Cupen)o Verbal Morphology and the Theory of Contextual Allomorphy

Luis Barragan
Linguistics Prelim
December 5, 2001

ABSTRACT

       This paper investigates the verbal morphology of Cupen)o, a Uto-Aztecan language formerly spoken in southern California, and proposes an analysis that is consistent with the specific proposals of morphological theory outlined by Bobaljik (2000). It is argued that the morphology of Cupen)o can be given a straightforward analysis based on the principles of late-insertion, and does not present a counterexample to the proposal of *rewriting* as outlined by Bobaljik,. The analysis demonstrates that the high redundancy of number and tense marking is a direct result of the high degree of allomorphy present in the Cupen)o verb stem. This allomorphy is based on morphosyntactic features contained in syntactic nodes that operate strictly root-outward supporting the proposal of *rewriting* over other proposals claiming features are available at all levels of grammar.

1.0 Introduction[1]

       The process of contextual allomorphy has been cited in recent proposals as key

support for late-insertion hypotheses of grammar. This situation is one where the shape

and/or appearance of one morpheme is determined by the context in which it occurs. It

has been observed in many languages that certain morphemes are sensitive to either the

features or shape of neighboring morphemes. In the proposal outlined by Bobaljik

(2000), there are three mechanisms that account for the processes of contextual

allomorphy; *separation*, *cyclicity*, and *rewriting*. The first two are well established from

the theory of Distributed Morphology (Halle and Marantz 1993), but the third is

specifically motivated by Bobaljik (2000). *Separation/Late insertion* proposes that

morphology interprets syntactic structure and is not a separate pre-syntactic component

that "feeds" syntax as proposed by Lexicalist theories of morphology (Chomsky 1970,

Lieber 1992). The second proposal of *cyclicity* states that this process of interpretation

occurs root-outward as the terminal nodes of syntax are fed with phonological, and

---

[1] This author of this paper is indebted to the careful reading and suggestions of notable faculty, Andrew Carnie, Heidi Harley, Jane Hill, Terry Langendoen, as well as the insights and discussions with graduate students taking part in the Prelim Seminar and Jason Haugen. In addition, this paper would not be possible without the very important documentary work on Cupen)o done by Jane Hill, Roderick Jacobs, and Paul Louis-Faye, as well as the current descriptive studies being investigated by Jane Hill. All mistakes and errors are my own.
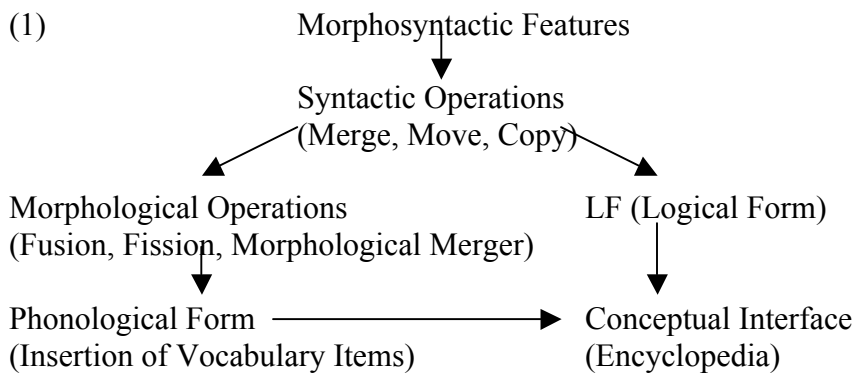
semantic information. Bobaljik's proposes a third component, *rewriting,* stating that

once morphosyntactic features are expressed with phonological and semantic information

they are used up and are no longer part of the representation. This proposal is intriguing

for both its empirical and theoretical claims, and the complex allomorphic interactions of

the Uto-Aztecan language Cupen)o provides a rich area to test the validity of Bobalijik's

theoretical addition to Distributed Morphology.

In this paper, I propose that the complex morphological interactions visible in

Cupen)o morphology fall out from the three principles outlined by Bobaljik (2000). In

particular, I demonstrate that Cupen)o does not contradict Bobaljik's proposal of

rewriting, and in fact, a more principled account of Cupen)o is brought about through the

use of this proposal. Support for this account comes from an analysis of Cupen)o that

results from well-established orderings of functional projections in Universal Grammar

(Chomsky 1995), which is contrasted with an earlier analysis that relies on more

controversial orderings and fails to predict the correct interactions of allomorphy visible

in Cupen)o verbal morphology. The analysis supports the idea that features are replaced

in the morphological component in agreement with Bobaljik's proposal of *rewriting* in

contrast with earlier views in Distributed Morphology that maintain that features are

available at all levels of grammar.

The next section lays out the late-insertion theory of Distributed Morphology,

following closely the discussion laid by Harley and Noyer (1999), continuing with the

recent developments by Bobaljik (2000). This section is intended both as a summary for

those unfamiliar with these proposals and as a framework to highlight important

theoretical claims made under this theory of grammar.

2.0 Theoretical Discussion

Distributed Morphology (DM) is the late-insertion piece-based theory of grammar developed by Halle and Marantz (1993). The notion of distributed comes from the architecture of grammar (still of the Y-type) that explodes the lexicon into three separate components; a set of morphosyntactic features manipulated by syntactic operations, a set of vocabulary items corresponding to phonological content, and an encyclopedia that gives semantic interpretation. There is no privileged pre-syntactic lexicon as assumed by proponents of the Lexicalist Hypothesis (Lieber 1992). Syntax generates structures by operations that combine morphosyntactic features (via Merge and Move), which are then handed to the morphological component for interpretation. Interpretation consists of filling in syntactic nodes with phonological and semantic information, a procedure of vocabulary insertion termed spell-out. The model is visually diagrammed below.

(1)   Morphosyntactic Features

                        Syntactic Operations
                        (Merge, Move, Copy)

Morphological Operations   LF (Logical Form)
(Fusion, Fission, Morphological Merger)

Phonological Form ⟶ Conceptual Interface
(Insertion of Vocabulary Items)   (Encyclopedia)

There are three main principles of DM that govern the morphological component: *late-insertion*, *underspecification*, and *syntactic hierarchical structure all the way down*. *Late-insertion* is the strong anti-Lexicalist (Lieber 1992) position that syntactic categories are purely abstract and have no phonological content. It is only after syntax that terminal nodes are filled in with phonological material through vocabulary insertion. This process is driven by the Paninian Elsewhere Principle, where items competing for insertion are

4

not required to contain the full matching set of features that correspond to the terminal node. A winning candidate can be selected that is not fully specified for all features contained in the terminal node, provided that it contains more matching features than its competitors. *Syntactic hierarchical structure all the way down* proposes that there is no principled distinction between the structures seen in both syntax and morphology. The units in both (consisting of a terminal node and its content) are discrete and are not the result of a pre-lexical component.

The process of interpretation in DM follows a cyclic order with the most embedded node spelled-out first. Two types of morphemes are recognized based on the properties they exhibit during spell-out. F-class morphemes are those where there is no choice regarding spell-out. Closely approximating functional categories, the insertion of these items is determined by the set of features provided by Universal Grammar. The insertion of l-morphemes, the class corresponding to the idea of lexical categories, is less constrained in the choice is not determined by morphosyntactic features, but on language-specific concepts. Insertion of f-morphemes is the result of competition where the vocabulary item that matches the most features in the terminal node is chosen. Although l-morphemes do not compete like f-morphemes, they are subject to licensing restrictions. Their position must be licensed in a local structural relation, typically constrained by f-morphemes which act as licensers. The licensing f-morphemes determine the category and interpretation of the l-morpheme, with roots licensed by a determiner receiving a "nominal" interpretation, and roots licensed by v a "verbal" interpretation (and so forth). Thus, the English root *destroy*, where receives a nominal interpretation (*destruction*)

when its nearest licenser is a determiner, but a verbal interpretation (*destroy*) when its nearest licenser is v.

