

Syntactic Expression as Morphological Exponence¹

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“... an inflected word’s association with its morphosyntactic feature specifications is logically prior to the spelling out of its inflectional markings, since it is this very association that determines the sequence of operations by which those markings are introduced; the realizational approach thus entails a rejection of the assumption that a word’s morphosyntactic feature content is built cumulatively from that of its inflectional ‘morpheme’ by a percolation mechanism.” Stump 1993:449

1. Introduction

In this paper I will explore the hypotheses that certain analytically expressed predicates conveying agreement, tense, and polarity information should be:

- (i) interpreted as *lexical constructions* (see Ackerman & Webelhuth 1998)
- (ii) within a realizational model of morphology, where
- (iii) the lexicon contains rules of correspondence between content-theoretic and form-theoretic aspects of lexical representations.

From a theoretical perspective this exercise contributes to the recent interest in morphological issues within unification-based lexicalist frameworks such as LEXICAL FUNCTIONAL GRAMMAR, HEAD DRIVEN PHRASE STRUCTURE GRAMMAR and CONSTRUCTIONS GRAMMAR. In general, there has been relatively little explicit work on the nature of the morphological component and how it interacts with the syntax in these frameworks. The present paper focuses on the general issue of how (extended) word & paradigm realizational models of morphology (Anderson 1992, Aronoff 1994, Zwicky 1990, Stump 1993) can be embedded in these lexicalist frameworks (see Ackerman & Webelhuth 1998, Börjars 1997, Blevins 2000, Koenig 1999, Orgun 1997, Riehemann 2000, Spencer 2000, Spencer and Sadler 2000, among others.)

The specific data that will be examined in this connection represent portions of the agreement paradigms from two Uralic languages: the SUBJ/OBJ agreement paradigm from Mordvin and SUBJ agreement paradigms in Votyak (Udmurt).

2. Analytically Expressed Predicates

Within lexicalist frameworks in the recent past there has been a significant amount of attention given to the analysis of complex predicates expressed in syntax by single morphological objects (= hereafter referred to as synthetic exponence) versus by multiple independent elements in phrase structure (= hereafter referred to as analytic exponence). For example, it is well-known that morphological causatives (i.e., synthetic exponence) and analytic causatives (analytic exponence) often exhibit striking parallelisms with

respect to argument structure and grammatical function assignment. Given the way in which causative formation affects lexical semantics, valence, predicate entailments of arguments and grammatical function assignment relative to the base predicate, this might be viewed as a type of lexeme-derivation which yields either synthetic or analytic exponence. On the other hand, there are synthetic and analytic expressions that, speaking informally, seem more inflectional than derivational in the sense that they crucially refer to the morphosyntactic information ordinarily relevant for inflectional paradigms. This type of complex predicate is exemplified by the SUBJ/OBJ predicate agreement for Mordvin (Uralic) tense and polarity paradigms in (1) and (2). The agreement markers in (1) and (2) represent a portion of the most complex system of agreement in Uralic. Mordvin contains paradigms for agreement with the person/number of the SUBJ and for agreement with person/number of both the SUBJ and OBJ. The latter paradigm is evident in (1) and (2), where the portmanteau nature of the markers is indicated by the slash separating the SUBJ and OBJ features.

(1) palit'ín (from Keresztés 1990:47)
 kiss-1stPAST.1SG./2SG.
 'I kissed you.'

(2) ežit'ín kunda (from Zaic 1998:198)
 NEG-1stPAST-1SG/2SG.DEF catch_{connegative}
 'I didn't catch you.'

