Aspect outside the stem: Prospective morphology in Cherokee*

Sylvia L.R. Schreiner, Wheaton College, MA schreiner_sylvia@wheatoncollege.edu
Megan Schildmier Stone, University of Arizona stonem@email.arizona.edu

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0. Introduction

In this paper we argue from morphological and semantic evidence that the Cherokee verbal affixes *ta-* and *-i(s)*, traditionally referred to as markers of future tense and "motion", respectively, in fact mark unrestricted prospective aspect (in the sense of Reed 2012). We first show that the combination of *ta-* and *-i(s)* is distributionally aspectual, with the affixes always appearing on the same verbal complex. We then claim that morphosyntactically *ta-/-i(s)* heads a Prospective phrase above Aspect. This analysis opposes traditional descriptions of *ta-* (or *ta-/-i(s)*) as a future tense marker, and expands the current picture of Cherokee in which all distinctions of aspect are found within the "stem" of the verb.

0.1 Cherokee

- Only known member of the Southern branch of the Iroquoian language family
- Classified as "threatened", with 10,400 speakers but only 130 monolinguals (Ethnologue; Lewis et al. 2013)
- Two major dialects:
    1) The Western dialect, spoken primarily in Oklahoma
    2) The Middle dialect, spoken primarily in North Carolina
- Polysynthetic language

- Minimal Cherokee verb consists of the verb root, a pronominal prefix which indicates the person and number of the participants, and an aspectual suffix
- Optional affixes include one or more prepronominal prefixes, which vary widely in meaning but typically indicate things like mood; a reflexive or middle voice prefix; an incorporated noun; one or more derivational suffixes, each inflected for aspect; and a final suffix, which typically indicates tense
- Represented schematically in (1), optional elements in parentheses

(1)

(Prepronominal Prefix(es))	**Pronominal Prefix**	(Reflexive or Middle Voice)	(Incorporated Noun)	**Verb Root**	**Aspectual Suffix**	(Derivational Suffix(es))	(Aspectual Suffix(es))	(Final Suffix)
				VERB STEM				

- Minimal verb given in (2a); one that takes advantage of each of these categories at least once given in (2b)

* Special thanks to Brad Montgomery-Anderson for help understanding crucial examples. Thanks also to Hiroto Uchihara for helpful discussion, and to Ed Fields, for sharing his beautiful language. Finally, thanks to Heidi Harley for useful discussion of some of the finer points of Distributed Morphology. We take sole responsibility for any remaining errors.

(2) a. aàkhtoósti
a-akahthoósti
3A-look.at:PRC
'He's looking at it.' (Montgomery-Anderson 2008:18)

b. yiwakwata·skwalo·staʔnitoʔli
yi-w-akw-ata-sk-kwalo-st-aʔn-to-ʔl-i
IRR-TRN-1B-RFL-head-bump-CAU-CMP-AMB-CMP-MOT
'If I go about bumping my head at a distant place' (King 1975:37)

- Combination of verb root and aspectual suffix is typically referred to as *verb stem*
  - Due to the lack of transparency at the boundary between these two morphemes, as well as the fact that each aspectual morpheme takes many different phonetic shapes (i.e. there is a lot of allomorphy), Montgomery-Anderson (hereafter M-A) glosses the verb+aspect stem as a single morpheme in the transcription line, with a colon between the two morphemes in the gloss line, as in (2a)

- All data (with the exception of ungrammatical examples) in this paper come from the following published sources:
  - Pulte and Feeling (1975), a grammar and dictionary of Oklahoma Cherokee
  - Montgomery-Anderson (2008), a grammar of Oklahoma Cherokee
  - King (1975) and Cook (1979), both grammars of North Carolina Cherokee

- Examples preserved in full from original source text unless otherwise noted
  - Differences in glossing should not be taken to have any theoretical import
  - Because glosses vary by author, the morpheme(s) of interest are underlined

- Transliteration into Cherokee is similar to the IPA, with the following exceptions:
  - 'v' is a nasalized schwa /ə̃/
  - 'j' is the voiced postalveolar affricate /dʒ/
  - 'y' is the palatal glide /j/

- Tone[1] is contrastive in the Western dialect of Oklahoma, but not in the Middle dialect of North Carolina; to the best of our knowledge, this and any other dialectal differences are not relevant for the current discussion

0.2 Theoretical underpinnings/background

- Distributional portion of our analysis presupposes the theoretical separability of morphemes from stems; otherwise not situated in a particular theory

- Second half of analysis is undertaken within the Distributed Morphology framework (discussed further in that section)

[1] Tone is marked in M-A as follows: low tone – unmarked; high tone – ú or úu; rising tone – uú; falling tone – ùù; highfall tone – úú; lowfall tone – uù; superhigh tone – ű. In Pulte and Feeling (1975), level pitches are represented with the superscript numbers 2 ('relatively low pitch'), 3 ('somewhat higher pitch'), and 4 ('even higher pitch'). Number sequences indicate contoured pitches: 23 indicates rising pitch, 32 falling pitch. The number 1 is used as shorthand for the lowfall pitch contour 21. Final syllables are unmarked, falling tone being predictable, usually from level 4 or, when there is a 4 on the preceding syllable, from level 3. In Pulte and Feeling (1975), short vowels are marked with an underdot diacritic, e.g. ụ.