In addition, DM motivates morphological operations of fusion, fission, and morphological merger to account for mismatches between phonological and syntactic levels. Two terminal nodes occurring as sisters may merge together by fusion, creating a single node expressing the features contained in both. This accounts for the appearance of portmanteau forms in morphology. Fission is the opposite case that accounts for forms with multiple exponents of a single node. In this case a terminal node splits into two sister nodes resulting in vocabulary insertion at both spots. Morphological merger closely approximates head-movement in syntax[2] in adjoining terminal nodes under a zero-level category node (the head). It differs by being able to trade relations in sister nodes by a process of local dislocation, where a zero-level element trades its linear position with its sister node. This captures morpheme rearrangement without violating the hierarchical relations formed in syntax.

The theory of late-insertion proposed by Bobaljik (2000) is similar in many ways to Distributed Morphology. Both depend on separating the lexicon into different components; one that combines abstract features together, and another that provides phonological content to those structures. Bobaljik's proposal follows from three key assumptions about the morphological component which he terms *separation*, *cyclicity*, and *rewriting*. *Separation* is essentially the same idea expressed as *late-insertion* under DM where morphology interprets syntactic structures rather than being part of a pre-syntactic lexical component. The second assumption in Bobaljik's proposal, *cyclicity*, is also shared with DM. This idea states that vocabulary insertion occurs root-outwards as

---

[2] The two have been argued to be the same process. (see Marantz 1984, Harley and Noyer 1998)

the morphological component interprets syntax. The third idea is unique in proposing that

morphosyntactic features are used up by the process of vocabulary insertion and are no

longer part of the representation. This operation, termed *rewriting*, replaces

morphosyntactic features in the terminal nodes with vocabulary (phonological) material

through a series of rewrite rules. The replacement is total, agreeing with Halle (1990:

156), in the sense that vocabulary insertion eliminates morphosyntactic features by

replacing them with either a series of phonemes or null vocabulary material.[3]

The idea behind *rewriting* actually stems from an extreme view of single

exponence in morphology (Noyer 1997). This view has been adopted in DM where each

feature bundle contained in a given node may only be directly realized once by a

vocabulary item. Sensitivity to features outside the node that is being filled is always

considered allomorphy and is the only way that features from other nodes interact with

one another. Bobaljik takes this view even further by constraining this process in

proposing that nodes can only interact in specific ways. He proposes that nodes only

show sensitivity to features outside the node being inserted with vocabulary material. All

other instances of allomorphy that is not outwards-based can only show sensitivity to the

phonological material, and cannot show sensitivity to features.

Bobaljik uses these three assumptions to motivate processes of contextual

allomorphy in Itelmen, a Chukotko-Kamchatkan language of Russia's Bering sea coast.

Itelmen demonstrates allomorphy on class and object agreement morphemes that is

dependent on the features of subject agreement. In addition, there is also phonological

allomorphy of class based on the root of the verb. Bobaljik uses these assumptions to

---

[3] Bobaljik (2000) notes that this view is in conflict with Halle and Marantz (1993) and Noyer (1997). Halle and Marantz explicitly maintain that features remain part of the representation and cite evidence from Potawotami to support this view (although Bobalijik cites work in progress that resolves this in his favor).

motivate a split between the observed patterns of allomorphy in Itelmen. Phonological based allomorphy is viewed as operating inwards as vocabulary items interpret syntax. In Itelmen, the choice of verb class is dependent on the phonological form of the root in a process reminiscent of strong/weak forms in Germanic. In essence, the realization of the morpheme depends on a previous insertion of vocabulary material and not on the morphosyntactic features of the node. Feature-based allomorphy, on the other hand, operates strictly root-outwards during vocabulary insertion. As a node is being filled, the only morphosyntactic features available to trigger allomorphy are those that are peripheral, being those that have yet to be interpreted. Once the node is filled with vocabulary material, the features are no longer available to trigger allomorphy in the rest of the derivation, having been replaced by this interpretive process.

Viewing vocabulary insertion as a replacive operation is crucial for Bobaljik's proposal and is the one point that separates his view from earlier works in DM. Feature-based allomorphy cannot display the asymmetries seen in Itelmen (being strictly root-outwards), unless the process of *rewriting* replaces the features from the representation. DM does not predict this asymmetry, and since features are available at all points of interpretation it actually predicts inwards-sensitive feature allomorphy, which is unattested from Bobaljik's view. Apparent counterexamples from Chukchi and Turkish are explained, respectively, as a result of phonologically conditioned allomorphy and a misanalysis of actual clitics as morphemes.

The rest of the paper is structured as follows. First, an overview of Cupen)o morphology is provided, highlighting areas that appear to be problematic to Bobaljik's *rewriting* proposal. This is particularly seen in morphemes for tense and subject

agreement, that seem to trigger allomorphy both inwards and outwards. Following this is

a brief sketch of the analysis that viewed Cupen)o as a genuine counterexample to

Bobaljik's theory of contextual allomorphy. Following this section will be an updated

analysis, based on less controversial orderings of functional projections that demonstrates

that Cupen)o verbal morphology does not conflict with Bobaljik's proposal, and that in

fact a better account of Cupen)o morphology is gathered from the three key assumptions

made in Bobaljik's theory of contextual allomorphy.

3.0 Cupen)o verbal morphology

The description of Cupen)o that follows is based primarily on the work of Jane

Hill (Hill 2000a, Hill 2000b, Hill 2000c, Hill 2001a, Hill 2001b, Hill 2001c), whose work

constitutes the most recent and thorough description of the language based on fieldwork

with the last speakers in the late 1960s (primarily Roscinda Nolasquez, a speaker of the

Cupa dialect). The examples and description given are from her work, which also

includes materials gathered by Paul Louis Faye in the 1920s. Attention will be given to

the numerous suppletive forms that will be argued to be instances of allomorphy in the

Cupen)o verb construct. This is followed by a brief review of a previous analysis that

proposes Cupen)o to be a counterexample, highlighting the problematic areas of this

analysis.

3.1 Description of Data

Hill's description shows Cupen)o to be very rich in verbal morphology, having

positions for object, subject, class, aspect and tense. In addition there are valency

changing affixes, such as the causative suffix *-ni*, and others not be discussed in this

9

proposal. Not all affixes are required to appear in the verb construction, and the root is

able to appear without any affixes as seen below.[4]

(2)　　ne€'-ne-pe　　　　tukuma€y　neti'iv-a-y　　　　　**'asra€'**
　　　　1SG-1SG-IRR　　　tomorrow　1SG-clothes-PSD-OBJ　**put.on**
　　　　"I will put on my dress tomorrow."

Object agreement is always occurs as the left-most prefix, attaching either to the verb or

the subject agreement affix.[5]

(3)a.　Mú=ku'ut　　　'áye　pe-ná'aqwa-nm-i　　**mi**-kwáw-pe-n
　　　　And=REP　　　then　3SG-child-PL-OB　　**3PL.OB**-call-3SG-IN
　　　　"And then it is said he called his children (Faye Creation 119)"

　　b.　pe-srúun-i　　　**pi**-kúlu-lu-pe-n-ngiy
　　　　3SG-heart-OB　**3SG.OB**-drag-RDP-IN-motion.away
　　　　"He went away dragging his heart"

　　c.　tu€ku='ep　　　　　**'i**-che€'-max
　　　　yesterday-R　　　　**2SG.OB**-1PL-give

---

[4] Abbreviations for affixes are as follows
ABS　　absolutive case
ACC　　accusative case (a frozen case marker with a few nouns)
CAUS　causative
COND　conditonal
CUS　　customary
DUB　　dubitative
ERG　　ergative case
FUT　　future
IN　　　-*in* theme-class suffix
IMP　　imperfective
IRR　　irrealis
NPN　　non-possessed noun
LOC　　locative
OB　　　object case
PL　　　plural
PSD　　possessed noun suffix
R　　　　realis
RDP　　reduplication
IRR　　Irrealis
REP　　reportative
YAX　　-*yax* theme-class suffix
[5] This position of object before subject suggests a higher hierarchical ordering of AGRO over AGRS, which is highly problematic for Universal Grammar. This analysis does not account for this order, suggesting it for future work, although there is evidence that this affix is in fact a clitic.

