. We might determine how our species has singularly managed to bridge the chasm between knowiedge and experience.

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