- We adopt a generally neo-Reichenbachian view of tense and grammatical aspect, in which tense provides information about the relation between reference/assertion time and the time of speech, while aspect relates reference time and event time

- *Prospective aspect*: that distinction that locates event time after reference time, so that the event has not yet occurred by reference time
    - This aspectual meaning is (possibly) instantiated in English by *going to* or *about to* (see e.g. Reed 2012)

1. Previous analyses of *ta-* and *-i(s)*

1.1 *ta/-i(s)* as future

- Affixal combination *ta-/-i(s)* consists of the prepronominal prefix *ta-* and the suffix *-i(s)*
    - *-i/-is* alternation is phonologically conditioned; *-i* becomes *-is* before a vowel (Pulte & Feeling 1975: 250)
    - historically, *ta-/-i(s)* has been described as a future tense marker (see below)
    - *ta-* is usually referred to as a "future" prefix, and *-i(s)* as a "motion" suffix
    - the combination is glossed either with simple future (3) or 'going to' (4) and requires the completive stem

(3) takeekiiseelvvhi
ta-keekii-steelvv́h-i
FUT-3.PL/1.PL-help:CMP-MOT
'They will help us.' (M-A 247)

(4) takawóoniisi
ta-ka-wóoniis-i
FUT-3A-talk:CMP-MOT
'She is going to talk.' (M-A 330)

1.1.1 Pulte & Feeling 1975

- "da- is prefixed to a verb form to indicate that the action of the verb will take place in the future.... Note that da- occurs together with the future tense suffix -i in these instances...da- is used with the future suffix followed by the past tense suffix -vʔi to indicate that the subject of the verb was planning to perform the action of the verb in the past…" (Pulte & Feeling 1975: 250)
- Suggests that *ta-/-i(s)* marks future tense, although the fact that these affixes can appear in combination with the past tense suffix seems to undermine that interpretation
- Consistent with an analysis of *ta-/-i(s)* as prospective aspect rather than future tense

1.1.2 King 1975

- Refers to the *ta-/-i(s)* combination as the "unconditional future tense" (King 1975: 66)
- Notes that "[t]o express approaching actions temporally this prefix [cislocative *ta-*] is used in conjunction with the modal suffix *-i* and the perfect stems of motion and non-motion verbs…" (66)
- Suggests a kind of metaphorical use here, where cislocative *ta-*, which typically indicates motion toward the speaker, has been extended in use to indicate the temporal approach of some event
- As above, King suggests that *ta-/-i(s)* marks tense, rather than aspect, as we claim in this paper

1.1.3 Cook 1979

- "[W]ith non-motion verbs it [cislocative *ta*-] is used in construction with the perfective stem and the 'motion' suffix -i to form an absolute future (cf. English 'I am going to...')" (Cook 1979: 76)
- Indicates that "[t]he ta-future...can thus be analyzed as an idiom using the cislocative...which can be translated literally as 'I am coming to...' parallel to English 'I am going to...'" (127).
- Takes the analysis one step further by comparing *ta-/-i(s)* with the English prospective "going to" construction, but still refers to this morpheme combination as a future construction

1.1.4 Montgomery-Anderson 2008

- "Future *ta*- attaches to a Completive stem with a final Motion (MOT) suffix i-...The *ta*- Future indicates an event will happen in the near future and is sometimes translated with 'going to'" (M-A 329-330)
- "[T]o express a future idea in the past the Future prefix and Motion suffix must be used" (332)
- Like Pulte and Feeling (1975), M-A appears to express a contradiction: *ta-/-i(s)* conveys future notions, yet it can appear with past tense suffixes

1.1.5 Uchihara 2013

- "Modal suffixes include...motion (MOT) *-i*, which occurs with some motion verbs, and denotes the future tense in combination with the cislocative pre-pronominal prefix and the perfective aspect…" (Uchihara 2013:26)
- Although Uchihara only briefly mentions the phenomenon, as his dissertation is primarily about tone and accent in Cherokee, like the others, he emphasizes the fact that *ta-/-i(s)* indicate future tense

1.1.6 Interim Summary

- All previous accounts refer to this affixal combination as a marker of future tense
- A recurrent theme is the apparent oddity that the *ta*- future can combine with other tense markers, such as the absolute future and experienced past
- These authors gloss the *ta*- future with the simple future or with English 'going to'

1.2 *ta*- and *-i* in other contexts

1.2.1 Cislocative motion *ta*-

- Typically thought to be related to future *ta*- (King 1975, Cook 1979, Uchihara 2013)
- Discussed in section 2.3.2 below

1.2.2 Motion suffix *-i*

- Some previous analyses (e.g. King 1975, Cook 1979, Uchihara 2013) have linked the *-i* suffix of the *ta-/-i(s)* combination with the Cherokee 'motion suffix'
- The motion suffix typically "occurs with the present stem of verbs of motion" (Cook 1979:127)
- However, Montgomery-Anderson (2008:395, fn. 12) notes that "many non-motion verbs in the Present Continuous take this ending ('to look at', 'to like', to name just a few examples) and some verbs of motion don't take this ending (the most obvious example being the verb 'to go')."
- We remain agnostic as to whether the motion suffix *-i* is related to the suffixal portion of *ta-/-i(s)*, and this potential historical relationship is not relevant to our synchronic analysis

1.2.3 Nominalizing *-i*

- There is another suffix *-i* in Cherokee, the nominalizer (NOM)
- This suffix appears with incompletive and deverbal noun stems to form derived nominals
- No previous analyses have suggested that this is the same suffix as the one used in *ta-/i(s)*
- We agree that this is implausible given distributional and semantic considerations