"Yesterday we gave it to you"

Subject agreement is restricted to past tense forms where it can occur either as a prefix or suffix to the verb root. In the past perfective (where perfective aspect is unmarked), subject agreement becomes the only marking of past tense on the verb, a fact which will be very significant to the analysis here.

(4)a. **pe**-tewá-lu
    3SG-see-go.to
    "he went to see"

  b. **pem**-ʻaÛʼchiwi
    3PL-make
    "they made"

Verbs in Cupen)o belong to one of three thematic classes, named after the suffixes they take. *Zero* class verbs are unmarked and take no suffix, while *in-* and *yax-* classes take corresponding *-in* and *-yax* suffixes. These classes roughly correspond to transitivity, with *in-* class verbs being composed mostly of agentive transitive verbs, and *yax-* class containing many unaccusative intransitive verbs. *Zero* class verbs are mostly intransitives and Hill (n.d.) points out that they contain many unergative verbs with subjects in Agent or Experiencer thematic roles.[6]

The position of subject agreement is intimately dependent on verb class. Verbs of the *in-* and *yax-* class always have subject agreement suffixed to the root, while zero class verbs demonstrate subject agreement as prefixes. This positioning is only relevant with the past tense forms where subject agreement marking appears.

(5)a. **ne**-túl
    1SG.PAST-finish

---

[6] Hill (2000a) also points that many zero class verbs correspond to basic bodily processes (possibly including psych verbs) and human activities (motion verbs) from the perspective of Cupen)o culture.

"I finished"

b. **cem**-tewásh
   1PL.PAST-lose
   "We lost"

c. yút-**ne**-n
   raise-**1SG.PAST**-IN
   "I raised"

d. hét-**pe**-yax
   crouch-**3SG.PAST**-YAX
   "He crouched"

The *in-* class also has a suppletive plural number form that "agrees" with subject marking

in past tense forms. Examples are seen in (6)

(6)a. wíchax-ne-**n**-qal
    throw-1SG.PAST-**IN**-IMP.PAST.SG
    "I was throwing it"

b. wíchax-pe'-**men**-wen
   throw-1PL.PAST-**IN.PL**-IMP.PAST.PL
   "They were throwing it"

Tense and aspect morphology are also present in the verb appearing as final

suffixes in the verb construction. Both suffixes form a unit where the morpheme

indicating tense never appears without a corresponding imperfective aspect suffix.

Perfective aspect is the unmarked case and perfective verbs show no morphology for

either tense or aspect. The important exception to note is past perfective, seen in (4),

where the morphology indicating tense is the appearance of the morpheme which Hill

analyzes as subject agreement. Imperfective aspect for present, customary, and future

tenses are phonologically related, being suppletive for both tense and number. Examples

of past and present imperfective are seen below.

(7)   PAST IMPERFECTIVE
  a. túku='ep   mi-wíchax-ne-n-**qal**   temá-t'a-yka

yesterday=R   3PL.OB-throw-1SG-IN-**IMP.PAST.SG**   ground-ACC-TO
"Yesterday I was throwing them to the ground"

   b.   túku='ep   mi-wíchax-che'-men-**wen**   temá-t'a-yka
       yesterday=R 3PL.OB-throw-1PL-IN.PL-**IMP.PAST.PL** ground-ACC-TO
       "Yesterday we were throwing them to the ground"

(8)   PRESENT IMPERFECTIVE
   a.   "Né-ye   'apú=sre='ep   tew-**qá'**   ne-'ách-i?"
       1SG-mother   already=DUB=2SG.ERG   see-**IMP.SG**   1SG-pet-OB
       "Mother, did you perhaps just now see my pet?"

   b.   "Hereryaa!   axwé-sh   'axwá-'aw   ngáq-yax-**we**   'ishmí'i!
       Hey!   that-ABS   that-at   perch-YAX-**IMP.PL**   something
       "Hey! That's something sitting there on top"

There also exist other imperfective forms that are more problematic and not as well

understood. One of these is described as a "customary" tense by Hill, that takes an

entirely different suffix in the singular form. Examples of this are seen below.

(9)   CUSTOMARY IMPERFECTIVE
   a.   'atíre   qwe-l   mélen   naxáni-sh   kwew-kwáw-ya-**na**
       very   can-2/3.ABS-IRR   much   man-NPN   RDP-shout-YAX-**CUS.SG**
       "The man is too noisy"

   b.   qáy-em-pe   mi-nélin-**wene**   súq-ta-m-i
       NOT-2/3.ERG-IRR   3PL.OB-look.at-**CUS.PL**   deer-NPN-PL-OB
       "They won't be seeing any deer"

Future tense is split by Hill into two forms, a future imperfective and a nominalization

that has become reinterpreted as an "immediate future." Examples of the future

perfective shows forms that phonologically pattern like the customary imperfective,

while the immediate future patterns phonologically like present and past imperfective,

conditioned in particular by subject number.

(10)   FUTURE IMPERFECTIVE

a. tukumáy=ne=pe   ne-má-ʻaw   nengú-**nash**
   tomorrow=1SG=IRR   1SG-hand-??   hold-**IMP.FUT.SG**
   "Tomorrow I will hold it in my hand"

b. tukumáy=che=pe   che'-má-ʻaw   nengú-**wene**
   tomorrow=1PL=IRR   1PL-hand-??   hold-**IMP.FUT.PL**
   "Tomorrow we will hold it in our hands"

The aspectual dimension of the immediate future is unclear. There are examples that

seem perfective, while others lean toward imperfective.

(11)   IMMEDIATE FUTURE
    a. háw-i-**qat**
       sing-IN-**IMP.FUT.SG**
       "Singular unspecified person is gonna sing"

    b. háw-i-**qatim**
       sing-IN-**IMP.FUT.PL**
       "Plural unspecified person is gonna sing"

    c. Pángi-sh   wíwi-sh   páy-i-**qatim**
       New-NPN   acorn.mush-NPN   eat.acorn.mush-IN-**IMP.FUT.PL**
       "They were going to eat new acorn mush"

All of the imperfective tense/aspect suffixes can be charted out and viewed in Table 1
(based on Hill n.d.).

TABLE 1

	NON-FUTURE			FUTURE/IRREALIS	
	PRESENT	PAST	CUSTOMARY	IMMEDIATE	
SG	-qa	-qal	-na	-qat	-nash
PL	-we	-wen	-wene	-qatVm	-wene

      In addition, there are a set of valency changing suffixes of which the causative *-ni*

is the most relevant to the discussion here. This causative only appears on verbs of the

zero and *in-* classes, but its appearance does not affect the position of subject agreement.

Subject agreement stays in its prefixed position in *zero* class verbs (12a.)and still appears

suffixed to the verb in *in-* class verbs (12b.). This is seen in the following examples.

(12)a.   Me   ʻaxwaЄ-nga   chimi-**pem**-aЄsr-ni-n

and   that-LOC   1PL.OB-**3PL**-bathe-CAUS-IN
"And there they bathed us"

b. Mi-hu€sr-**che'**-men-ni-n
    3PL.OB-smoke-**1PL**-CAUS-IN
    "We made them smoke"

Even though 'bathe' appears with an *-in* suffix, it is still considered a *zero* class verb

because of subject agreement surfacing as a prefix to the verb. In these cases, Hill

(2000a) points out that the *-in* class suffix is not thematic for the verb, but for the

causative suffix.