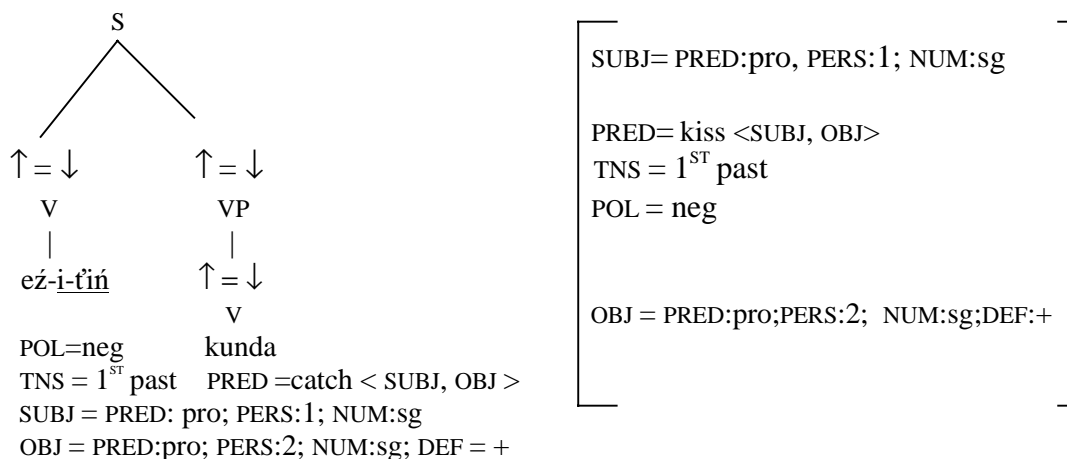
In (1) it is evident that there is synthetic exponence for the affirmative 1st past tense, since SUBJ/OBJ agreement is realized on the verb. In contrast, there is analytic exponence for the negative variant of the 1st past tense in (2): expression here consists of two syntactic pieces, but SUBJ/OBJ is realized on the negative verb not on the s-called *connegative form* of the 'main' verb. As can be seen, these predicates are realized either synthetically or analytically depending on their polarity value: the same formal markers appear on different pieces of the predicate and reflect the same agreement properties.

The fact that synthetic versus analytic expressions such as those in (1) and (2) contribute similarly to the morphosyntactic information content of a single clause has been referred to as the property whereby *morphology competes with syntax* within LFG and OT-LFG. This has led to a certain view concerning the analysis of complex predicates which I will refer to as the Hypothesis of Syntactic Composition.² On this hypothesis pieces of analytically expressed tense constructions are interpreted as syntactic co-heads whose information combines in phrase structure to yield information associated with a single clausal structure. (Holloway-King 1995, Niño 1999, Bresnan in press, among others). The same type of information is ordinarily contributed to the representation of a single clause by a synthetically expressed predicate.

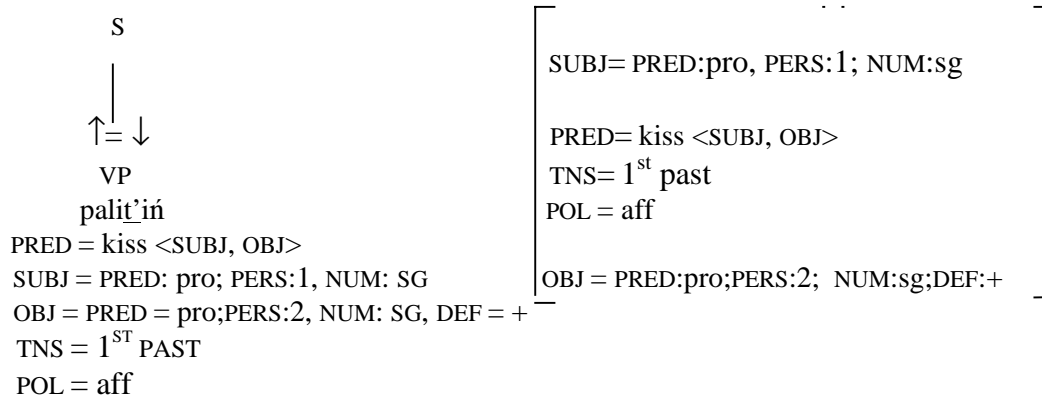
The basic approach can be seen in the following constituent structure and functional structure representation for (1) and (2):³

(1) palit'ín
 kiss-PAST.1SG./2SG.
 'I kissed you.'

(2) ež-i-t'ín kunda
 NEG-1stPAST-1SG/2SG.DEF catch
 'I didn't catch you.'



Constituent Structure and Functional Structure for (2)

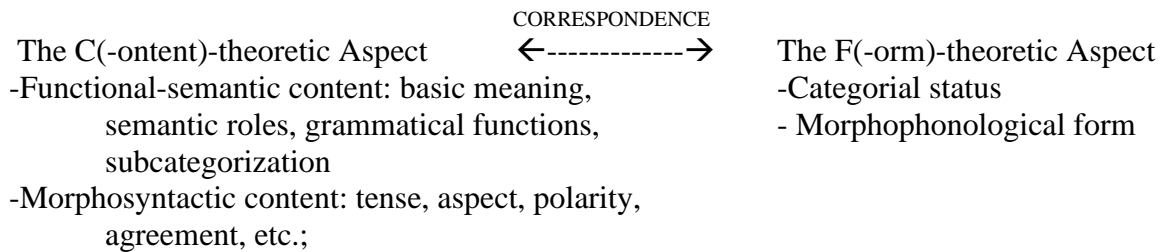


Constituent Structure & Functional Structure for (1)

