Morphological Reversal in Amadiya as Late Agreement
Laura Kalin
University of Connecticut
laura.kalin@gmail.com

1 Introduction

This paper investigates morphological reversal, a phenomenon whereby two (sets of) exponents reverse function across two environments. In particular, I examine a morphological reversal that is found in the agreement and aspect system of the Neo-Aramaic language Amadiya. I argue that this reversal can be accounted for in the syntax, without the need for a special morphological mechanism of reversal, contra Baerman (2007).

Amadiya’s morphological reversal is exemplified in (1): the two sets of exponents used for subject and object agreement—“S-suffixes” and “L-suffixes”—reverse function across perfective and imperfective aspect. (Subject agreement is italicized and object agreement is bolded; all examples come from Hoberman (1989).)

(1) a. Perfective Aspect
Ptix-an-noxun.
open.PFV-S.1FS-L.2PL
‘You (pl) opened me.’
b. Imperfective Aspect
K-patx-an-noxun.
IND-open.IMPF-S.1FS-L.2PL
‘I open you (pl).’

We see in (1) that verbs in Amadiya can agree with both their subject and their object. But, the marker of subject agreement in the perfective (-noxun, L-suffix) marks object agreement in the imperfective, and the marker of object agreement in the perfective (-an, S-suffix) marks subject agreement in the imperfective.

What is responsible for morphological reversals? There are, in principle, (at least) two ways to account for reversals like that found in Amadiya: with morphological mechanisms, or with syntactic mechanisms. Baerman (2007) uses agreement reversal in Amadiya as a core example of true morphological reversal, and argues that such data motivate the need for a morphological reversal rule, completely independent of the syntax. In brief, this morphological rule takes a basic relation between exponents and functions in a certain context, and states that, in some other context, the exponents are to reverse the functions that they represent. A morphological account like Baerman’s is appealing because it captures the surface pattern straightforwardly and can easily be extended to other cases of morphological reversal. However, the major drawbacks are that a morphological account (i) requires enriching the range of possible morphological rules to include complete and arbitrary reversal, a rather powerful mechanism to account for very few attested instances of such reversal, and (ii) predicts that the reversal should be isolated in the morphology, not correlating with other morphosyntactic differences across contexts, a prediction that is false at least in the case of Amadiya.

I propose that Amadiya’s agreement reversal is a consequence of purely syntactic mechanisms, in particular, head movement and “delayed” agreement. The precise analysis relies on the three claims in (2):

(2) a. Movement of a head that bears a \( \varphi \)-probe also moves the \( \varphi \)-probe itself.
  b. \( \varphi \)-probes are triggered (AGREE) at the phase level (Chomsky 2008).
  c. Phases can be extended by head movement (den Dikken 2006, 2007, Gallego 2010).

The novel result of combining the three claims in (2) is that, precisely when a phase is extended by head movement, a \( \varphi \)-probe will “wait” to Agree in its higher (extended) position; from this higher position, the \( \varphi \)-probe c-commands more than it did in its first merge position. In brief, I will argue that the vP phase is extended to AspP in imperfective aspect (through head movement of \( v \) to Asp), but not in perfective aspect. This results in a (potentially) larger set of goals available to the \( \varphi \)-probe on \( v \) (the locus of S-suffix agreement) in imperfective aspect as compared to perfective aspect. Finally, this proposal can be taken as further support for the claim that head movement happens in the narrow syntax (Pesetsky and Torrego 2001, den Dikken 2006, 2007, Gallego 2010, Roberts 2010, Arregi and Nevins 2012, i.a.).

The paper is laid out as follows. In §2, I present the basics of Neo-Aramaic morphosyntax and the crucial data in Amadiya. In §3, I discuss Baerman’s (2007) morphological account of Amadiya’s reversal, and in §4,
I propose an alternative, syntactic treatment of this reversal. §5 explores how this syntactic account might shed light on the root-and-pattern morphophonology of the aspecual bases in Amadiya. §6 concludes and discusses the implications of this account for the architecture of the grammar.