The area that is most problematic for Bobaljik's theory of contextual allomorphy

is the position of agreement and tense affixes. Recall from above that object agreement is

always the outermost prefixed element, followed by either the root, or subject agreement

(Hill 2000a). This is seen in (13), repeated from (2) above.

(13)   tu€ku='ep   **'i**-che€'-max
       Yesterday-R   **2SG.OB**-1PL-give
       "Yesterday we gave it to you"

The appearance of the affix analyzed as subject agreement by Hill, is the primary

exponent of past tense. This is complicated by the presence of another marking of past

tense and subject number that occurs at the end of the verb, coupled with a corresponding

aspect suffix seen in (14).

(14)   wi€chax-**ne**-n-**qal**
       THROW-**1SG**-IN-**IMP.PAST.SG**
       "I was throwing it."

This apparent double marking contrasts with the more usual marking of tense only

once in the verb[7]. The data in (14) was previously analyzed (Barragan 2001) as a type of

---

[7] Steele's (1990) theory of morphology proposes that subject information is dispersed across the verb for
the closely related Luisen)o and does not analyze the sensitivity for subject marking as being the result of
feature based allomorphy.

contextual allomorphy where either the appearance of subject agreement is triggered by the features in tense, or the morpheme analyzed as subject agreement is actually a past tense marker that is allomorphic for the features of subject agreement. If the morpheme in question is subject agreement, then what occurs is that its appearance on the verb stem is triggered by the feature [PAST] in tense. Reanalyzing the morpheme as one of past tense would indicate that there are a number of allomorphs (6 total) that are sensitive to the person/number features in AGRS.

This is not the only area where contextual allomorphy is found on the verb construction. Complicating the situation is the allomorphy for the features of number that are found in the suppletive aspect suffixes and in the *in-* class suffix and aspect suffixes. Those affixes are sensitive to the number features found in subject agreement, which only appear in past tense forms. This is illustrated in the minimal pair below.
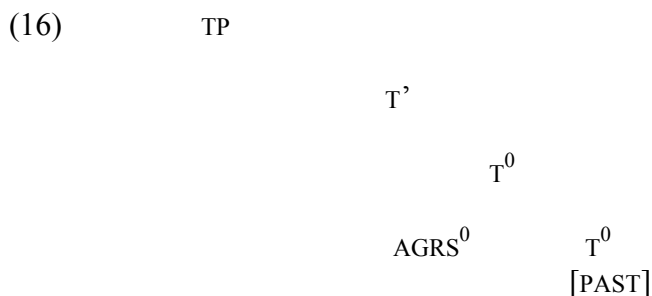
(15) a. tuÛku='ep   mi-wiÛchax-ne-**n-qal**   temaÛ-t'a-yka
Yesterday=R   3PL.OB-throw-1SG-**IN-IMP.PAST.SG**   ground-ACC-TO
"Yesterday I was throwing them to the ground"

      b. tuÛku='ep   mi-wiÛchax-che'-**men-wen**   temaÛ-t'a-yka
Yesterday=R   3PL.OB-throw-1PL-**IN.PL-IMP.PAST.PL**   ground-ACC-TO
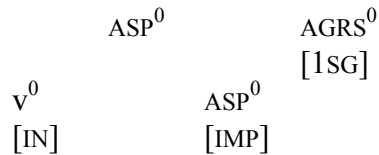"Yesterday we were throwing them to the ground"

Contextual allomorphy in Cupen)o is sensitive to two different sets of features (number in AGRS and [PAST] in TENSE) that appears to occur both inwards and outwards in conflict with Bobaljik's proposal of *rewriting*. This situation raises two questions that an analysis would need to address: 1) what is the proper ordering of dependencies that accounts for the allomorphy present in Cupen)o and 2)why is it that we find this set and not another in Cupen)o. The first question is empirical in the sense that its main goal is to account for the data in Cupen)o. The second is more interesting in that it ties directly with the

16

assumptions made by Bobaljik in his account of allomorphy in Itelmen. If there is a

possible account of the data in Cupen)o that does not conflict with his theory of

contextual allomorphy, then the facts from Cupen)o would support his proposal of

rewriting over theories of morphology that assume features survive the morphological

component.

3.2 Previous Analysis of Cupen)o

A previous attempt to answer both questions concluded that Cupen)o was a

counterexample to Bobaljik's theory and concluded that the *rewriting* process had to be

constrained to allow the survival of person/number (and perhaps all) features. This

analysis was based on two major assumptions: 1) that agreement was sensitive to the

features of [PAST] with subject marking appearing only in the presence of this feature,

and 2) TENSE was crucially hierarchical over AGRS, the ordering needed to provide

outwards-sensitive feature allomorphy. The analysis provided the following hierarchical

arrangement for Cupen)o (note that this hierarchical arrangement of features is consistent

with the primary labels assigned in Hill (2000a)).

(16)   TP

                    T'

                      T^0

            $AGRS^0$ T^0
                            [PAST]

17

$$\text{ASP}^0 \qquad \text{AGRS}^0$$
$$[\text{1SG}]$$
$$\text{v}^0 \qquad \text{ASP}^0$$
$$[\text{IN}] \qquad [\text{IMP}]$$

The above analysis was flawed in two significant ways. First, in order to account for the arrangement of affixes in Cupen)o and for the allomorphy of subject agreement sensitive to the feature [PAST], TENSE was proposed to be hierarchical to AGRS, an ordering of functional projections more controversial[8] than the expected ordering of AGRS over TENSE (Chomsky 1995). Second, the ordering predicted that feature-based allomorphy was conditioned both inward and outward, in conflict with Bobaljik's proposal of *rewriting*. This conflict arose out of an analysis that separated the final tense affix suffix into two morphemes; an aspect morpheme and another morpheme indicating tense sensitive to the features of aspect and number. This is seen in the following.

(17)   mi-súlul-che'-men-**we-n**
        3PL.OB-push.in-1PL-IN.PL-**IMP.PL.-PAST.IMP.PL**
        "we pushed them in"

Assigning this morpheme to the category tense and under the TENSE node was very problematic for the proposal of *rewriting*. By assuming total replacement of features, in accordance with *rewriting*, no morphosyntactic information regarding number or aspect is available to this node. Since this was the outermost node to be filled with vocabulary material, we should expect this morpheme would show no sensitivity to any features lower in the tree. Instead this morpheme conflicted with the assumption of *rewriting* by showing feature based allomorphy was both inwards and outwards sensitive. This analysis of Cupen)o concluded that the relations of allomorphy were a counterexample to

---

[8] Although see Harley and Carnie (1997) for an analysis that motivates T over AGRS in Irish.

Bobaljik (2000) and that features had to be available at all points of the representation in accordance with previous views of DM.

4.0 A New Account of Cupen)o Verbal Morphology

The following analysis makes up for the shortcomings of Barragan (2001) and demonstrates that a better account of Cupen)o comes from an analysis that does not conflict with the proposal of *rewriting.* Support for this analysis is found in appealing to more traditional orderings of functional projections and a reanalysis of the morpheme labels given by Hill. The analysis will begin with an account of the distribution of the subject agreement affix. Following this will be a discussion (following Harley 1999) of the thematic class suffixes as f-morphemes that license causative and stative interpretation of roots. Aspect/tense suffixes will then be given an account based on sensitivity to features of both AGRS and TENSE. Finally, an illustration of the allomorphic process will be given, showing how the principles of grammar outlined in Bobaljik (2000) account for the complex interactions in Cupen)o.