As can be seen, the functional structures differ crucially with respect to the value of their polarity attributes: *neg* for (2) and *aff* for (1). In addition, the flow of information into the functional structures, i.e., the specification of attributes and their values is straightforwardly driven by the information associated with the single head in (1) and the co-heads in (2). This reliance on the percolation of information is reminiscent of the assumptions informing morpheme-based morphology, whereby the information associated with a word is essentially driven by the information contributed by its constitutive pieces. Similarly here the functional information set associated with the representation of a clause is determined by the information associated with its head(s). This view of what is occurring seems so natural from the perspective of unification-based syntactic assumptions that it appears difficult or even odd to imagine that something else may be going on.

However, in much the same manner that the morpheme-based view concerning information associated with whole words can be counterposed to the lexeme-based view articulated in the epigram above, the co-head percolation hypothesis can be profitably counterposed to what I shall refer to as the Hypothesis of Morphological Exponence. On this hypothesis, the independent syntactic pieces of (2) are simply exponents of lexical representations for (complex) predicates. Synthetically expressed predicates are, of course, also associated with lexical representations. (Ackerman & Webelhuth 1998, Spencer & Sadler 2000, Spencer 2000). On such a view the relevant information associated with analytic or synthetic expressions is not driven by information contained in the formal pieces that they are composed of.

An approach such as this is facilitated by recognizing a seminal insight of the realizational literatures and by clarifying a seminal confusion in the lexicalist literature. The seminal insight can be characterized as follows: representations of LEXEMIC and morphosyntactic information are set in principled correspondence with their surface exponence. In effect, this refers to the postulation of what Matthews 1991 calls the relation between the *morphosyntactic or grammatical word* and its formal exponence. This permits one to posit lexical representations consisting of content-theoretic and form-theoretic aspects, where neither is derived from the other, but each are set in principled correspondence with one another. This can be represented as follows:



Simplified lexical representations for the Mordvin predicates in (1) and (2) can accordingly be formulated informally as follows, where we see LEXEME specific realizations of general content-theoretic and form-theoretic correspondences:

C-Theoretic Representation: (predicate content)	F-Theoretic Representation: (predicate form)
1'. [kiss <SUBJ, OBJ>; TNS: 1 st past; POL: aff; SUBJ: 1 st SG; OBJ: 2 nd SG/DEF.]	palit'ín < LEX + it'ín ⁴
2'. [catch <SUBJ, OBJ>; TNS: 1 st past; POL: neg; 1 st SG; OBJ: 2 nd SG/DEF.]	ež-i-ťín kunda < ežiťín + LEX

First, it should be noted that the c-theoretic representations contain the same content as that found in the PRED features and functional features associated with the f-structures in above. The main difference is that the c-theoretic representations contribute all of this information from the lexicon, irrespective of their synthetic versus analytic exponence, whereas the relevant information is contributed by independent syntactic elements for analytic expressions on the Hypothesis of Syntactic Composition. The c-theoretic representations exist independent of their formal exponence in the sense that they do not

owe their existence to the parts that express them. On the contrary, these parts are interpreted simply as the way in which the c-theoretic representations are expressed.

The assumption that a lexical representation can be expressed either synthetically or analytically leads to what I referred to as a seminal confusion. In Ackerman and Webelhuth 1998 we suggest that what is traditionally called Lexical Integrity is a actually a conflation of two notions (Bresnan & Mchombo 1995, Ackerman & LeSourd 1997). The first notion is essentially identical to what is often called The Lexical Integrity Principle but will be called the Principle of Morphological Integrity in order to decouple lexical from morphological aspects of lexical representations:

The Principle of Morphological Integrity:

Syntactic mechanisms neither make reference to the daughters of morphological words nor can they create new morphological words in constituent structure.

This has to do with the assumption that wordforms are syntactic atoms, opaque to operations of syntax.⁵ Morphological Integrity is compatible with both the Hypothesis of Syntactic Composition and the Hypothesis of Morphological Exponence: both can assume that syntactic operations have no access to the internal structure of elements used in synthetically and analytically expressed predicates.

