

Grammaticalization of Cheyenne Directionals

by

Wayne Leman

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Professor: Scott DeLancey
University of Oregon
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0.0. Introduction. Grammaticalization is the historical process in which lexical elements become grammatical elements. This definition is, of course, overly simplified and begs the question as to what is meant by "lexical" elements and "grammatical" elements. It is not the purpose of this paper to precisely define grammaticalization and the concepts associated with it. Rather, we will give a brief outline of typical elements of the grammaticalization, and then we will illustrate some of those elements by describing grammaticalization which "directionals" in the Cheyenne language have undergone.

0.1. Grammaticalization process. Grammaticalization in any one language may involve all or a subset of the following processes:

Lexicalization
Pragmaticization
Concatenation
Syntacticization/Syntactic reanalysis
 Serialization
 Auxiliarization
Morphologization
 Cliticization
 Affixation

This listing represents, from top to bottom, the historical process of grammaticalization which a language may undergo. A language need not "go all the way" down this cline to extensive morphologization for grammaticalization to have occurred, but it is necessary that some "more lexical" element become "less lexical" and "more grammatical" for us to consider that grammaticalization has occurred. The cline just given is also a cline of abstraction, a concomitant parameter in the distinction between lexical and grammatical elements. Hence, as a particular linguistic element historically undergoes processes from top to bottom in the outline given, it becomes more abstract, or in contemporary jargon, semantically "bleached".

Languages may be typologically categorized as to where on a grammaticalization-type outline their overall structure fits. Hence, we have the traditional categories of analytic, synthetic, and polysynthetic languages. It appears to be an assumption of those who study grammaticalization that a polysynthetic stage is an advanced stage of an earlier synthetic stage which itself historically derived from an earlier analytic stage of a language. The cline given above in some sense is isomorphic with the analytic to polysynthetic typology.

We have presented the grammaticalization outline in the form of a linear cline, or vector. In actual fact, it may be better to diagram grammaticalization as a cycle, or as several possible cycles (not all of which may reach to the same degree of grammaticalization on the cline). DeLancey (1985) has illustrated analysis-synthesis-lexis cycles for the Tibeto-Burman language family, and we could find similar cycles elsewhere in the world. Such cycles are to be expected, since as a linguistic element is grammaticalized something of a semantic hole (lacuna) is created in a language. There is pressure to fill the hole with some other lexeme which itself may become grammaticalized, and the cycle may go on from there.

The terms used in our grammaticalization outline are fairly standard in the linguistic literature and will receive little more explicit definition here. We should, however, note that by "pragmaticization" (perhaps a new term) we mean that which Givón (1979) has referred to as a "pragmatic mode", a stage in the evolution of language "in which lexical morphemes co-occur with no formalized grammar, but with only certain psychological impulses involved in the construction of information" (cited in Rude 1986).

It is probable that children pass through the stages of lexicalization and pragmaticization as they begin to learn a language. First, they connect words with objects and actions to which they refer (lexicalization), then there is a stage of loose pragmatic organization in utterances of one to perhaps three words (pragmatic mode). This period quickly shifts to a more efficient linguistic

stage, that of syntacticization. Presumably, the history of languages recapitulates this sequence, at least to some extent, linguistically carrying out the biological dictum "ontogeny recapitulates phylogeny". I say "presumably" because it is usually very difficult to trace an entire grammaticalization history of a language. Instead, we are often left with little bits and pieces, small hints of what probably occurred. These, along with our understanding of typical processes of grammaticalization which occur universally, help us develop reasonable hypotheses as to how grammaticalization took place in a particular language.

Grammaticalization, as a universal process, has been described by a number of scholars. Some concise treatments have been given by Givón (1971, 1979, 1984), Dooley (1983), Rude (1986), and others.

0.2 Grammaticalization pressures. A number of pressures motivate or affect the grammaticalization process. Among them are:

Economy

Phonological erosion

Destressing

Tonal loss

Apocope

Syncope

Cliticization

etc.

Iconicity

Synonymy and homonymy

Paradigmatic regularization

Folk reanalysis

Sound symbolism

Semantic pressure (e.g. fill semantic lacunae)

Haiman (1983, 1985) has cogently described and illustrated various pressures that affect the grammaticalization process.

0.3. Grammaticalization scope. Grammaticalization affects most areas of language. Its effect can be seen in prosodic phenomena, such as in grammaticalization of stress, pitch, and intonation. English has clearly grammaticalized intonation to communicate various categories of modality such as questioning, commanding, and giving information.

Cheyenne, a member of the Algonquian language family, has lexical pitch, that is, each vowel is phonemically high or low pitched. Phonemic high pitch is the Cheyenne reflex of Proto-Algonquian (PA) vowel length, as shown by Frantz (1972) and Leman (1981). But Cheyenne has also grammaticalized pitch in some areas of its morphosyntax. An example of grammaticalized pitch in Cheyenne is:

- 1) tsé-h-mané-to 'when I drank (it)'
CJT-PST-drink:1sg-1sg:CJT

- 2) tsé-h-mane-to 'when you (sg.) drank (it)'
CJT-PST-drink:2sg-2sg:CJT

The penultimate pitch alternation indicating first person singular vs. second person singular in 1) and 2) is historically supported. Historically, the PA etyma for the ultimate syllables given in the Cheyenne forms had a vowel length alternation.

But other Cheyenne pitch alternations cannot be accounted for strictly on the basis of the simple correspondence of phonemic high pitch to proto-vowel length. A subset of Cheyenne nouns differentiate singulars from plurals by a pitch shift which does not reflect a PA vowel length alternation, e.g.