4.1 Subject agreement

Subject agreement displays two types of asymmetry in appearing only in past tense forms as well as having a variable position in the verb. It is restricted to past tense, but its position is remarkable in that it appears variably as a prefix or suffix. The regularity of this distribution ties directly to the class of the verb. Verbs of the *zero* class show subject agreement as a prefix, while verbs of the *in-* and *yax-* classes have subject agreement suffixed to the verb, but preceding the *-in* or *-yax* morpheme. Relevant examples are repeated in (18) below:

(18)   a. tu€ku='ep   'i-**che€**'-max
          Yesterday-R   2SG.OB.**1PL**-give

19

"Yesterday we gave it to you"

 b. tu€ku='ep   ha€sri-**pem**-yax
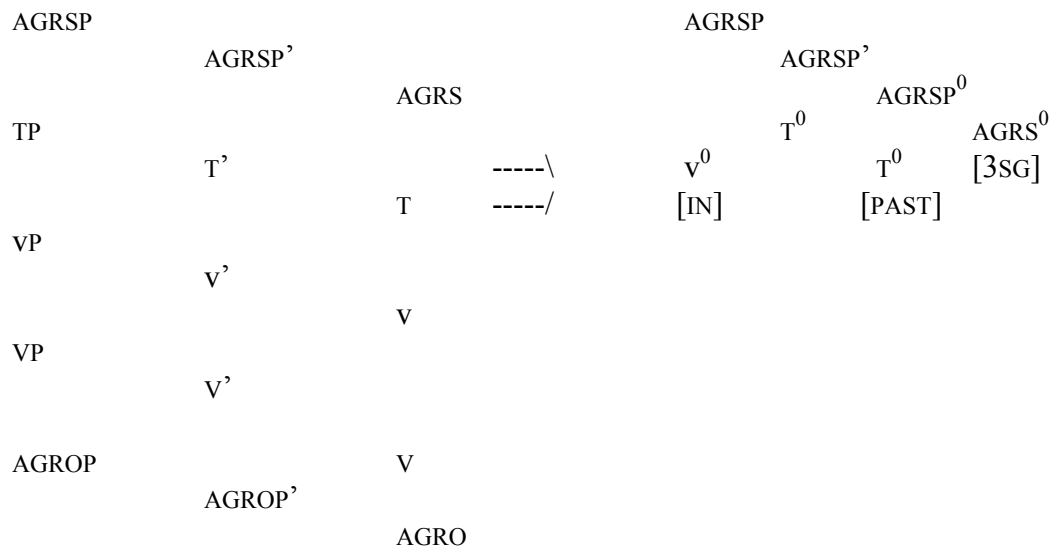 Yesterday-R   go-**3PL**-YAX
  "Yesterday they went off"

 c. Mu€=ku'ut 'a€ye pe-na€'aqwa-nm-i mi-kwa€w-**pe**-n
  and=REP then 3SG-child-PL-OB 3PL.OB-call-**3SG**-IN
  "And then it is said he called his children"

Accounting for this alternating pattern, at first glance, seems difficult from a DM

approach. DM seems to predict that vocabulary material would always realize the same

position, due to insertion occurring at specific nodes. It would not predict that subject

marking would be able to alternate its realization in what appears to be different syntactic

nodes. The data in (18) appears to be more compatible with lexical or rule-based

approaches to morphology (Anderson 1992, Lieber 1992), that specify affixal positions

by sets of rules for each morpheme. However, recent developments in syntactic theory

provide the necessary tools to provide a principled explanation of the Cupen)o data that

does not resort to arbitrary and unconstrained rules.

  Recent developments (Chomsky 1995, Kratzer 1996, Koizumi 1993) have shown

that verbs are composed of two heads: a verbal "root" projecting a VP, and a "light" verb

which selects the root's VP as it compliment and projects a vP. By assuming that *-in* and

-yax are instances of light verbs, then we can account for the alternating position of

subject agreement in the following way. Verbs in Cupen)o raise from VP to AGRS, in a

process analogous to proposals for French and German (Chomsky 1995, Emonds 1978,

Pollock 1989) . The shifting position of subject agreement is evidence that head

movement takes place from the closest morpheme acting as the lexical head up to AGRS.

Movement of this type is motivated by an [AFFIX] feature on AGRS that requires checking
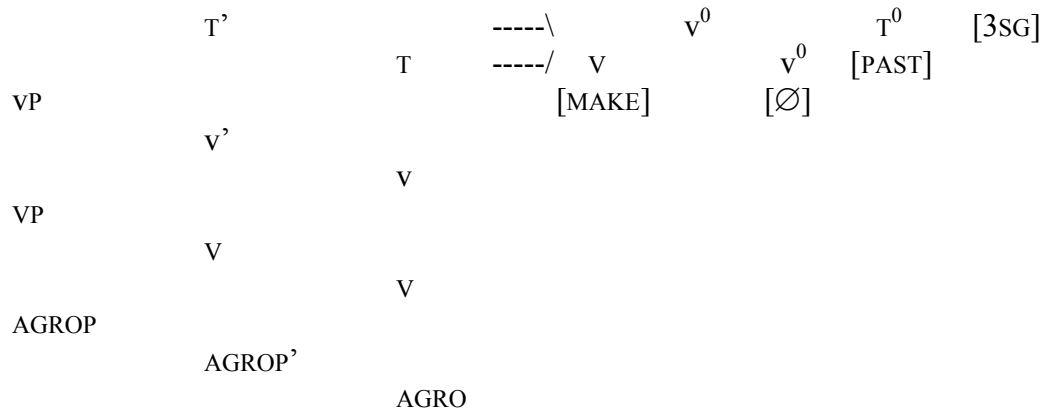
by an appropriate lexical element. This feature is checked by v, which motivates movement from v to AGRS. Thematic class verbs have an available lexical head (the *-in* or *-yax* morpheme), which causes movement to bypass the root in favor of the thematic suffix. *Zero* class verbs have no available head at v, and because of this, attract the root for morphological support. This process is diagrammed in the following.

(19)   Head movement from v

```
AGRSP                                                    AGRSP
          AGRSP'                                                  AGRSP'
                    AGRS                                                 AGRSP⁰
TP                                                         T⁰              AGRS⁰
          T'                        -----\        v⁰               T⁰      [3SG]
                    T      -----/    [IN]          [PAST]
VP
          V'
                    V
VP
          V'

AGROP                          V
          AGROP'
                    AGRO
```

(20) Head movement from v with root as morphological support

```
AGRSP                                        AGRSP
          AGRSP'                                      AGRSP'
                    AGRS                                      AGRSP⁰
TP                                              T⁰              AGRS⁰
```

21

```
                              T'                    -----\        v⁰            T⁰    [3SG]
                                              T    -----/  V           v⁰   [PAST]
        VP                                                [MAKE]        [∅]
                              v'
                                              V
        VP
                              V
                                              V
        AGROP
                    AGROP'
                              AGRO
```

The structures above are generated prior to the morphological component which interprets them with vocabulary material. Recalling the principles of late-insertion discussed above, features are spelled out cyclically starting with the root (the most embedded structure) and move up the tree. Spelling out entails that the features are erased and rewritten with vocabulary (phonological) and encyclopedic (semantic) information. Obtaining the correct ordering of affixes is possible through right adjunction during syntax or by morphological merger, where either process gives left-right orderings without violating hierarchical syntactic structure[9].
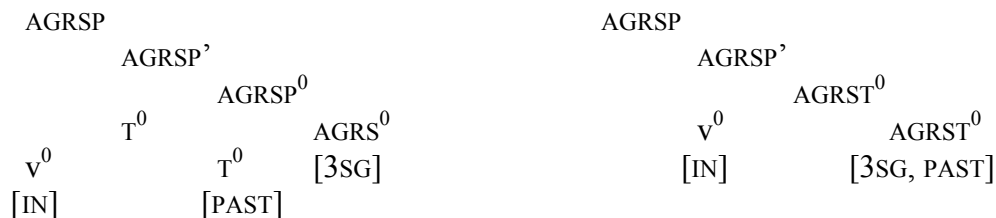
Determining the proper allomorphic relations in Cupen)o requires a reanalysis of the morpheme called subject agreement. According to Bobaljik, feature-based allomorphy is only outwards-sensitive, but looking at the structure generated by syntax (19-20) reveals a situation where AGRS cannot show sensitive to the more embedded [PAST] feature in TENSE. According to *rewriting*, the features contained in TENSE would have been used up and no longer part of the representation and should not trigger allomorphy for features in AGRS. This would predict that subject marking should be

---

[9] This raises an interesting question whether syntactic structure is primarily hierarchical (c-command) or if it also generates specific left-right order as well. This analysis does not propose any resolution to this debate, but demonstrates that specific morpheme orderings are recoverable at both syntactic and morphological levels.

unconstrained in Cupen)o, where its appearance is actually determined by a specific feature ([PAST]).