The second notion concerns assumptions about how lexical representations get expressed in syntax and can be called the Principle of Morphological Expression:

The Principle of Morphological Expression:

Lexical entries (lexical representations) are only realized by synthetic word forms, not by multiple syntactically independent elements.⁶

The Hypothesis of Syntactic Composition appears to adhere to this principle: the fact that certain complex predicates receive analytic expression appears sufficient to motivate excluding them from being associated with lexical representations. In contrast, the Hypothesis of Morphological Exponence does not adhere to this principle: in adopting a realizational perspective on the relation between content and form, form does not derive content but serves as a vehicle for its expression. On this view, Morphological Expression might be interpreted as a *markedness* principle of encoding, permitting lexical representations to be construed as *lexical constructions* and, realized either synthetically or analytically: it may be a factor guiding diachronic processes in complex predicate formation such as tmesis and univerbation.

In sum, we've seen that the two Hypotheses concerning (complex) predicate formation are similar in certain respects and different in others. Are they essentially two equivalent ways of viewing these phenomena or is there a way that their differences can be shown to make a difference? In the remainder of the paper I will consider two types of effects that help to distinguish these approaches. These effects can be characterized as broadly characterized as follows:

Constructional effects – Morphosyntactic information associated with the predicate is not a monotonic product of the information associated with its formal pieces (unless a large amount of homophony, synonymy, or covert categories is permitted).

Paradigm effects – Aspects of the morphosyntactic information content and/or the formal realization found in one paradigm associated with a predicate are relevant to the content and/or form of the predicate in other paradigms.

I will now show how these effects are evident in Mordvin SUBJ/OBJ agreement and Votyak (Udmurt) SUBJ agreement and consequently why these analytic expression types might appropriately be viewed as lexical constructions in line with the Hypothesis of Morphological Exponence.

3. Mordvin SUBJ/OBJ Predicate Agreement

Mordvin possesses several paradigmatically contrasting tense distinctions. For example, the 1st past tense in (1) and (2) contrasts with the innovated analytically expressed future tense forms of predicates in (3-5):

- (3) kármj sajameť (from Keresztés 1990:48)
begin-3SG.INDEF hold-INF-2SG.POSS
'S/he will hold you.'
- (4) karman sajemezt (from Keresztés 1990:48)
begin-1SG.INDEF hold-3PL.POSS
'I will hold them'
- (5) karmat sajameń (from Keresztés 1990:48)
begin-2SG.INDEF hold-1SG.POSS
'You will hold me.'

In the Mordvin future construction the SUBJ marking which obligatorily appears on the future auxiliary 'begin' comes from INDEF(inite) SUBJ paradigm, while the definite OBJ features are provided by markers from the POSS(essive) paradigm and appear on the infinitival form of the 'main' verb. In the realizational view espoused here, this construction represents the future inflectional form of the lexeme represented by the infinitival form of the main verb. Can the forms constitutive of the future construction in (3) directly pool their respective information sets to yield the following composite information set?

[hold <SUBJ, OBJ>;
TNS: **future**; POL: aff; SUBJ: 3st SG; OBJ: 2nd SG/DEF.]

In trying to identify constructional effects it is important to look closely at the forms contained in these constructions. If the forms in (3) are associated with their expected content, then the morphological form of the auxiliary should contain the information that it is present

tense, and that the subject, marked by an exponent from the indefinite subject paradigm, does not occur with a definite object, while the marker on the infinitive should be associated with person/number information reflecting properties of a possessor argument.⁷ Roughly speaking the composite information would be as follows:

begin <SUBJ: 3st SG indef obj, TNS: present; POL: aff >
hold <SUBJ, OBJ, POSS: 2nd SG/DEF >

Note only does this feature set contain different information than the desired feature set, it doesn't even seem to constitute a coherent feature set in its own. Consequently, the analytic future construction in Mordvin does not appear to be a monotonic composition of the information associated with the formal elements used to express it. Rather the co-occurrence of specific forms in construction appear to be the conventionalized way to realize a particular morphosyntactic feature set, in line with a broader generalization according to which specific patterns and forms of expression are dependent on morphosyntactic feature sets. The constructional effect here seems to be that the SUBJ of the auxiliary is construed as the semantic SUBJ of the infinitive, the POSS is construed as OBJ of infinitive, while the tense is construed as future, in paradigmatic contrast with other tenses.