- 3) hórame 'dog' (PA *a@emwa)
hotāme 'dogs' (PA *a@emo:ki < *a@emwa + -aki 'pl.')
- 4) ma'háhko'e 'badger' (PA *me'@akwa@kwa)
ma'hahkō'e 'badgers' (PA *me'@akwa@o:ki)

([is high pitch, while ~ is mid.) There are several other such number pitch-shift nouns. Similarly, some nouns form their locative by a pitch shift. The historically unexpected high pitch is always on the antepenultimate syllable. I hypothesize that Cheyenne has grammaticalized into its pitch system traces of an earlier Algonquian rule of stress assignment to the antepenultimate syllable. Fox is another Algonquian language, and is often very close to PA in form. In a discussion of Fox enclitics Jolley (1984:307) says "Enclitics are generally stressless--stress is usually antepenultimate on words longer than two syllables and enclitics are one or two syllables long." The effect in Cheyenne is that some Cheyenne pitch is purely lexical, while other pitch alternations are grammatical. There are interesting examples of other kinds of grammaticalized pitch in Cheyenne but this is not the focus of this paper, and must await further treatment later, in my dissertation.

Word order has often been grammaticalized in the world's languages. Givón and others have argued that English preverbal subject position for nominals is the grammaticalization of an earlier pragmatic position of preverbal topic. Cheyenne does not use word order to indicate syntactic roles. Instead, its word order variations appear to be pragmatically determined.

Givón (1971) has suggested that "morphology is frozen syntax". While we cannot prove that all morphology has derived from syntactic processes, it is a reasonable working hypothesis and one which we will assume for discussion of Cheyenne morphology throughout this paper. The hypothesis is reasonable because the history of so many languages supports it. Adpositions often develop from erstwhile nouns (often body parts) or abstract verbs. Syntactic reanalysis, elements changing parts of speech like this, is an important part of much grammaticalization. It is easy to speculate that verb serialization (plus noun incorporation) with subsequent phonological erosion and fusion leads to morphological concatenation which then leads to the rampant morphological polysynthesis found in some languages, such as Cheyenne.

1. Introduction to Cheyenne. As in other Algonquian languages, Cheyenne has two genders,

animate and inanimate. Nouns and demonstratives belong to one or the other gender. Verb stems are inflected for gender and syntactic transitivity. Verb stems have traditionally been categorized into four groups reflecting gender and transitivity: Animate Intransitive (AI) with inflection for animate subjects, Inanimate Intransitive (II) for inanimate subjects, Transitive Animate (TA) for animate objects, and Transitive Inanimate (TI) for inanimate objects. Analysis of Algonquian morphology has traditionally been done on almost purely structural criteria. This is acceptable for much of the treatment of each language, but it is insufficient for those areas where form and function are not perfectly isomorphic.

1.1. Polysynthesis. Cheyenne is highly polysynthetic. I suspect that it often will have verbs having a larger number of morphemes than that found in other Algonquian languages. This, of course, is open to empirical investigation, but it is my impression based on some initial study of other members of the language family. Analysis of the morphological structure of any Algonquian language is not without its own problems. There is so much complexity that it sometimes seems that what could pass for a single morpheme in any other language can yet be further analyzed in Algonquian, sometimes even down to splitting one segment from another. Hence, it may sometimes be helpful to speak of submorphemic analysis in Algonquian languages. The problem is particularly salient when analyzing the complexity which appears immediately following a verb stem in that composite which Algonquianists have called the final. We will not pursue this issue further here, but it is relevant to how closely we analyze and gloss a particular form. Where minute analysis is irrelevant to consideration of a particular point of grammaticalization, we will often not analyze forms as closely as it might be possible, in this paper. The polysynthetic nature of Cheyenne can be seen in this verb uttered in casual conversation:

- 5) ná-ohkè-sáa-oné'seóme-pèhéve-tséhést-o'ané-he
1-HAB-NEG-truly-good-Cheyenne-pronounce-NEG
'I truly do not pronounce Cheyenne very well'

The preverb oné'seóme- can be further analyzed to consist of oné'seóm- plus preverb adverbializer e-. Similarly, pèhéve- has a morpheme-final adverbializer. Cheyennes do not agree on the etymological meaning of the initial tséhést-, but it probably was multimorphemic in origin, possibly consisting of the cataphoric "directional" tse- plus "ablative" relative initial hést- (which extended locational source to other kinds of source such as genetic or causal origin). Actually, 5) is fairly mild in terms of polysynthesis compared to some other forms which have been encountered.

1.2. The Cheyenne verb. We have begun using Algonquianist terminology such as preverb, initial, final, for various position classes within the verb. Again, the terminology is based on a structural analysis of Algonquian. The terminology is helpful for communication among Algonquianists. It makes for some initial difficulties for outsiders to the language family but is relatively easy to learn.

1.2.1. Orders. In this paper we are tracing the grammaticalization process of "directionals" within the Cheyenne verb. To do this it is necessary to understand something of the overall structure of the verb. There are three "orders": independent, conjunct, and imperative. In

simple terms, an independent verb is one which may stand alone as a complete utterance and asserts or questions some proposition. A conjunct verb basically refers to a dependent verb, but there are some complications with speaking of such a functional category in Algonquian languages. It is partly because of the complications that Algonquianists have chosen to go with the structural terminology. Verbs of the imperative order, as expected, present commands. Imperatives lack pronominal prefixes and their pronominal suffixation is distinct from that of independent and conjunct verbs.