Resolving this problem does not require appealing to a more controversial reordering of functional projections. Instead, the ordering of functional projections provided by Universal Grammar can be reconciled with the processes of contextual allomorphy in Cupen)o if we assume that what is really being marked is not allomorphy at all, but is instead an instance of morphological fusion. The nodes for AGRS and TENSE are fused before vocabulary insertion into one node containing the features in both nodes. Vocabulary insertion replaces all the features with phonological material that expresses the features of both TENSE and AGRS. The presence of a [PAST] feature in this node causes vocabulary insertion to realize overt phonological material in the fused node. The absence of that specific feature causes vocabulary insertion to only realize null phonological material in this node. The process of fusion is diagrammed in (21).

(21)   Fusion of AGRS and TENSE

```
AGRSP                                    AGRSP
     AGRSP'                                   AGRSP'
          AGRSP⁰                                   AGRST⁰
     T⁰         AGRS⁰                        v⁰          AGRST⁰
 v⁰       T⁰     [3SG]                     [IN]      [3SG, PAST]
[IN]    [PAST]
```

In summary, the shifting position of the morpheme previously called "subject agreement" in the literature is accounted for by head movement from a lexical head to AGRS that generates the syntactic ordering ready for vocabulary insertion. Head movement is generated by an [AFFIX] feature present in AGRS that has to be checked by the head of vP. Verbs of the *in-* and *yax*-classes have overt realizations of vP and check the feature by head movement in line with the Minimal Link Constraint (Chomsky 1995).

Zero class verbs do not have an overt realization of the head, so they attract the root for morphological support. Finally, a reanalysis of the "subject agreement" affix as an actual portmanteau subject/tense morpheme that results from morphological fusion gives a better account of the data that does not conflict with current understandings of functional projections provided by Universal Grammar.

4.2 Verb class morphology

A crucial aspect of the analysis presented above is the treatment of *-in* and *-yax* as overt realizations of v that project vP. In fact, there is both diachronic and semantic evidence that supports this analysis. As discussed above, all verbs in Cupen)o belong to one of three classes named for their thematic suffix: *zero* class verbs taking no suffix, *in*-class verbs taking an -in suffix, and *yax*- class verbs take a -yax suffix. Recall that these classes roughly correspond to transitivity, with *in*- class verbs being composed mostly of transitive verbs, and *yax*- class verbs containing many stative and unaccusative verbs. On this account, the distribution is not accidental, but reflects that these morphemes license specific interpretations to roots. Specifically, both are reflexes of specific f-morphemes projecting light verb structures (Harley 1995, Harley and Noyer 1998, Jackendoff 1990), where *-in* corresponds to the morpheme CAUSE, licensing an agent in its specifier, and *-yax* corresponds to BE, BECOME, which does not license a specifier but instead gives a stative interpretation to its root.

One important piece of evidence comes from roots that alternate in taking either thematic suffix. This alternation is most productive with *in*- and *yax*- classes, where the *in*- thematic class verb is transitive taking an object, and the *yax*- class verb is unaccusative with an undergoer subject, as seen in (22).

(22)   a. cha€sr-in   b. cha€sr-yax
        POLISH-IN   POLISH-YAX
        "polish something"   "something shines" (Hill 2000a)

Other alternations are possible (and attested), but it seems that the great majority

fall into the classic causative-inchoative distinction. Examples of this are seen in (23);

the listing is by no means exhaustive as many more examples could be provided.

(23)   a. ca€qe-in   b. ca€qe-yax
        FLAT-IN   FLAT-YAX
        "to flatten"   "to be oblique"

        c. ce€ne-in   d. ce€ne-yax
        ROLL-IN   ROLL-YAX
        "roll something"   "something rolls"

        e. ci€lyi-in   f. ci€lyi-yax
        JINGLE-IN   JINGLE-YAX
        "jingle something"   "something jingles"

        g. hi€we-in   h. hi€we-yax
        LUKEWARM-IN   LUKEWARM-YAX
        "heat to lukewarm"   "something is lukewarm"

        i. pu€ve-in   j. pu€ve-yax
        ROUND-IN   ROUND-YAX
        "make round"   "something is spherical"

This alternation is easily accounted for if we assume the thematic suffixes license

specific interpretations to the root (Harley 1995, Pesetsky 1995). Roots suffixed with -in

gets a transitive/causative interpretation due to the morpheme licensing an agent in

specifier position that occurs in a light verb structure. Roots suffixed with -yax do not

license an agent, and because of this give inchoative/stative interpretations to the root.

Both structure are represented syntactically in (24).

(24)   a. *in-* class verbs   b. *yax-* class verbs
                        vP   vP
                               v'   v'
            (AGENT)   √P   v   √P   v

[JINGLE]   [IN]   [JINGLE]   [YAX]

Further evidence that verb class affixes are reflexes of the f-morphemes BE,

BECOME and CAUSE comes from historical linguistics. Jacobs (1975) traces the

development of *-yax* from a copular verb meaning 'say', 'be' (with reflexes of inflected

copulas appearing in the closely related Cahuilla and Luisen)o) that gradually became

incorporated into the verb, becoming the thematic suffix *-yax*. The light-verb *-in* comes

from the Proto-Uto-Aztecan causative affix **-ina* which still has reflexes in related

Luisen)o (*-i*) and Cahuilla (*-in*). This causative affix, already a light-verb, replaced *-yax*

on non-stative, mainly transitive verb forms becoming a thematic suffix in the process.

The historical evidence appears to overlook that there also exists a causative

suffix in Cupen)o (unless it proposes that they both derive from the same Proto-Uto-

Aztecan causative suffix). This causative only appears in *zero* and *in-* class verbs as seen

in the examples, repeated from (11) above.

(25)a. Me   'axwa€-nga   chimi-**pem**-a€sr-ni-n
        and   that-LOC   1PL.OB-**3PL**-bathe-CAUS-IN
        "And there they bathed us"

   b. Mi-hu€sr-**che'**-men-ni-n
       3PL.OB-smoke-**1PL**-CAUS-IN
       "We made them smoke"

The appearance of the causative corresponds to a situation of "stacking", where

the *-in* suffix in the *zero* class verb (bathe) is thematic not for the verb, but for the

causative suffix. In this example, it is the actual causative suffix that licenses the agent

and gives the *zero* class verb an analytical causative interpretation. In the second

example it is unclear if the causative preceeds the thematic class suffix, or vice versa.

Most likely what occurs is the thematic class licenses the structure for the root, and the

causative selects the *-in* headed vP as its complement.[10] Movement in this case would still stem from the thematic suffix, and there is no need to extend the analysis of movement to the causative. This is an area for future research, but the presence of the causative does not contradict the analysis of thematic suffixes presented. Specifically, in *zero* class verbs, the presence of an *in-* class suffix does not license an agent for the verb (the agent is licensed by the causative suffix), and its presence does not undermine the head movement analysis proposed earlier. The stacking structure of the light verbs can be seen in (26).