It should be observed that the discontinuous expression of SUBJ/OBJ agreement on the independent pieces of the future construction departs from the usual portmanteau realization of these features evident in Mordvin. In fact, Mordvin redeploys exponents from the indefinite subject agreement paradigm and the possessive paradigm, each with a new function in order to maintain an agreement generalization across all tenses for transitive predicates:

Agreement Generalization for transitive predicates:

All (transitive) predicates reflect the PNM features for SUBJ and (definite) OBJ.

In this respect, the Mordvin future construction appears to be showing a Paradigm Effect whereby the introduction of a new tense maintains the relevance of morphosyntactic feature sets found in other tenses. Thus the Mordvin SUBJ/OBJ agreement distributed over the pieces of the future predicate, reflects distinctions concerning SUBJ/OBJ agreement found with all other paradigmatically contrasting tense values.

In sum, the Mordvin future construction appears to exhibit the types of constructional and paradigm effects suggestive of its status as a lexical construction on the Hypothesis of Morphological Exponence.

4. Votyak (Udmurt) Subject/Predicate Agreement

I now turn to a discussion of Votyak (Udmurt) subj agreement in conjunction with both affirmative and negative values for the morphosyntactic attribute of polarity. As in most Finnic languages, negative polarity (in certain tenses and moods) in Votyak is expressed by an inflectable negative verb. Thus I will be comparing synthetically expressed predicates associated with positive polarity and analytically expressed predicates associated with negative polarity. In order to argue for the lexical construction status of modern Votyak analytically expressed negative predicates it is important to

consider the expression of affirmative and negative values of predicates in earlier forms of the language.

Consider the following reconstruction of the relevant predicates in Proto-Permian as proposed in Serebrennikov 1963.

AFFIRMATIVE PRESENT TENSE: P-Permian (Serebrennikov 1963:235 ⁸)	NEGATIVE PRESENT TENSE: P-Permian (Serebrennikov 1963:287)
mγnγ - 'go'	
SG.1. mγnam 'I go' ...	SG.1. om mγnγ 'I do not go'...
2. mγnad	2. ot mγnγ
3. mγna	3. ok mγnγ
PL.1. mγnamī	PL.1. om mγnγ
2. mγnadī	2. ot mγnγ
3. mγnazī	3. ok mγnγ

As can be seen, there are distinct forms in all combinations of person and number for the SUBJ agreement in the affirmative present tense. In contrast, there are only person distinctions for SUBJ agreement in the negative present tense.

Let us look now at the modern conjugation paradigms for affirmative and negative polarity in the present tense. I will restrict attention to forms with the the 1st conjugation verb *mīnī-* 'go': (the data follow Csucs 1998:290, but see Csucs 1990:51 and Serebrennikov 1963 for alternative transcriptions)⁹

AFFIRMATIVE PRESENT TENSE:	NEGATIVE PRESENT TENSE:
SG.1. mīniš ^j ko 'I go'...	SG.1. ug mīniš ^j kī 'I don't go'...
2. mīniš ^j kod	2. ud mīniš ^j kī
3. mīne	3. ug mīnī
PL.1. mīniš ^j kom(ī)	PL. 1. um mīniške
2. mīniš ^j kodī	2. ud mīniške
3. mīno	3. ug mīno

A comparison between the reconstructed forms and the modern forms indicates that distinctive realization for combinations of person and number features of the subject obtain for the affirmative present tense paradigms in both, although the old and modern exponents differ from one another. Contrasting with the consistent person marking for the negative in the reconstructed forms, the modern forms exhibit syncretism between 1st singular and 3rd person distinctions. Crucially, the modern negative agreement paradigm introduces a number distinction which is absent from the reconstructed paradigm: number is reflected on the connegative forms. For example, the distinction between 2nd person singular and plural is indicated by identical person marking on the negative verb and *-ī* for singular and *-e* for plural on the connegative form of the verb.

The introduction of number marking into the negative agreement forms can be interpreted as a paradigm effect whereby the person/number properties distributed over the pieces of the modern negative predicate, extend into this predicate type the

person/number distinctions for SUBJ agreement originally reflected in synthetic (affirmative) expressions of predicates.