Each order is distinguished on structural grounds. Independent verbs take a pronominal prefix and a suffix complex which often indicates further pronominal information. Conjunct verbs indicate all pronominal information suffixally, with the suffixes bearing little resemblance to pronominal affixation of the independent order. Unlike other Algonquian languages, Cheyenne has grammaticalized several prefixes which govern conjunct order verbs. In other Algonquian languages the conjunct "prefix" is a phonological process of vowel mutation or ablaut called initial change (I.C.). In I.C. the first vowel of a conjunct verb complex is modified both in position and length. The following Cree examples from Ellis (1971:81) are illustrative:

tipe:lihcike:t 'that he rule, govern' (Indicative Unchanged)
 te:pe:lihcike:t 'the ruling one, governor, lord' (Changed)

tipe:lihcike:te: 'if he rules, governs' (Subjunctive Unchanged)
 te:pe:lihcike:cih 'whenever he rules, governs' (Changed)

The first vowel i- becomes long e:- in the Changed forms.

1.2.2. Conjunct prefixes. In contrast, Cheyenne conjunct prefixes (probably derived from more lexical elements such as preverbs or initials) are distinct segmental morphemes:

6) Verbs with different conjunct prefixes

tsé-h-manèse 'when he drank (it)' (tsé- (h)tse- 'FUTURE'?)
 tsé-manèstse 'the one who drinks, the drinker'
 mäh-manèstse 'when he drinks' (hasn't occurred yet)
 òh-manesèstse 'whenever he drinks' (òh- ohke- 'HABITUAL'?)
 momóxe-manèstse '(I wish) he would drink' (momóxe- momóhtsem- 'beseech'?)
 hó'-manèstse 'whenever he drinks' (iterative; hó'- ho'- 'come'?)
 máa'seó-manèstse '(I thought) he had drunk'
 áh-manesèstse 'he should have drunk'
 eó-manèstse '(I wonder) if he drank'
 néh-néšévöse 'the two of them'
 he'-tónèšévèstse 'whatever he was doing' (he'- = relative prefix?)

1.2.4. Verb structure. The overall structure of the Cheyenne verb is:

7) PFX-TNS-DIR-NEG-ASP-ADV-PHOR-REL-IN-MED-FINAL-MODE

As stated earlier, an independent verb takes a pronominal prefix (PFX). This prefix is

assigned to the person involved in the verbal pronominal cross-referencing which has the highest rank on the Algonquian person hierarchy of 2 1 3 3' where 2 = second person, 1 = first person, 3 = third person, 3' = obviative (also known by some as fourth person, which is really a pragmatically "out-of-focus" third person). The prefix in a conjunct verb gives no information about person, but, rather, something of a modal flavor.

There are two tense (TNS) morphemes in Cheyenne, a marked past /h-/ and future /(h)te/. Unmarked tense indicates present or near past.

There are two directionals (DIR) (directionals proper), cislocative /neh-/ 'toward' and translocative /ta-/ 'away'. The deictic locus is typically the speaker but it may, instead, be somewhere else in a discourse.

The negative (NEG) preverb is /sáa-/ in all orders and modes, except the Dubitative where the negative is /(mó)ho'nó-/, an unusual case in Cheyenne where the negative prefix governs the structural conjunct order but the Dubitative is "independent" in function. Except for the Dubitative negative preverb, negative preverbs also require a negative suffix following the verb stem.

1.2.3.1. Preverb positions. Position classes from tense through the relative (REL) element have traditionally been called preverbs, since they precede the verb root or initial, which is in some ways the "heart" or "verbiest" part of the verb. Although analysis of Cheyenne preverbs has not been completed, it appears possible to find some position classes among preverbs. We have already noted tense, directional, and negation. Some preverbs appear more aspectual (ASP) than others. Among these would be /éše-/ 'already' which is essentially a perfective marker, as Goddard (1986a:13) would agree, /to'se-/ 'gonna', /ohke-/ 'regularly, HAB', /hóse-/ 'again', /ase-/ 'start, INCEP', /éne-/ 'end'.

Other preverbs would be categorized in a miscellaneous adverbial (ADV) class, such as /pehéve-/ 'good, well', /haveséve-/ 'bad, badly', /oné'seóme-/ 'truly', /hóove-/ 'mistakenly', etc. Note that what we here regard as adverbial preverbs usually take the morpheme-final adverbializer e-. Note also that we can view adverbial preverbs as semantically richer than aspectual preverbs. I suspect that study of both classes will find aspectual preverbs to be shorter in average length, quite possibly the result of phonological erosion. I also suspect that aspectual preverbs are older forms in the language. I believe adverbial preverbs are still open to undergoing the productive process of preverbal adverbialization, a derivational process, as well as being capable of being made into separate word adverbs by the addition of /-to/ as in:

8) oné'seóm-e-to 'truly'
am-e-to 'going along'

There are two "phoric" (PHOR) preverbs, parallel to the cislocative and translocative preverbs. The phoric preverbs were described in Leman (1984). They function in concert with the relative preverb /heše-/ or relative initial /het-/ and assist the relative elements in discourse referencing and linking:

9) ná-tsè-he'-ōhtse 'I'm going there (place new in discourse)'
1-CAT-REL-go

10) ná-nè-he'-ōhtse 'I'm going there (place old in discourse)'
1-ANAPH-REL-go

For now I label the phoric preverbs as cataphoric (CAT) and anaphoric (ANAPH), although these are not entirely satisfactory.

The relative (REL) element logically connects the present verb to some other verb (or location) or verbal entity (such as an episode) in the discourse.

1.2.3.2. Stem structure. A few Cheyenne verbs have stems consisting simply of a root:

11) é-naóotse 'he slept'
3-sleep

12) é-mésehe 'he ate'
3-eat

More often than not, however, a verb stem is complex consisting at least of an initial (IN) plus a final:

13) ná-péhév-án-a 'I fixed it'
1-good-by.hand-it

14) é-he'kon-ohta 'it is frozen hard'
3-hard-by.cold:INAN

Some Algonquianists (such as Nichols 1980:130, cited below) have used the label root for both roots and initials.