1.3 Summary

- How do we resolve these seemingly conflicting properties of *ta-/-i(s)*?
- We suggest that treating *ta-/-i(s)* as prospective aspect rather than future tense has the desired result
- First we argue from the distribution of the morphemes that *ta-/-i(s)*, when both present, convey prospective aspect, rather than future tense or literal motion
- Then we present an analysis within the Distributed Morphology framework

2. Distributional analysis of *ta-/-i(s)*

- We argue that the affixal combination *ta-/-i(s)* conveys prospective aspect:
    - These morphemes can co-occur with tense morphology (but impossible to get more than one of these tense suffixes on the same verbal complex)
    - Prospective aspectual meaning present when both affixes appear on a verb, but not when only one or the other of the affixes appears

- *NB re: the tense/aspect functional hierarchy:* There is a great deal more to be said about other affixes that have tense- or aspect-like meaning

- For example:
    - "partitive" prepronominal prefix *ni-* acts in many ways like a perfect, and the "distributive" and "iterative" prefixes also have uses that seem aspectual
    - "habitual" final suffix *-óʔi* looks more like a present tense marker than a strictly habitual marker in many contexts
    - "pre-incipient", "repetitive", and "terminative" derivational suffixes (each with several different forms, depending on which verb stem they attach to) all carry aspect-like information

- The categorization of these pieces of morphology may well have an effect on the details of our formal analysis, but the fundamentals of our analysis will not be affected

- In addition, our preliminary investigations indicate that the hierarchy of functional categories proceeds as we would expect:
    - perfective and imperfective aspects closest to the stem
    - perfect/prospective and "quantificational"-type aspects outside that
    - tense outside aspect
    - mood outside tense

2.1 Distribution of *ta-/-i(s)* with tense affixes

- An analysis of *ta-/-i(s)* as tense would predict:
    - co-occurrence with instantiations of aspect
    - prohibition with other instantiations of tense

- However, this is not what we find. Instead, we find that *ta-/-i(s)*
    - only appears with the completive stem, and
    - *can* co-occur with both past and future tense suffixes

2.1.1 *ta-/-i(s)* with no tense marking

- Without tense suffixes, present prospective meaning is yielded, as in the examples below. Both telic (5, 6) and atelic (7) predicates are allowed

(5) walóosíju thiihwahthvv́hi
walóosi=juta-hii-hwahthvv́h-i
frog=CQ FUT-2A.AN-find:CMP-MOT
'Are you going to find the frog?' (M-A 144)

(6) tastvvyeèyoh jalaki
ta-stvv-ehyoh-i jalaki
FUT-1/2.DL-teach:CMP-MOT Cherokee
'I will teach both of you Cherokee.' (M-A 202)

(7) takawóoniisi
ta-ka-wóoniis-i
FUT-3A-talk:CMP-MOT
'She is going to talk.' (M-A 330)

- Some authors gloss (some of) these present prospectives as simple futures

- Compare the gloss in (8) below to that in (7) above, from the same author:

(8) thiwóonisi [thiwóonisi]
ta-hi-wóonis-i
FUT-2A-speak:CMP-MOT
'You will speak.' (M-A 97)

- This possible ambiguity between interpretations is consistent with our semantic claim: both present prospectives and future aoristic/perfectives locate event time after utterance time

- We also have at least one example of this combination being rendered into English with a futurate (again consistent with our semantic claim):

(9) jookateehlkwastíís theétóòli
ti-ookii-ateehlkwast-íiʔi=s ta-hi-eétóòl-i
DST2-1B.PL.EX-learn:DVN-NOM2=Q FUT-2A-walk.around:CMP-MOT
'Are you coming to our school?' (M-A 414)

2.1.1 *Ta-/-i(s)* with past suffixes

- Two suffixes mark past tense in Cherokee:
  - "experienced past" (EXP) suffix *-vv́ʔ* , as in (10)
  - "nonexperienced past" (NXP) suffix *-éʔi*, as in (11)

- The following examples show these suffixes attached to the stems of *-wóoniha* 'to speak, talk'

- The completive stem gives past perfective meaning:

(10) uùniiwóonisvv́ʔi
uunii-wóonis-vv́ʔ
3B.PL-talk:CMP-EXP
'They talked.' (M-A 261)

(11) uùniiwóonisée ʔi
uunii-wóonis-éʔi
3B.PL-talk:CMP-NXP
'They talked (somebody told me).' (M-A 261)

- The incompletive stem gives past imperfective meaning:

(12) kawóoniiskv́ʔi
ka-wóoniisk-vv́ʔi
3A-speak:INC-EXP
'He was speaking.' (M-A 227)

(13) aàniiwóoniiskéeʔi
anii-wóoniisk-éʔi
3A.PL-talk:INC-NXP
'They were talking (somebody told me).' (M-A 256)

- These suffixes do not appear together on the same verbal complex[2]

(14) *uunii-wóonis-éʔi-v́vʔ
3B.PL-talk:CMP-NXP-EXP (Brad Montgomery-Anderson, p.c.)
(15) *uunii-wóonis-v́vʔi-éʔi
3B.PL-talk:CMP-EXP-NXP (Brad Montgomery-Anderson, p.c.)