(26) a. *zero* class verbs   b. *in-* class verbs

```
        vP                              vP
            v'                              v'
        vP          v                   vP          v
            v'    [IN]                      v'    [CAUS]
        vP          v                   √P          v
            v'    [CAUS]            [SMOKE]         [IN]
        √P          v
    [BATHE]        [∅]
```

In summary, the thematic suffixes correspond to specific reflexes f-morphemes that license interpretations to the root. The *in-* class thematic suffix corresponds to an f-morpheme that licenses an agent to the specifier position of a light-verb giving a transitive/causative interpretation to the root. The *yax-* class suffix corresponds to an f-morpheme that does not license an agent to the specifier position, but instead gives a stative interpretation to its root. Evidence was presented from roots that alternate in taking either suffix with an alternating causative-inchoative pattern of interpretation. Other evidence was presented from historical linguistics, demonstrating how the morphemes involved derive from prior syntactic forms that were eventually incorporated,

---

[10] This analysis predicts that *in-* class verbs taking causative suffix had a causative interpretation that became lexicalized. The actual semantic interactions of adding causative to *in-* class verbs is for future study.

keeping their original semantic interpretations. Finally, the causative suffix was explored and shown not to contradict the analysis of the thematic affixes.

4.3 Aspect and Tense

The final morphemes normally seen on the verb construction are aspect and tense suffixes. These suffixes form a unit where the final consonant indicating "tense" never occurs without its corresponding aspect suffix. As discussed above, past tense is also indicated by the presence of an affix reanalyzed here as a fused TENSE/AGRS suffix. With the presence of aspect marking, tense is in a sense marked twice: once at the end of the verb with the "tense" suffix (-l) as well as with the "subject" (-ne). This corresponds to the original description of the morphemes given in Hill (2000a).

(27)   wi€chax-**ne**-n-qa-**l**
         THROW-**1SG.PAST**-IN-IMP.SG-**IMP.PAST.SG**
           "I was throwing it."

The tense/aspect (or "tensed aspect") system in Cupen)o is highly complex, especially considering all the suffixes seen in Table 1 (repeated below). Accounting for all the forms is difficult, though possible, by making another appeal to the feature-based sensitivity. The fact that the final consonants (that give information regarding tense) never appear alone is significant. What this entails is that the "tense" suffixes are really not suffixes at all, but are part of the aspectual morpheme as it shows allomorphy for features in TENSE. All the forms in Table 1 (repeated below), are therefore allomorphs of imperfective aspect sensitive to the features in TENSE, which trigger the proper phonological form to realize according to the principles of morphology previously discussed.

TABLE 1

	NON-FUTURE	FUTURE/IRREALIS

	PRESENT	PAST	CUSTOMARY	IMMEDIATE	
SG	-qa	-qal	-na	-qat	-nash
PL	-we	-wen	-wene	-qatVm	-wene

The close pattern of phonological forms in the aspect system (especially in the plural series) gives some motivation for proposing that the forms are allomorphic for both number and tense features. The appearance of unrelated phonological forms in singular customary, singular future, and plural immediate future are problematic, but the majority of the suffixes pattern together and no forms exist (independently) without corresponding to at least one other form. Taking [PAST] and [PRESENT] forms as exemplary, we can account for the feature sensitivities using the following hierarchical arrangement generated by syntax[11].

(28) a. wi€chax-ne-n-qal
    throw-1SG.PAST-IN-IMP.PAST.SG
    "I was throwing it."

b. pe-a€ch-i=pe   muu-qa€'
    3SG-pet-OB=3SG.ERG shoot-IMP.PRESENT.SG
    "He shoots his own bear"
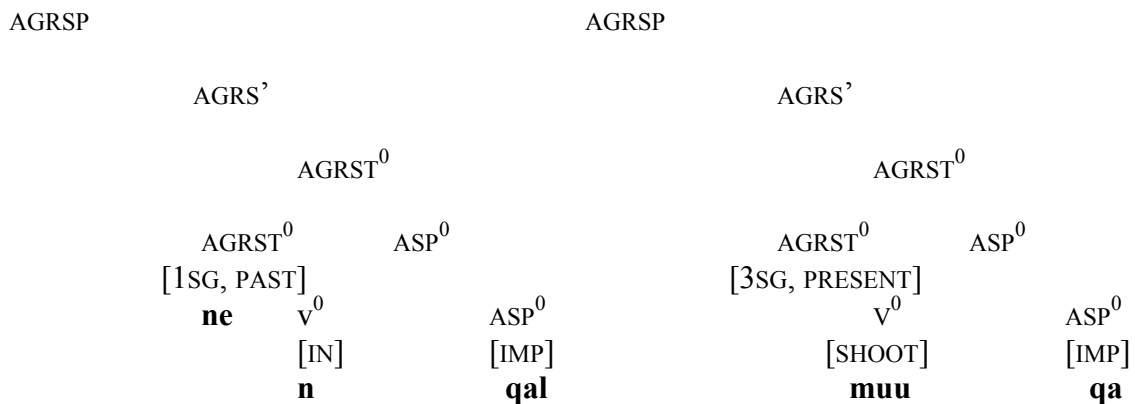
The positioning of ASP above vP and VP corresponds to "outer" or "verbal" aspect as discussed by Travis (2000), where this position corresponds to whether or not the

---

[11] Recall that specific morpheme ordering is available either through right-adjunction or morphological merger.

event state has started[12]. Morphosyntactic features in the fused AGRST node determine the proper realization of the aspectual morpheme. Note that this process is outwards-based in accordance with Bobaljik's proposal of *rewriting*. There are no features occurring in nodes more embedded that trigger allomorphy in ASP[13].

4.4 Morphology Interprets Cupen)o Syntax

At this point it is useful to go through a full example to demonstrate the workings of the morphological component in handling the series of allomorphic relations. The verb in (7), repeated below, will exemplify a full form.

(29)   mi-wiÛchax-che'-men-wen
         3PL.OB-THROW-1PL.PAST-IN-IMP.PAST.PL
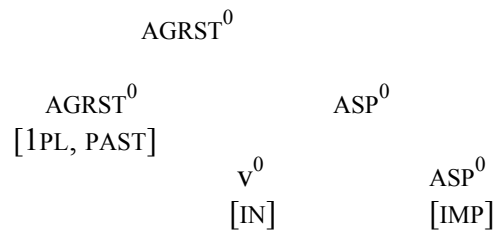   "We were throwing them"

The relevant syntactic structure, following movement of the light-verb and fusion of TENSE and AGR is shown in (30). At this point it is ready for vocabulary insertion, which has already begun with the root due to its lower, more embedded position in the syntax.

(30)   AGRSP

                        AGRS'

---

[12] Travis (2000) distinguishes between this and "inner" aspect, where inner aspect is the site for Aktionsart and inherent telicity.

[13] Allomorphy in Cupen)o is also constrained by locality conditions, where morphemes can only look up one hierarchical level in the syntactic representation. Whether this is true for feature-based allomorphy in general is an open question for future research.

$$\text{AGRST}^0$$

$$\text{AGRST}^0 \qquad\qquad \text{ASP}^0$$
$$[\text{1PL, PAST}]$$
$$\qquad\qquad \text{v}^0 \qquad\qquad \text{ASP}^0$$
$$\qquad\qquad [\text{IN}] \qquad\qquad [\text{IMP}]$$

Insertion begins with the thematic affix, which has all the features available to shape its proper phonological realization. The relevant feature at this point is the plural number feature in AGRST which triggers the suppletive form **-men**. Once this vocabulary insertion has taken place, the features in v^0 is erased and are unavailable to the rest of the syntax. ASPECT is the next node ready for vocabulary insertion and it begins by looking at the highest node to see if it is relevant for allomorphic variation. The highest node is once again AGRST which triggers the suppletive plural aspect suffix **-wen**. At this point ASPECT has been filled with vocabulary material and its feature are erased and no longer part of the derivation. Insertion then proceeds to AGRST, which has no features available to trigger allomorphy. The feature [PAST] forces the insertion of vocabulary material in the node, but the shape of the morpheme is determined by the person number features in AGRST. Once again, the features are erased once the node is filled in with vocabulary material. At this point, all nodes have been filled in with vocabulary material that shows the correct prediction of outwards feature-based allomorphy.