Many verbs, in addition, contain a medial (MED) which is generally nominal in origin:

15) é-éxovè-hahtá-ho'he 'he's warming his feet'
3-warm-foot/feet-by.heat

16) é-am-óov-ā'-a 'he moved the water with his foot'
3-along-liquid-by.foot-it

Finals (FIN) may refer to instruments as seen in 13-16), processes as with 'go' of 9-10) or positions as in:

17) é-péhév-éše 'he's lying (position) nicely'
3-good-lie

18) ná-he'kot-oo'e 'I'm (sitting) quietly'
1-quiet-sit

I assume that position and process finals historically derived from erstwhile verbs probably through some kind of verb serialization. Finals are a closed finite set and act something like auxiliary verbs, classifying kinds of actions and positions.

In transitive verbs, the finals complex indicates gender of the object. In TA verbs there will be a "theme-sign" (Goddard 1967:67) indicating voice, that is, whether the person of the prefix is higher on the person hierarchy (direct, = DIR) or lower (inverse, = INV) than the person acted upon.

In independent order verbs modal suffixes largely act to impart evidential information:

19) é-mane-sèstse 'he is said to have drunk' (ATTRIBUTIVE)
3-drink-ATTRIB

20) mó-ná-manè-he-he 'I guess I drank' (DUBITATIVE)
DUB-1-drink-NEG-NOAFFIRM

21) é-h-némené-hoon-o 'they sang' (PRETERIT)
3-PST-sing-PRET-PL

Preterit is an Algonquianist label. I have previously (Leman 1979) labeled this a Mediate mode, following Petter (1952), but the suffix is cognate (Pentland 1984) with what other Algonquianists have called the preterit mode, which is actually a kind of aspectual marker in other Algonquian languages. In Cheyenne it functions as an emphatic or to indicate something close to that the discourse in which the verb appears has not come through hearsay or logical evidence but from a legend.

The largest position class in terms of membership is the initials. It is potentially an infinite class. Other classes are finite. Medials are commonly body-parts (see Glenmore and Leman 1984:12-19 for extensive lists), but there are a few other medials such as 'liquid', 'snow', 'wood/tree', 'vegetation', 'rope-shaped', 'berry-shaped'.

I regard the initials as the most lexical of any of the position classes. It is my working hypothesis that semantic abstraction increases as one moves left (see formula 7), above) in the verb complex. There may be a similar cline of abstraction as one moves right from the stem but I am not so sure of this. In his dissertation on another Algonquian language, Ojibway, Nichols (1980:130, cited in Valentine 1986b) has independently concluded something similar about abstraction leftward from the initial:

From left to right towards the verb stem, the prefixes show increasing resemblance to or identity with verb roots. The personal prefixes on the far left have no connection with roots. Only two of the tense-mode prefixes and those the more marginal ones are related to verb roots. The locative prefixes have analogous verb roots although there is a patterned derivational relationship between only a few of them and the roots. The relative prefixes on the far right closest to the

stem are derived from verbal roots by the addition of /-i/. The functions of the root equivalents of the locative and relative verb prefixes appear to be much the same as that of the prefixes, but locative roots appear to have only spatial meaning. The issue of the semantic relationship between the use of relative roots and prefixes remains to be investigated.

The order of morphemes preceding the Cheyenne verb stem probably corresponds to some universal principles of morpheme ordering (cf. Bybee 1985). The Algonquian perfective aspect preverb *ki:ši experienced apocope of the weak final syllable (phonological erosion) producing the past tense preverb *ki: (Rhodes: p.c.). This leftward movement involves semantic abstraction. The development of tense from aspect is cited by Foley and Van Valin (1984:216) as a typical universal diachronic development. In fact, Foley and Van Valin also note that "inner operators" of their morphological layering schema are typically reanalyzed diachronically as "outer operators". Ideally, this should correspond to leftward movement in the Algonquian verb complex, if morpheme ordering there corresponds fully to universal principles. I wish to study this issue further in the future, but my impression so far is that much of Cheyenne morpheme ordering corresponds to universal ordering principles.

In terms of any relationship between the Cheyenne past tense morpheme /h-/ and the Cheyenne perfective preverb /éše-/ (< *ki:ši by regular sound correspondences), I suggest the following history:

*ki:ši (PFTV) > *ki: (PST) > **hké- (unattested) > **hk- (unatt.) > Ch. h- (PST)

The unattested intermediate stages (**) are very speculative, but they would follow regular sound rules of PA: Cheyenne, with some hesitation about apocope of the high-pitched vowel of **hké.

My working hypothesis about leftward abstraction directly affects my perception of the grammaticalization of the Cheyenne directionals, as we will soon see.

1.3. Polysynthetic binding. I have mentioned that Cheyenne seems to me to be, if anything, even more polysynthetic than other Algonquian languages. A major element of support for this position is that the Cheyenne verb seems to function as a single word, all the way from the prefix to suffixes.

The preverb boundary, between the last preverb and the initial is an important potential juncture in Algonquian languages. Goddard (1986a) discusses the difficulties there are in analysis of Fox in terms of all the various syntactic intrusions possible at the preverb boundary. Goddard and other Algonquianists conclude that preverbs are typically separate words from the verb stem, separable by intrusions which may consist of various discourse particles, often appearing in Wackernagel's (sentence-second) position, or other more major constituents, such as headless relative clauses (an entire conjunct verb). Apparently sentences with such syntactic intrusions internal to the verb complex are "grammatical" in Fox. Many Fox texts were narrated and transcribed by Fox speakers themselves, who, we might expect would have "cleaned up" the texts if such sequences were ungrammatical.