- However, either is allowed along with *ta-/-i(s)*; this yields past prospective meaning:

(16) tootajiloónéʔisv
tee-ta-ji-loónéʔ-is-v́vʔ
DST-FUT-1A-oil:CMP-MOT-EXP
'I was going to oil it.' (Pulte & Feeling 1975:101), (M-A 332)

(17) dạ²gạ²wo³²ni²si³sv²³ʔi³
da-ga-wonis-is-vʔi
FUT-3A-speak:CMP-MOT-EXP
'He was going to speak.' (Pulte & Feeling 1975:289)

(18) dị²gạ²wo³²ni²si³se³ʔi
da-ga-wonis-is-eʔi
FUT-3A-speak:CMP-MOT-NXP
'He was reportedly going to speak.' (Pulte & Feeling 1975:250)

[2] Ungrammatical examples are judgments elicited from a fluent non-native speaker.
[3] Pulte & Feeling's examples are the first line and the gloss; the second line is our morpheme breakdown and the third line our M-A-style morpheme gloss.

(19) to:titsiʔne:ʔtsi:seʔi[4]
tootijiʔneeʔjiiseʔi
tee-ta-ji-hneej-is-eʔi
DST-FUT-1A-speak[2]:CMP-MOT-NXP
'I must have been going to speak.' (Cook 1979:123)

- Pulte & Feeling (1975) note that in such examples,
    - "the subject of the verb was planning to perform the action of the verb in the past" (250) and
    - "forms like [this] are neutral with respect to whether the action was actually performed subsequently or not" (290)
    - That is, there is no entailment that the event in question did not end up occurring

- Note the intent meaning ("supposed to") expressed in the gloss in (20):

(20) svvhi akhthvvkaanv siíkwu tikaẃooniisíisv kohi iika
svvhi aki-ahthvvkaan-vv́ʔ siíkwu ti-ka-ẃooniis-is-vv́ʔ kohi iika
yesterday 1B-hear:CMP-EXP again FUT2-3A-speak:CMP-MOT-EXP this day
'I heard yesterday that he was supposed to speak again today.'
(Pulte & Feeling 1975:153), (M-A 530)

- This behavior is unsurprising in the presence of a prospective.[5]

2.1.2 *Ta-/-i(s)* with the future tense suffix

- Future tense suffix *-éesti* (M-A's "absolute future"/AFT) with the completive stem results in a future perfective or sometimes future perfect interpretation:

(21) aàniihwathiihéesti
anii-hwathiih-éesti
3A.PL-find:CMP-AFT
'They will find it.' (M-A 349; from Scancarelli 2005:369)

(22) uùniiwóoniséesti
uunii-wóonis-éesti
3B.PL-talk:CMP-AFT
'They will have talked.' (M-A 278)

- With the incompletive stem, a future imperfective/progressive results:

(23) aàniiwóoniiskéesti
anii-wóoniisk-éesti
3A.PL-talk:INC-AFT
'They will be talking.' (M-A 256)

[4] Cook's examples are the first line and the gloss; the second, third, and fourth lines are our M-A-style breakdown.
[5] Note, e.g., the ambiguity of *gu* in some Scottish Gaelic sentences; *gu* primarily instantiates immediate prospective aspect, but can also be interpreted as an expression of intent (as in English *he was to leave at 8 o'clock*).

- The suffix is disallowed with either of the past tense suffixes:

(24) a. *uunii-wóonis-éesti-vv́ʔ
3B.PL-talk:CMP-AFT-EXP

b. *uunii-wóonis-éesti-éʔi
3B.PL-talk:CMP-AFT-NXP

c. *uunii-wóonis-vv́ʔ -éesti
3B.PL-talk:CMP-EXP-AFT

d. *uunii-wóonis-éʔi-éesti
3B.PL-talk:CMP-NXP-AFT (Brad Montgomery-Anderson, p.c.)

- With *ta-/-i(s)*, though, a future prospective results:

(25) tootiji?nee?jiiseesti
tee-ta-ji-hneej-is-éesti
DST-FUT-1A-speak:CMP-MOT-AFT
'I will be going to speak.' (Cook 1979:123)

o (Unlike the past and present tense glosses, the future prospective glossed with *going to* is somewhat marginal in English)

- Pulte & Feeling clarify this meaning:

o "[This form] could be used in response to the question 'What will he be doing at 1:30?' if the person in question is due to speak at 2:00. On the other hand, [a present prospective] would be the appropriate response to the question 'What will he do at 2:00?'" (290)

2.1.4 *Ta-/-i(s)* with other "final suffixes"

- The "future imperative marker" *-vv?i*, a "mild imperative" (Cook 1979:128)
  - o Unattested with *ta-/-i(s)*
  - o We take *-vv?i* to be an instantiation of Mood, though its formal properties are not yet clear to us

- A prospective imperative is not, in theory, semantically anomalous, but Cherokee does not allow one via these means:

(26) *tee-ta-hi-hneej-is-vv?i
DST-FUT-2A-speak:CMP-MOT-FIM (Brad Montgomery-Anderson, p.c.)
Intended: '(Go ahead and) be going to speak (sometime)...'

- "Nominalizer", "deverbalizer", and "negative deverbalizer" suffixes
  - o Appear in nominal contexts; as we are dealing with the verbal complex, we don't treat these suffixes here

- The last final suffix, the "habitual", is discussed below

2.2 Distribution of *ta-/-i(s)* with other aspects and the "habitual"

2.2.1 Aspect near the root

- Recall that the tense suffixes can occur with either the completive or incompletive stem[6]
- With *ta-/-i(s)*, however, the only stem employed is the completive stem

- The completive stem is also obligatorily employed when multiple "derivational suffixes", expressing meanings like ambulative, attributive, and repetitive, attach to the stem
    - Each of these suffixes can be inflected for aspect in the same ways the root can
    - Only the final instance is inflected for the aspect whose meaning appears in the sentence
    - The rest receive completive inflection