Another illustration of the relevance of paradigms (and thereby of morphological considerations) in the analysis of affirmative and negative predicates is the preservation of certain aspects of stem form or exponence across polarity. For example, the connegative forms and the affirmative forms contain -s^{jk} for 1st and 2nd person, but the basic stem for 3rd person. This suggests that the correct treatment should be able to directly address the paradigm pattern whereby the same morphosyntactic information concerning person receives similar exponence across affirmative and negative realizations of the predicate.¹⁰

In this connection it is also worth observing that the modern negative paradigm exhibits a constructional effect. In particular, it is clear from the negative present tense paradigm that the form *ug* is not determinate for person (except possibly that it is -2nd and -1st PL) and that while a form such as *mīniški* is determinate for singular number it is not determinate for person (except possibly for -3rd). This means that the combination of forms *ug mīniški* cannot uniquely determine the feature set NEGATIVE 1ST SING PRESENT simply as a function of composing independently motivated information associated with its pieces. Rather, *ug mīniški* seems a (motivatable) realization of this feature set within the context of paradigmatic morphosyntactic information sets and their exponents as found in the NEGATIVE PRESENT TENSE paradigm.

Finally, the presence of syncretic person forms for the negative verb in the present tense contrasts with the regularization for person found in the modern negative future tense paradigm. Consider the following affirmative and negative future tense paradigms below:¹¹

AFFIRMATIVE FUTURE TENSE:

- SG.1. mīno
- 2. mīnod
- 3. mīnoz

- PL.1 mīnom(i)
- 2. mīnodī
- 3. mīnozi

NEGATIVE FUTURE TENSE:

- SG.1. ug mīnī
- 2. ud mīnī
- 3. uz mīnī

- PL.1 um mīne(*le*)
- 2. ud mīne(*le*)
- 3. uz mīne(*le*)

The Votyak future tense represents a reinterpretation of the original present as a future tense. As is evident in the negative future tense paradigm, there is distinctive marking for the 2nd and 3rd persons and distinctive markings for 1st singular and 1st plural. Moreover, in contrast to the number marking found in the negative present tense, number marking in the negative future tense is indicated by the same singular connegative forms for all persons and the same plural connegative forms for all persons. The regular distinctions for person marking distinction within the negative future, may be interpreted as a paradigm effect, in that it makes the negative paradigm reflect the regular distinctions for person and number found in the synthetically expressed affirmative paradigms, in conjunction with the expression of number also typical of SUBJ agreement in this language.

5. Conclusions

In this paper I have explored the Hypothesis of Morphological Exponence in connection with analytically expressed predicates. I have suggested that both constructional and paradigm effects are evident in the expression of morphosyntactic feature sets associated with SUBJ/OBJ agreement in Mordvin analytic future tense and with SUBJ agreement in Votyak affirmative and negative present and future tense constructions. When the predicates of Mordvin and Votyak are analyzed as *lexical constructions*, i.e., as lexical representations in which paradigmatically contrasting morphosyntactic feature sets have specific realizations, then, certain analytic syntactic expressions appear to be a type of morphological exponence.

Notes

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² There have been efforts to analytic expression of Uralic predicates within non-lexicalist frameworks. Two excellent and thought-provoking proposals in this tradition are Vainikka 1989 and Mitchell 1993.

³ The representation of information in these structures does not follow standard practice in LFG, but conveys the same information in a simpler format.

⁴ LEX = LEXEME

⁵ See A. Harris to appear for a direct challenge to this view.

⁶ Of course, I am excluding idioms from this characterization.

⁷ It should be noted that the use of the possessive paradigm on infinitives to indicate the person and number of a definite direct object also occurs with dependent infinitives in such bi-clausal constructions as "I arrived to invite you" where the infinitival form of 'invite' would bear 2nd person possessive marking. See Keresztés 1990 and Zaic 1998 for discussion. It is evident that the distribution of agreement markers in the analytic future construction is parasitic on the distribution of marking found in bi-clausal constructions.

⁹ γ is a diacritic used by Serebrennikov to indicate indeterminate quality for a vowel.

¹⁰ There is a striking amount of syncretism among the forms within these paradigms much of which will be ignored for present purposes, but see Ackerman 2000 for further discussion.

¹¹ This would seem to call for the use of referral rules of the type developed in Stump 1993.

¹² Observe that since e.g., *mño* is 3rd PL AFFIRMATIVE and NEGATIVE and 1st SG FUTURE it would seem quite problematic to assign forms meanings as in a morpheme-based proposal, unless one countenanced a fair bit of homophony and/or zero morphemes.

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