In text collection work I have noted that the preverb boundary in Cheyenne is also a potential

candidate for intrusions of various sorts, hesitation "words", pauses, locative particles, possessed nouns, or even plural nouns. Such intrusions are qualitatively different from morphologically proper noun incorporation in Cheyenne and other Algonquian languages. But in Cheyenne the intrusions are viewed as being somehow less grammatical (Wolfart 1973:76 has made a similar observation for Plains Cree, another Algonquian language). Cheyenne speakers want to repair the sequences and transport the intruding word(s) either preverbally or postverbally. I conclude from this that the binding between morphemes of the Cheyenne verb is in some sense morphosyntactically stronger than that of Fox and probably some other Algonquian languages. If this is actually the case, then Cheyenne would represent a further stage in the grammaticalization process, a tightening of the polysynthetic "glue".

2. PA: Cheyenne correspondences. Because we will have occasion to refer to Algonquian sources of various Cheyenne morphemes, we will briefly outline some of the most common PA: Cheyenne sound correspondences. Fuller discussion can be found in Leman (1981) and Goddard (1986b). In the following list, the PA segment(s) occurs preceding the colon and the Cheyenne (Ch) follows:

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

*p:hp,∅
*t:ht
*k:hk,∅

*l:t
*ʔ:t
*y:t

*c:s
*š:š (or phonetic x)
*s:h

In addition, Cheyenne /n/ often derives from a process of "yodation" which produced a *y following PA *k, then the *k dropped (Goddard 1986b). PA consonant clusters with *k generally have a simple glottal stop /ʔ/ reflex in Cheyenne. Vowel-initial PA words have h-initial reflexes in Cheyenne, as seen in 'dog', 3), above. As mentioned earlier, Cheyenne phonemic high pitch is the reflex of PA vowel length (indicated by /:/ in citations). PA forms often undergo vowel or syllable apocope in the development of Cheyenne.

3. Transcription devices. Cheyenne /t/ assibilates to ts preceding /e/. Vowel devoicing is common in Cheyenne. Word-internal devoicing is marked with a ^ superimposed on the vowel. Pitch values: [(high and raised high), ~ (mid), ` (lowered high), unmarked (low, lowered high).

4. Cheyenne directionals. In overview, in this paper we are focusing upon the two semantic elements in Cheyenne which establish directionality with respect to some deictic locus. The

directionals proper are found in the directional preverb position class. But the same two-way paradigmatic opposition found with the cislocative and translocative is also found with the anaphoric and cataphoric preverbs which work in concert with the relative initial (or relative preverb when there is some other initial), with extremely similar phonetic shape. There is quite possibly also a connection, perhaps by analogy or folk reanalysis, to Cheyenne tense. And the abstraction may continue all the way leftmost into conjunct prefixes.

The support we will attempt to describe for postulating this grammaticalization scenario will appeal to diachronic developments. We know some of the PA etyma for morphemes involved. We will also appeal to phonological similarity, position class patterning, and the persistent dual semantic opposition just mentioned.

In an effort to speak in a unified fashion of all of the morphemes under consideration in this paper, we will use the directional labels, cislocative and translocative as umbrella terms, even though as labels they are most appropriate only for the directionals proper.

5.1. Cislocative. The (umbrella) cislocative takes the form *ne-* when it serves as the anaphoric preverb immediately preceding the relative initial (or preverb). In this position class it gives a meaning that the action or state which is being referred to is already established in the discourse or somehow "the same" as what has gone on before:

22) *é-nè-he'-éhahe* 'he is of that (anaph.) age'
3-ANAPH-REL-age

23) *é-h-néh-nè-he-t-ó-sest-o* 'he told him (obv.) that'
3-PST-CIS-ANAPH-say-TA.FNL-DIR-ATTRIB-OBV

One situation when 23) would be used would be when one person repeats what another person said. Note in 23) that the true cislocative directional appears in addition to the anaphoric preverb. This is perfectly grammatical and indicates that the two morphemes are members of different preverbal position classes. To get the semantics of the cislocative in 23) we would really need to include in the gloss some specification of the deictic locus, such as 'he told him (obv.) that (what had been previously established as the content of saying, possibly by another speaker) as he was coming toward us', with the underlined portion giving the semantics of the cislocative.

The cislocative proper has the form /*neh-*/. The morpheme-final /*h*/ has allophones \h, s, š, x, \ depending upon the shape of the following phoneme. The vowel of this cislocative is low-pitched sometimes and high-pitched at other times. It is generally low-pitched word-internally (with some minor exceptions) and high-pitched when it appears word-initially as in imperatives:

24) *néh-metsè-stse* 'give it to me!'
CIS-give.it.to-IMPV

5.2. Cislocative source. As suggested by Goddard (p.c.) a few years ago, we can be rather certain that the Cheyenne cislocatives (as preverb and true cislocative) ultimately derived from the PA verb meaning 'to come':

*pye:wa 'he comes, Fox pye:wa, Menominee pi:w

The Cheyenne n of the /ne(h)-/ cislocatives derived from the PA *y. The PA *p dropped out. The vowels correspond fine in this particular context.

A reasonable semantic correspondence obtains and we can assume with confidence that the cislocative meaning found both in the anaphoric preverb and in the cislocative proper come from the original verb 'to come'. Something previously established in discourse provides the cislocative locus of the anaphoric preverbal usage. Actions which come towards the speaker COME FROM a deictic locus which is the meaning of the cislocative proper. It is interesting to note that the cislocative proper not only refers to locational deixis, but there has also been an extension to temporal deixis. Hence, the following can be glossed as either 'I ate coming from that place' or 'I ate since that time':

25) ná-h-nèh-mésehe
1-PST-CIS-eat

5.3. Cislocative tense. Over the years I have occasionally gotten glosses from native speakers for forms with the cislocative proper for which there seemed to be a far past tense specification (in addition to the marked past semantics of the /h-/ past tense morpheme). Because of that I included /neh-/ as a far past tense morpheme in my grammar collection (Leman 1979:191). I now believe that designating it a tense morpheme was premature. However, the semantic extension from locative to temporal deixis is a universal one (Diehl 1975, Genetti 1986) and it would not be surprising to find the cislocative grammaticalize completely to tense were the language to develop for a sufficient more length of time.