- These facts lead us to an analysis of the completive in Cherokee as the "default" aspect, which is in line with the claim in Coon (2010) that perfective aspect is, cross-linguistically, a default, and less likely to be realized periphrastically

- We expect aspects within one "category" (perfective/imperfective; perfect; prospective) to be prohibited from co-occurring on one verb (as with tenses)
    - ✓Completive and incompletive aspectual suffixes cannot co-occur in Cherokee

- However, languages may permit more than one aspectual specification for a verb if there is something else there (like an auxiliary) to host the second reference time/event time relation (witness: English *have been running*)

2.2.2 Aspect elsewhere? (Rain check)

- In addition to the aspect near the root and *ta-/-i(s)*, there is some evidence that other affixes in Cherokee are doing something aspectual

- Mostly quantificational/repetitive-type aspectual meaning

    - Prepronominal prefixes:
        - Distributive, partitive, iterative, "negative time"
        - *Ta-/-i(s)* can co-occur with at least the partitive and iterative prefixes
        - Order on the left with respect to *ta-* is
            (irrealis mood)-partitive-(distributive)-__-iterative

    - Derivational suffixes
        - Pre-incipient ("about to"), repetitive, and terminative "derivational suffixes" seem to have aspectual meaning
        - *Ta-/-i(s)* can co-occur with at least terminative (also applicative and duplicative)

- Status of these affixes to be determined

[6] In addition to completive and incompletive stems, there are "present continuous", "immediate", and "deverbal noun" stems, none of which allow any final tense suffixes. We take the present continuous and immediate to express a fusion of aspect and tense (or possibly mood) information. The function and formal properties of the deverbal noun stem are still unclear as well. For a preliminary investigation of these matters, see Schildmier Stone (2010).

2.2.3 The "habitual" suffix

- Finally, the "habitual" final suffix *-oʔi* can also co-occur with *ta-/-i(s)*

- These affixes combine to yield habitual + prospective meaning, as Pulte & Feeling note:

    - "da- is used with the future suffix followed by the habitual suffix -oʔi to indicate that the subject of the verb is accustomed to speaking whenever the opportunity presents; see ([27]))" (Pulte & Feeling 1975:250)

(27) dị^{2}gạ^{2}wo^{32}ni^{2}si^{3}so^{3}ʔi
da-ga-wonis-is-oʔi
FUT-3A-speak:CMP-MOT-HAB
'He's always about to speak.' (Pulte & Feeling 1975:250)

    - "When da- is used with the habitual, as in ([27]), it changes in form to di-, provided that a consonant follows; if a vowel follows, it changes to j-, as in ([28])." (ibid.)

(28) je^{3}si^{1}so^{3}ʔi
da-a-es-is-oʔi
FUT-3A-go:CMP-MOT-HAB
'He's always about to go.' (ibid.)

    - "The habitual -oʔi can be used with -i to indicate that the subject of the verb habitually intends to speak, as in ([29])." (Pulte & Feeling 1975:290)

(29) dị^{2}gạ^{2}wo^{32}ni^{2}si^{3}so^{3}ʔi
da-ga-wonis-is-oʔi
FUT-3A-speak:CMP-MOT-HAB
'He always intends to speak.' (ibid.) [N.B.: Same form as 27 above]

- But it's not entirely clear that *-oʔi* is strictly a habitual marker, or even an aspectual marker

    - It cannot occur with any tense suffixes
    - It is used for present tense propositions with stative verbs, as well as at least one eventive ('speak')
    - At least in M-A, it occurs overwhelmingly with the incompletive; with *ta-/-i(s)*, though, it occurs with the completive as expected
    - It can occur with the partitive prefix *ni-* to yield a pluperfect interpretation

- At the least, the occurrence of *-oʔi* does not present any immediate danger to our analysis of *ta-/-i(s)* as prospective aspect

2.3 Instantiation of prospective semantics

2.3.1 *ta-* and *-i(s)*

- Prospective meaning is conveyed only when both affixes are present
    - Already seen: examples in which both *ta-* and *-i(s)* are present and prospective meaning results
    - With a past or future tense suffix, past or future prospective meaning is always seen

- When no tense suffix is present, a present prospective, simple future, or occasionally a futurate gloss is given

- There is no discernable pattern in these different glosses, though lexical restrictions may be at work in a construction which is not yet completely grammaticalized[7]

2.3.2 *ta-* without *-i(s)*

- A prefix *ta-* without *-i(s)* is possible, but no prospective meaning is involved, as in (30)

(30) di²ga³ʔi²se³sdi
da-g-aʔis-esdi
CSM-1A-walk:INC-AFT
'I will be walking (in the direction of the speaker).' (Pulte & Feeling 1975:252)

- We analyze this *ta-* (as our data sources do) as a cislocative motion (CSM) prefix, which the prospective use of *ta-* is taken to have developed from

2.3.3 *-i(s)* without *ta-*

- The only evidence we have of prospective meaning occurring with *-i(s)* (the "motion" suffix) but not *ta-* is in a case where both negation and a partitive prefix on the verb are present:

(31) thlale nikatv́vneeli
thla=le ni-ka-atv́vneel-i
NEG=PO PRT-3A-do:CMP-MOT
'I'm not going to do it.' (M-A 151)

- However, negation itself, at least, does not eliminate the need for *ta-*, as seen here:

(32) hla svvk yitvvkhiwasi
hla svvki yi-ta-aki-hwas-i
NEG onion IRR-FUT-1B-plant:CMP-MOT
'I'm not going to plant onions.' (M-A 331)