The analysis I have presented demonstrates that the principles of late-insertion, especially *rewriting*, outlined in Bobalijik (2000) provides a powerful theoretical model that accounts for complex interaction of morphemes and features in Cupen)o. This required a reanalysis of the morpheme previously called subject agreement as being a portmanteau that realizes the features in the fused AGRST node. In addition, it required

31

allomorphy to take into account the features in this fused node. I do not believe either part of the analysis is problematic, but in fact give us insight into the inner workings of feature based allomorphy.

5.0 Conclusion

The analysis presented provides more support for Bobaljik's *rewriting* component, supporting the idea that features are erased at the morphological level. This idea revises the earlier assumption in DM that features are available at all levels of representation. Rather than being a counterexample to Bobaljik's theory of contextual allomorphy, the complex interactions in Cupen)o provides strong support for the ideas presented by Bobaljik. The analysis has demonstrated this on an empirical as well as a theoretical level. Appealing to the assumptions made by the theory of contextual allomorphy has provided a better account of the data in Cupen)o that does not resort to controversial orderings of functional projections. The analysis also has support by provided a unified account of all the allomorphic process in Cupen)o, showing that they all fall from an idea of outwards-based sensitivity to features.

On a theoretical level, the analysis presented demonstrates that the allomorphic relationships exhibited in the Cupen)o verb construction are not accidental, but fall from deep principles of grammar. These principles are the ideas of *late-insertion*, *cyclicity*, and *rewriting*, two of which stem from DM and the third, from Bobaljik, that can be easily incorporated into DM. That the complex process of allomorphy can be easily analyzed using three assumptions of grammar provides strong evidence to these principles of grammar and argues for the inclusion of *rewriting* as a component of grammar in future versions of DM.

References

Anderson, Stephen (1992). *A-morphous morphology*. Cambridge: Cambridge University Press.

Barragan, Luis (2001). Subject-Tense Allomorphy in Cupen)o. Ms. University of Arizona.

Bobaljik, Jonathan David (2000). The Ins and Outs of Contextual Allomorphy. *University of Maryland Working Papers in Linguistics* 10, 35-71.

Carstairs-McCarthy, Andrew (1992). *Current Morphology*. London: Routledge.

Chomsky, Noam (1970). Remarks on Nominalization. *Readings in Transformational Grammar*, edited by R.A. Jacobs & P.S. Rosenbaum. 184-221. Waltham: Ginn. (1995). *The Minimalist Program*. Cambridge: MIT Press.

Emonds, Joseph (1978). The Verbal Complex V'-V in French. *Linguistic Inquiry* 9, 151-175.

Hale, Ken & Samuel Jay Keyser (1993). On argument structure and the lexical representation of syntactic relations. *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, edited by K. Hale and S.J. Keyser, 53-109. Cambridge: MIT Press.

Halle, Morris (1990). An Approach to Morphology. *Proceedings of the North Eastern Linguistic Society Annual Meeting (NELS) 20*, edited by J. Carter, R.-M. Dechaine, B. Philip & T. Sherer, 150-184.

Halle, Morris & Alec Marantz (1993). Distributed Morphology and the Pieces of Inflection. *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, edited by K. Hale and S.J. Keyser, 111-176. Cambridge: MIT Press.

Harley, Heidi (1995). Subjects, events and licensing. PhD diss., MIT.

Harley, Heidi & Andrew Carnie (1997). PRO, the EPP and Nominative Case: Evidence from Irish Infinitivals. *University of Maryland Working Papers in Linguistics* 4:3, 71-86.

Harley, Heidi & Rolf Noyer (1998). Licensing in the Non-Lexicalist Lexicon: Nominalizations, Vocabulary Items and the Encyclopaedia. *MIT Working Papers in Linguistics 32: Papers from the UPenn/MIT Roundtable on Argument Structure and Aspect*, edited by H. Harley, 119-137. Cambridge: MIT-WPL.

Harley, Heidi & Rolf Noyer (1999). Distributed Morphology. *GLOT International* 4:4.

Hill, Jane H. (2000a). Number in Cupen)o Ms. University of Arizona & Research Centre for Linguistic Typology.

(2000b). Tense-Aspect and Modality in Cupen)o. Ms. University of Arizona & Research Centre for Linguistic Typology.

(2000c). Cupen)o Case and Transitivity. Ms. University of Arizona & Research Centre for Linguistic Typology.

(2001a). Cupen)o Negative Sentences. Ms. University of Arizona.

(2001b). Cupen)o Denominal Derivation and Verb-Verb Derivation. Ms. University of Arizona.

(2001c). Deverbal Nouns in Cupen)o. Ms. University of Arizona.

(n.d.). Subject Number, Grammaticalization, and Transitivity in Cupen)o. Ms. University of Arizona.

Jackendoff, Ray (1990). *Semantic Structures*. Cambridge: MIT Press.

Jacobs, Roderick (1975). *Syntactic Change: A Cupan Case Study*. University of California Publications in Linguistics 79. Berkeley: University of California Press.

Jelinek, Eloise (1984). Empty Categories, Case, and Configurationality. *Natural Language and Linguistic Theory* 2, 39-76.

Koizumi, Masatoshi (1993). Object Agreement Phrases and the Split-VP Hypothesis. *MIT Working Papers in Linguistics 18: Papers on Case and Agreement*, edited by C. Phillips and J. Bobaljik, 99-148. Cambridge: MIT-WPL.

Kratzer, Angelika (1996). Severing the External Argument from Its Verb. *Phrase Structure and the Lexicon*, edited by J. Rooryck, & L. Zaring, 109-137. Dordrecht: Kluwer Academic Publishers.

Langacker, Roland W. (1976). *Non-Distinct Arguments in Uto-Aztecan*. University of California Publications in Linguistics 82. Berkeley: University of California Press.

Larson, Richard. (1988). On the double-object construction. *Linguistic Inquiry* 19:335-391.

Lieber, Rochelle (1992). *Deconstructing morphology*. Chicago: University of Chicago Press.

Marantz, Alec (1984). *On the Nature of Grammatical Relations*. Cambridge: MIT Press.
(1997). No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon. *U. Penn Working Papers in Linguistics, 4:2: Proceedings of the 21st Annual Penn Linguistics Colloquium*, edited by A. Dimitriadis, L. Siegel, C. Surek-Clarke. & A. Williams, 201-225. Philadelphia: University of Pennsylvania.

Noyer, Rolf (1997) *Features, Positions, and Affixes in Autonomous Morphological Structure*. New York: Garland.

Pesetsky, David (1995). *Zero Syntax*. Cambridge: MIT Press.

Pollock, J.-Y. (1989). Verb Movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20: 365-424.

Steele, Susan (1990). *Agreement and Anti-Agreement: A Syntax of Luisen)o*. Dordrecht: Kluwer Academic Publishers.
(1995). Towards a Theory of Morphological Information. *Language* 71:2.

Travis, Lisa (2000). Event Structure in Syntax. *Events as Grammatical Objects: The Converging Perspectives of Lexical Semantics and Syntax*, edited by C. Tenny & J. Pustejovsky. 145-186. Stanford: CSLI Publications.