It should be noted that while leftward grammaticalization in the preverb complex has apparently taken place with the cislocative, previous morphosyntactic roles and semantics are not abandoned when new roles are developed. The only thing which has been abandoned is the erstwhile use of this morpheme as a verb root meaning 'to come'. Of course, when that morphosyntactic role was abandoned a critical semantic hole was created. I assume that all languages need some way of saying 'he's coming, he has come'. We shall see below how the history of Cheyenne filled this semantic hole.

5.4. Cislocative conjunct prefix. It is possible that a conjunct prefix, /néh-/ seen in the listing of conjunct prefixes in 6), is the ultimate abstraction of the cislocative. We might say that we have such a prefix in the following protasis of a counterfactual construction, taken from the text "The Cheyenne Trek and Ft. Robinson Breakout":

26) néh-vé'-ho'-óméstá-vòtse 'had they escaped'
CIS-if-come-escape-3PL:CJT

The first morpheme is /néh-/ so we initially analyzed it as a conjunct prefix. However, in actual fact, this is apparently not an abstracted conjunct prefix in this verb. Extensive checking with the informant reveals that this /néh-/ has all the semantics of the cislocative proper. The counterfactual semantics is supplied entirely by the conditional preverb /vé'-/ (which itself may

have derived from the instrumental preverb /véše-/ by apocope). Apparently 26) is one of a few constructions allowed in Cheyenne which contain no abstracted conjunct prefix, or alternatively, there is a zero morpheme as conjunct prefix. This analysis is supported by the fact that we can similarly utter 27) which uses the translocative preverb /ta-/ instead of the cislocative:

27) ta-vé'-ho'-óměstá-võtse 'had they escaped'
TRSLOC-if-come-escape-3PL:CJT

The informant further specified the glosses for 26) as 'had they escaped that far' and for 27) as 'had they escaped over there'. She noted that the speaker would need to be on the east side of Rapid City (the area where the Cheyennes were originally trying to escape to) to utter 27), but here on the Cheyenne reservation west of Rapid City to utter 26). These explanations perfectly match the semantics of the deictic locii of the directionals.

But, there still remains a conjunct prefix /néh-/ which I cannot seem to dismiss as being simply a cislocative appearing as the first morpheme of a conjunct form. As far as I can tell, this prefix is found only in pronominal-like forms taking conjunct suffixes:

28) néh-néše-vöse 'the two of them, both of them (an.)'
CJT-two-3PL:CJT

29) néh-no'k-óvähé-tse 'the one group of us'
CJT-one-group-1PL:CJT

30) nés-tóxé-se 'all of you (pl.)'
CJT-number-2PL:CJT

31) néh-néxa-a'ěstse 'both of them (inan.)'
CJT-two:INAN-INAN.PL:CJT

I have been unable to determine the meaning of the prefix in such conjunct forms. It is tempting to say it is a prefixal abstraction of the cislocative, but the phonetic identity may simply be coincidental homophony.

6.1. Translocative (cataphoric). As cataphoric preverb tse-, phonemic /te-/, indicates that something new in the discourse is about to be presented:

[RESTORE MISSING LINE HERE]

1-TRSLOC-gonna-CAT-REL-go

33) é-tsè-heše-nōne 'he sang this way (immediately illustrated)'
3-CAT-REL-sing

34) é-s-tsè-he-sěstse 'he said (content immediately follows)'
3-PST-CAT-say-ATTRIB

In each situation where cataphoric tse- is used, the previously described anaphoric preverb, ne-

may be used, instead, in which case there would be reference back to something or someone in previous discourse. We should note for 34) and other examples that the verb 'say' in Algonquian languages is a "relative" form, containing the most generic relative initial.

6.2. Translocative source. In Cheyenne we have the ne-/tse- paradigmatic opposition in the phoric preverbs. Ojibwa, and perhaps other Algonquian languages apparently have a similar opposition somewhere in the preverb complex. (I am not sure that the other languages use their preverbs as phoric elements associated with the relative initials, but the parallelism is the same.)

Rhodes (1976) lists the two "directional adverbs" of the verb complex of Ojibwa as ni 'away' and bi 'come'. Cheyenne t corresponds to Ojibwa n, so the expected cognate of Ojibwa ni would be Cheyenne /te/, which is precisely what we have phonetically in our cataphoric preverb. There is something about pointing toward something new which is "away" from a speaker in deixis. We should note, here, that the Ojibwa 'come' form is cognate with the Cheyenne anaphoric ne- and both are derived from the PA verb root 'to come'.

6.3. Translocative proper. The Cheyenne translocative proper is invariant ta- meaning 'away', exactly the same semantics given by Rhodes for the Ojibwa form ni. The Cheyenne translocative establishes a deictic locus away from some point, typically the location of the speech act. We have seen some examples with the translocative already, in 27) and 32). Other examples are:

35) tá-hestān-ótse 'take it over there!'
TRSLOC-take-it:IMPV

36) ná-ta-nè-hēt-o 'I told him that over there'
1-TRSLOC-ANAPH-say.to-DIR

Comparing 37) and 38) clearly shows the directional nature of both /neh-/ and /ta-/:

37) é-nèx-hóó'-óhtse 'he came home'
3-CIS-home-go

38) é-tá-hóó'-óhtse 'he went home'
3-TRSLOC-home-go

I believe that translocative /ta-/ is ultimately derived from a PA form which meant 'away'. I do not know the spelling of the PA form but it would surely be the etymon for both Ojibwa ni and Cheyenne anaphoric /te/ as well as translocative /ta/.