(33) thlátvv yitakeekakhwiyvvʔeéli
thla=tvv yi-ta-keekii-akhwiyvv-eél-i
NEG=FC IRR-FUT-3.PL/1.PL-pay:CMP-APL:CMP-MOT
'They will not pay us.' (M-A 153)

- Though more data are necessary, we suspect that in (31), the partitive prefix is leading to the temporal interpretation that appears
  - This prefix has a number of functions (M-A 312-313), such as referring to completed actions (glossed with "already"), to a time that continues into the present, or to an event that almost occurred

[7] Montgomery-Anderson notes, "Like its common English translation, this construction comes from a construction indicating actual physical movement. Unlike English, the process of grammaticalization has not yet separated it enough from its original semantic origin. Thus while it is fine to say in English 'I'm going to sit here', this construction in Cherokee sounds decidedly awkward. The preferred way to convey this idea would be using the Intentional suffix" (395).

2.4 Returning to the template

- Although *-i(s)* has been called a "final suffix", it clearly cannot exist in the same spot in the template as the other so-called final suffixes such as tense (and "habitual")
    - We saw that *-i(s)* can co-occur with the tense suffixes
    - Furthermore, the tense suffixes attach *outside -i(s)* when it is present
- Given our analysis of *-i(s)* as (part of) an instantiation of aspect, this ordering is exactly what we would expect to see if the data are to conform to Baker's (1985) Mirror Principle (assuming that the tense suffixes instantiate T)

3. Distributed Morphology analysis

3.1 Overview

- In general, the Cherokee data support a semantically and syntactically bipartite view of aspect; i.e.,
    - Perfective/imperfective-type aspects and prospective (and perfect)-type aspects behave differently in terms of what they say about event and reference times; and
    - (At least) two types of aspect head are present in the syntax.
        - It may be the case, for example, that aspects like frequentative, repetitive, and possibly habitual (Dik 1989 calls this type of aspect "quantificational") are located in a separate head (We call this possible head Asp2 below.)
- Cherokee is an example of a language which shows a consistent difference between the marking of perfective/imperfective ("inclusion") aspects and prospective (/perfect) ("precedence") aspect (see Reed 2012)
- We claim that *ta-/-i(s)* is (informally) a circumfix around the verb root; formally, the Vocabulary Items [ta-] and [-i(s)] are inserted into the positions of exponence that result from the Enrichment (Müller 2007) and subsequent Fission (Noyer 1997) of a **Prosp(ective)** aspect head
- We propose the following as a starting point for a revised partial "template" for the TAM functional structure in Cherokee:

(34)

Head	Mood	(Perfect?) / Prospective	Aspect 2 (quantificational) prefixes	Voice	**Root**	Aspect	Aspect 2 (quantificational) suffixes	Prospective	T	Mood
Ex.	irrealis	(partitive?) *ta-*	iterative	middle		completive/ incompletive	terminative	*-i(s)*	EXP NXP AFT	fut. imper.?

3.2 Distributed Morphology

- Two features of Distributed Morphology (Halle & Marantz 1993) are particularly important here:
    - *Late insertion*, which is the idea that the phonological features of a given morpheme (bundle of morphosyntactic features) are not specified until after the syntax
    - The *underspecification of Vocabulary Items*: This is the hypothesis that Vocabulary Items (which provide information about where a particular phonological string can be inserted) do not necessarily "need to be fully specified for the syntactic positions where they can be inserted" (Harley & Noyer 1999:2)
        - That is, a given Vocabulary Item may have a list of features that is a subset of all the possible features that *could* be listed at the terminal node
        - This feature, in combination with the Subset Principle, can lead to ruling out the insertion of a VI with more features specified, in favor of one with fewer specified
- Cases of *extended exponence* (in which one morphological feature or property is realized in more than one place; i.e., by more than one exponent) have given DM pause
    - Especially when the exponents are non-local (Noyer 1997 introduced *primary and secondary (expression of*) exponents to deal with such situations)
- Even less investigated in DM are cases of the related phenomenon of *distributed exponence* (see e.g. Kiefer, et al. 2012):
    - When two (or more) pieces of inflection realize the feature or property in question *only when taken together*
    - This is our analysis of *ta-/-i(s)* in Cherokee

3.2 Analysis of Tense and Aspect Morphology in Cherokee

- The nonexperienced and experienced past suffixes and "absolute future" suffix are instantiations of T
- Completive and incompletive "stems" are composed of the root plus perfective/imperfective-type aspectual morphology instantiating Aspect[8] (with various class-based morphophonological alternations muddying the waters; not treated today)
    - immediate and present continuous stems are made up of the root plus morphology that represents a fusion of tense and aspect information (not treated today)
- And *ta-* and *-i(s)* instantiate a secondary aspect head (Prosp(ective), along the lines of the Perf(ect) heads found in Iatridou et al. 2001 or Pancheva & von Stechow 2004)