I believe the shift of vowel from the /e/ of the anaphoric preverb to the /a/ of the translocative can probably be accounted for on the basis of Cheyenne sound symbolism. There is within Cheyenne a symbolism of NEAR/SMALL with the vowel /e/ to FAR/LARGE with vowel /a/ as described in Leman (1984). Some examples are:

- 39) nêhéóhe 'over there (established location)'
- 40) nâháóhe 'over there (farther away established location)'
- 41) tsé'tóhe 'this (an.)'
- 42) tá'tóhe 'that (an.)'
- 43) é-tšěškéta /é-tehketá/ 'he's small' (stem-initial /e/)
- 44) é-tâhpéta /é-tahpetá/ 'he's big (stem-initial /a/)

The cataphoric preverb indicates that specification of something immediately follows (a "close" distance), whereas the translocative directional must cover all "locations" which are "away" from a deictic locus, hence the "larger" vowel /a/ is appropriate.

6.4. Future tense. The future tense of Cheyenne is /(h)te-/ which occurs in the same preverbal position slot as the past tense morpheme /h-/. The /h/ of the future occurs when following a first or second person prefix:

- 45) nâ-htse-néméne 'I'll sing'
- 46) nê-stse-anā'o 'you'll fall off'

There is no /h/, and, in fact, no pronominal prefix when there is a third person referent as subject:

- 47) tse-anā'o 'he'll fall off'
- 48) tse-nêx-ho'-ēhne 'he'll come (toward)'
FUT-CIS-come-walk

The lack of pronominal prefix in the future with the third person probably harks back to earlier Algonquian stages when third person in many contexts used no pronominal prefix.

It is possible that the Cheyenne future is more directly a reflex of some Algonquian future, rather than being a grammaticalized translocative. But there are correspondence problems with attempts to link the Cheyenne future with Algonquian futures.

Rhodes (1985) discusses various Algonquian futures. The volitional *wi:- future of a number of languages simply is a semantic extension of the original intensive, or purposive, meaning of *wi:-. The Cheyenne reflex is hé-, which exactly corresponds according to regular sound rules, but it has not extended to the future in Cheyenne. The predictive or consequential future was *kataw- which has reflexes of ga- with various allomorphs (da-, ji-, ge-) in Ojibwa, and in Plains

Cree, allomorphs of ka-, ta-, kita-/kici- and ke-. It is apparent, as Rhodes points out, that monosyllabic simplification of the original bisyllabic future has taken place. Palatalization of PA *t to *c took place in Algonquian before *i. Allowing for a PA *tita non-palatalized future would account for Cheyenne /hte/ the expected correspondence of the first syllable only if we assumed that the pre-history of Cheyenne did not have a non-palatalized future. But throughout Cheyenne it is obvious that its sound correspondences do reflect Algonquian palatalization. And PA *c yields /s/, not /(h)t/ which we have in the Cheyenne future.

It is also possible that the Cheyenne future does in some way reflect the original Algonquian future, but there has been contamination through folk reanalysis by near homophony with the translocatives. Further work needs to be done on the history of the Cheyenne future. Until then, it seems plausible to me that the Cheyenne future is a part of the grammaticalization history of the translocatives. Semantically, this makes sense. The Cheyenne future is predictive, not volitional. Anything which is predicted to take place is somehow yet "away" from the speaker, the same semantics found with the translocatives.

6.5. Conjunct prefix. Our final speculation with translocative grammaticalization concerns the ubiquitous conjunct prefix tsé-. This prefix is used for clauses of some kind of realis modality, that is, for events which have already taken place:

- 48) tsé-h-mane-to 'when you drank'
CJT-PST-drink-2:CJT
- 49) tsé-s-ta-vóom-o-vòse 'when they saw him (obv.)'
CJT-PST-TRSLOC-see-DIR-3PL:CJT
- 50) tsé-h-vé'-háomóhtae-se 'because he was sick'
CJT-PST-if-sick-3:CJT

It is also used in relative clause (conjunct participle) constructions, designating some nominal:

- 51) tsé-háomóhtae-stse 'the one who is sick, the sick one'
CJT-sick-3:CJT:PARTCPL
- 52) tsé-mané-se 'you (pl.) who drink'
CJT-drink-2PL:CJT

I am not sure that the realis conjunct prefix is grammaticalized from the translocatives, but it seems plausible, at least on phonetic grounds. I am suggesting that the reflex of Algonquian Initial Change (the ablaut mentioned in Section 1.2., above, is high pitch in a prefix. Algonquian Initial Change both lengthens and alters oral position of a vowel. The Cheyenne prefix retains the original vowel length part of Initial Change, in its usual high pitch.

Hence, under this scenario, the realis conjunct prefix tsé-, phonemically /té-/ is a "Changed" form of the future tense morpheme (h)tse- when it occurs word-initially without /h/ as it does with third person subject referents.

There are three pieces of support for this hypothesis:

- (a) Similar phonetics to the future morpheme
- (b) The future cannot appear in a conjunct form; such mutual exclusivity should raise a warning flag in analysis--it may be coincidental but it may be also be significant
- (c) Other prefixes also seem to experience pitch-raising, perhaps also reflecting Algonquian Initial Change.