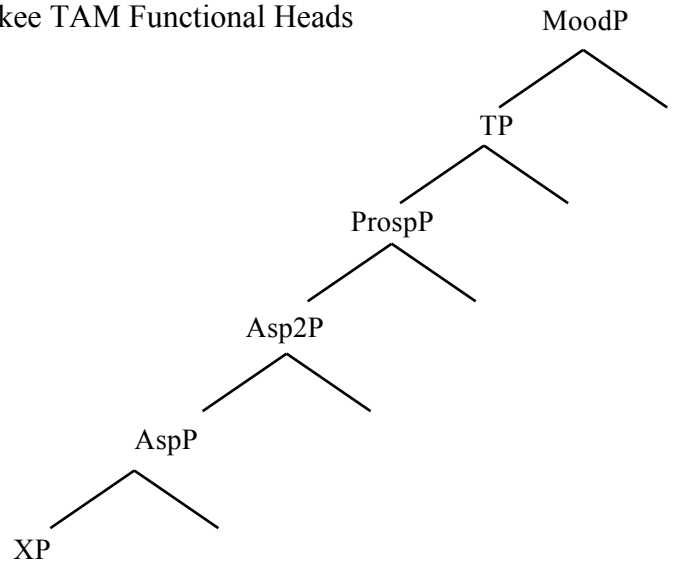
[8] We don't make a proposal here about the features of the Asp node, nor the VIs competing for insertion there. There would presumably be a feature [+/- (im)perfective], with the completive (e.g., [-j]) and incompletive (e.g., [-k]) morphemes representing the (allomorphic) VIs. To analyze the "present continuous", we could add a feature to T, [+/-present], and the present continuous would be made up of an Asp node specified for [-pfv], and a T node specified for [+pres]. It's not clear at all where the "immediate" affix fits into this picture.

- We take the Mirror Principle-consistent arrangement of Tense and Aspect functional heads in Cherokee to be as follows:

(35) [T[Prosp[Asp2[Asp[V]]]]]

  - Relative embeddedness is specified by the syntax; this in combination with the affixal specifications (determined by the Vocabulary Items) produces the correct output order for the morphemes

(36) Arrangement of Cherokee TAM Functional Heads



3.2.1 The tense node

- We assume that the syntactic terminal node of interest for tense is Tense; the possible features are [+/- past], [+/- future][9] and [+/- exp(erienced)]

- The following (underspecified) Vocabulary Items compete for insertion into the Tense node:

(37) **Tense**
[-vv́ʔi] ⟷ [+past, +exp] ("Experienced Past")
[-éʔi] ⟷ [+past] ("Nonexperienced Past")
[-éesti] ⟷ [+future] ("Absolute Future")
∅ ⟷ elsewhere (see footnotes 8 and 9 for complications)

(38) Tense terminal nodes and VIs

Terminal Node	[+past, -fut, +exp]	[+past, -fut, -exp]	[-past, +fut]	[-past, -fut]
Winning VI	[-vv́ʔi] ⟷ [+past, +exp]	[-éʔi] ⟷ [+past]	[-éesti] ⟷ [+future]	∅ ⟷ elsewhere

3.2.2 The Prosp node

- The syntactic terminal node of interest here is Prosp; the possible features are [+/- prosp][10].

[9] If the "habitual" suffix is really an instantiation of Tense, we would want both [past] and [future] features; [-oʔi] could then be specified as [-past, -future]. Or, if we have a [+/- pres] feature (see previous footnote), [+pres].
[10] This can be seen as shorthand for [+/- RT precedes ET]; a Perf head could similarly have [+/- RT follows ET]. If the "incipient" is an immediate prospective and is also competing, we would need another set of features to specify a short

- The Vocabulary Items competing for insertion into the Prosp node:

(39) **Prosp**

[ta-] ⟷ [+prosp]
[-i(s)] ⟷ [+prosp]
∅ ⟷ elsewhere

- Note that we have one morpheme (the Prosp terminal node, specified for [+prosp]) that corresponds to two VIs with identical featural specifications but different phonological strings

- Halle & Marantz's original proposal for DM on principle does not allow for one set of featural content to be realized in more than one place

- The process of fission was introduced by Noyer (1997) to create additional Positions of Exponence (terminal nodes) from a single complex feature bundle

    - But this is a different situation--we don't have multiple features from a bundle being realized by different strings,
    - We have two strings realizing a single feature

- One solution is to adapt Müller's (2007) rule of Enrichment[11], which (as a kind of counterpart to Impoverishment) adds features post-syntactically but before Vocabulary Insertion

    - It is restricted to features that *already exist* in a structure (thus differentiating it from Dissociation): it is essentially doubling of a feature

    - The proposed rule in question:

(40) **Prosp Enrichment**
∅ → [+prosp] / [+prosp] ____

- This Enrichment rule would operate on the Prosp node after the syntax; after Enrichment, Prosp carries two [+prosp] features

- This application of Enrichment would be followed by Vocabulary Insertion, during which an instance of Fission would be triggered, and an additional position of exponence created

- The process of Vocabulary Insertion continues until every Vocabulary Item that is able to be inserted into the terminal node has been inserted

- Note that the two pieces of inflection appear on either side of the verb root;

- Since the VIs are specified as prefixes or suffixes, linearization will result in the correct order of the pieces of inflection in the end

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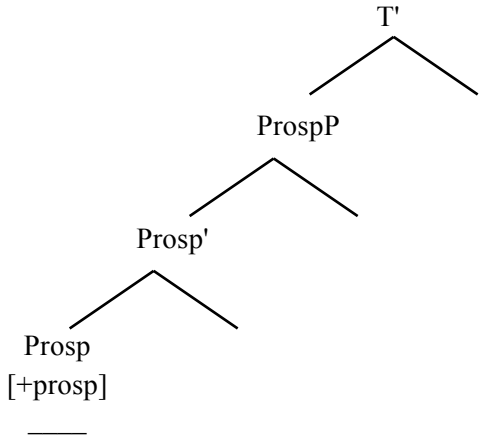
distance between RT and ET. The incipient VI's further specification would rule it out for insertion in a Prosp node specified only as [+prosp], under the Subset Principle.