The last point is particularly interesting and we will return to it when we discuss the Cheyenne replacement for the original Algonquian 'come', below. In brief, here, though, it would appear that the low-pitched replacement *ho'*- 'come' itself has grammaticalized to be a high-pitched iterative conjunct prefix, *hó'*-. (The conjunct subjunctive prefix /*mah*-/ is low-pitched in some forms but high-pitched in others.)

7. Analogical extension. The directionals appear not only in the preverbal complex of verbs, but may occur prefixed to relative particles of various kinds:

- 53) *nè-hetáa'e* 'from that point/time on'
ANAPH-REL:extent
- 54) *tsè-he'xóvé-va* 'from this/that time on'
CAT-REL:degree-LOC/TEMP
- 55) *nè-he'še* 'then' (temporal "conjunction")
ANAPH-REL:TEMP

Actually, it is not certain in which direction analogical extension occurred. Each of the relative particles occurring here also appear as preverbs in verbs. We agree with Jolley (1984) and Goddard (1986a) that many, if not most, preverbs probably originated as separate particles in some sense syntactically separate from the verb. Then through encliticization, typically attaching to a discourse particle (such as epistemic adverbs of surprise, etc.) or pronominal prefix, they became part of the preverbal complex.

But there is still, obviously, use of the phoric "preverbs" prefixed to a different "part of speech" than the verb stem, so we can consider that some kind of analogical extension may have occurred. Analogical extension is a common factor in much grammaticalization.

8. Paradigmatic replacement. Typically, when a morpheme loses its original function, that original function is replaced by some other morpheme. Some of this replacement can be seen in the grammaticalization "history" of the Cheyenne directionals.

When Proto-Algonquian 'come' was used to create a cislocative, pre-historic Cheyenne no longer had a simple verb 'come'. Another way to say the same thing was needed.

We have already mentioned the role of relative preverbs and initials. Proto-Algonquian had a

number of different relative elements, each with its own semantics. Cheyenne, similarly, has several different relative elements. Some of these are clearly reflexes of the PA forms. Others may have been created by analogy or through some other means other than through direct sound change.

The following have clear Cheyenne (Ch.) reflexes. The PA forms are adapted from (Aubin 1975, Goddard 1986a):

*iši, *ič; Ch. heše-, het- 'thus, in (such) a way'

*wenci (*onci), *wet-, *wec-; Ch. hése-, hést-, hés- 'thence, from (that place, cause, or reason), from that direction'

Goddard presents four other relative preverbs (or initials). Three of them, with the possible exception of a locative relative meaning 'there, at (that place)', has semantically equivalent Cheyenne relative preverbs which do not seem to be direct reflexes. The fourth, ahkwi 'that far, to (such a linear extent)' has the Cheyenne reflex ho'- (via regular sound changes) which may no longer be a relative preverb but rather a (more grammaticalized?) preverb meaning 'come, arrive'.

So, rather than having a verb root, as in PA, meaning 'to come', Cheyenne must use an initial plus final complex, as in the following:

56) é-ho'-ēhne 'he came (usually walking)'
3-come-walk

57) ná-ho'e-ōhtse 'he came' (informant says from a longer distance than with 1-come-go /-ehné/ final)

58) é-nēx-ho'è-hóó'-óhtse 'he came home (toward)'
3-CIS-come-home-go

It is possible that ho'- continues to retain the semantics ('extent') and perhaps morphosyntax of the original relative preverb *ahkwi. The Cheyenne form does sometimes give the idea of extent of distance traveled. There has also been semantic extension so that distance can refer not just to geographical distance but also to metaphysical distance as in:

59) ná-éšè-ho'-héne'ēn-a 'I've known it this far'
1-PFTV-come-know-it

60) hena'háanehe hénéhéóhe ná-éšè-ho'-óhta'hāne
that.is.it there 1-PFTV-come-narrate
'There is as far as I've told the story'

In both 59) and 60) there is the idea of extent. When one thinks of the semantics of COME, he realizes that it is fairly close to the idea of 'extent'. The point one reaches is an 'extent' and that is also where one arrives or COMES, whether in actual physical fact or metaphysically, through knowledge or accomplishment of some task.

Now, although it appears that ho'- has replaced 'come' in the history of Cheyenne, it itself is experiencing grammaticalization. It probably retains an element of its original relative preverb status, but it has been extended to also be a broader preverb. Finally, I am guessing that it has also become a conjunct prefix, one indicating iterativity:

61) hó'-ho'-ēhnè-stse 'whenever he came'
CJT:ITER-come-walk-3:CJT

62) hó'-néé-to 'whenever I stood (there)'
CJT:ITER-stand-1:CJT

The fact that we have both the iterative prefix and the 'come' initial in 61) shows that the two morphemes are members of different position classes. The prefix has been morphosyntactically reanalyzed, which is typically a part of the grammaticalization process.

Note that the pitch on the iterative prefix is high. As mentioned earlier, I would suggest this to be a relic of PA Initial Change of the first vowel of a conjunct verb complex.

9. Conclusion. We have traced a plausible grammaticalization history for the Cheyenne directionals. Although most of the history takes place within the verb complex, (morpho)syntactic reanalysis has occurred. Semantic shifts and extensions have been suggested. We have found support in a two-way paradigmatic opposition between "cislocative" and "translocative" which has been maintained through most of the grammaticalization process. Finally, we have suggested how replacement for an original form has occurred, and how it itself is undergoing grammaticalization similar to that which the directional have undergone.

We have shown, I believe, that it is possible to study grammaticalization in a language, Cheyenne, which is at a late overall stage of grammaticalization in that it is highly polysynthetic. Yet, morphosyntactic and semantic changes within its polysynthetic history continue to support the claim that all viable languages are constantly changing. The changes are, in part, responses to universal grammaticalization pressures.

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