[11] Müller advocates Enrichment as an alternative to Noyer's analysis via secondary exponence, in (presumably) all cases of extended exponence. We do not adopt this stance here, per se; rather, we support Enrichment as an option for instances of distributed exponence in particular.

(41) Prosp terminal nodes and VIs

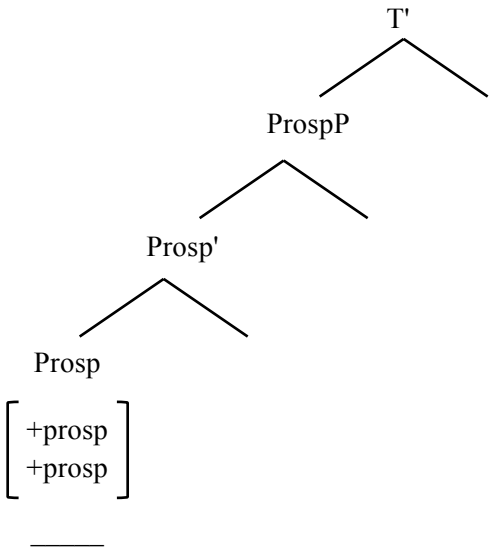
Terminal Node	[+prosp]	[-prosp]
Winning VI	[ta-] ←→ [+prosp] [-i(s)] ←→ [+prosp]	∅ ←→ elsewhere

(42) a. Before Enrichment

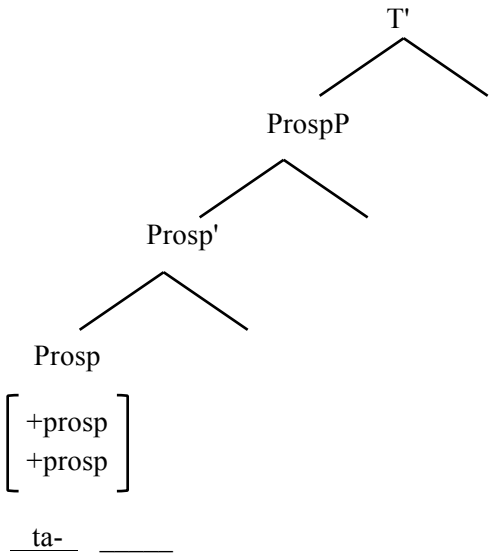


b. Enrichment
∅ → [+prosp] / [+prosp] ____

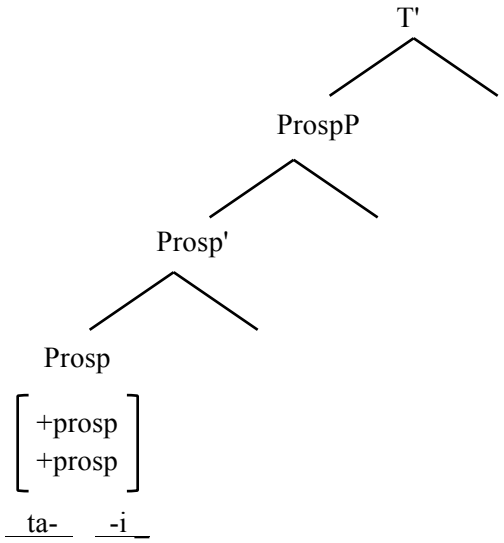
c. After Enrichment



d. Vocabulary Insertion triggers Fission



e. Vocabulary Insertion continues



4. Conclusion

- Our analysis accounts for the "future-referring" properties of Cherokee *ta-/-i(s)*
- Also accounts for their ability to appear across tenses with prospective meaning in each case
- This improves on traditional descriptions of *ta-/-i(s)* as a future tense marker
- Our DM analysis paves the way for further formal treatment of the TAM morphology in the language

- **Implications**

    - Existing work on Cherokee has generally taken the aspectual "suffixes"/different forms of the stem to be the sole loci of aspectual information in the verbal complex
    - We have argued that at the very least, there is aspect of the prospective(/perfect) type outside the stem

- This expands our view of what aspectual morphology might look like not just in Cherokee, but possibly in other Iroquoian languages as well
- This and future investigations also add to our cross-linguistic evidence for the separation/distribution of different categories of aspect in the functional hierarchy

- **Future work**

  - Where does habitual aspect fit into the aspectual system we've outlined?
  - How do the "derivational" suffixes fit into the analysis? Which of these have aspectual semantics/functions?
  - Which, if any, of the "prepronominal prefixes" are aspectual in nature? What significance does the ordering of these affixes have?

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Appendix: Morpheme Glosses

1	1st person		FC	focus clitic
2	2nd person		FIM	future imperative
3	3rd person		FUT	future
1/2	1st person subject/2nd person object		FUT2	future (allophone)
2/1	2nd person subject/1st person object		IMM	immediate
A	set A pronominal prefix		INC	incompletive
AFT	absolute future		IRR	irrealis
AMB	ambulative		ITR	iterative
A.AN	set A with animate object		MOT	motion
APL	applicative		NEG	negative
B	set B pronominal prefix		NOM	nominalizer
CAU	causative		NOM2	nominalizer (allophone)
CMP	completive		NXP	non-experienced past
COM	command		PL	plural
CQ	conducive question clitic		PO	potential clitic
CSM	cislocative motion		PRC	present continuous
DL	dual		PRI	pre-incipient
DST	distributive		PRT	partitive
DST2	distributive (allomorph)		Q	question clitic
DVN	deverbal noun		RFL	reflexive
EX	exclusive		TRN	translocative
EXP	experienced past			