2 Amadiya: The data

Neo-Aramaic languages are Semitic languages that developed from Old/Middle Aramaic vernacular dialects originally spoken in Kurdish areas of the Middle East (Coghill 1999). All of the Northeastern Neo-Aramaic (NENA) languages (the largest surviving group) display a change in agreement depending on the aspect of the verb base (Coghill 1999, Doron and Khan 2012). A sub-group of NENA languages are like Amadiya, with complete agreement reversal across aspects. In this section, I introduce the core data of this reversal.

Verbal morphology in NENA involves both non-concatenative (root-and-template) morphology and concatenative (affixal) morphology. The root-and-template verb forms are termed the “verb bases”, (3).

(3) Verb bases in Amadiya (p. 35-36)

<table>
<thead>
<tr>
<th>Root</th>
<th>Imperfective</th>
<th>Perfective</th>
<th>Imperative</th>
<th>Stative Part.</th>
<th>Infinitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-t-x</td>
<td>ptx</td>
<td>ptx</td>
<td>ptiox</td>
<td>ptixa</td>
<td>ptaxa</td>
</tr>
</tbody>
</table>

The imperfective and perfective verb bases will be those that concern us here. These verb bases combine with affixes that can further encode aspect (perfective qam-), tense (past tense -waa), and mood (indicative k-).

Most crucial here are the agreement suffixes that occur with the perfective and imperfective bases, which mark the person and number (and sometimes gender) of the verb’s argument(s). Across NENA, there are two paradigms of agreement morphemes, the so-called S-suffixes and L-suffixes (Coghill 1999), (4).

(4) Agreement morphemes in Amadiya (p. 28)

<table>
<thead>
<tr>
<th>S-suffixes</th>
<th>L-suffixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singular</td>
<td>Plural</td>
</tr>
<tr>
<td>1st p.</td>
<td>-in(m.)/-an(f.)</td>
</tr>
<tr>
<td>2nd p.</td>
<td>-it(m.)/-at(f.)</td>
</tr>
<tr>
<td>3rd p.</td>
<td>-t(m.)/-a(f.)</td>
</tr>
</tbody>
</table>

Within a complex verb, S-suffixes always precede L-suffixes (when they co-occur); this is schematized in (5), with an example from Amadiya in (6).

(5) V – S-suffix – L-suffix


INDIC- see.IMPF-S.1rl.-L.3MS

“We see him.” (p. 43)

In Amadiya, subjects always trigger agreement, while objects only trigger agreement when they are definite or specific (Hoberman 1989), an instance of the widespread Differential Object Marking found across NENA (Coghill 2014). This can be seen in the contrast in meaning between (7a) and (7b).


INDIC-hear.IMPF-S.3rl. woman

‘They hear a woman.’ (p. 102)

b. K-šam?-i-la baxta.

INDIC-hear.IMPF-S.3rl.-L.3FS woman

‘They hear a specific woman.’

When the object is nonspecific, it does not trigger agreement, (7a), but when it is specific, it does, (7b).

Finally, the agreement configuration—whether S-suffixes or L-suffixes mark subjects or objects—reverses based on aspect. The type of aspect that is relevant here is high aspect (also called grammatical or viewpoint aspect). While in some Semitic languages the relation between verb bases is perfective aspect vs. default (Benmamoun 2000, Ouhalla and Shlonsky 2002), in Neo-Aramic the choice of verb base is determined by perfective vs. imperfective aspect (Krotkoff 1982, Hoberman 1989, Coghill 1999).
It is between the perfective base and the imperfective base that we see morphological reversal. In perfective aspect, subjects trigger agreement in the form of L-suffixes (whether they are unaccusative, unergative, or transitive subjects), while definite/specific objects trigger agreement in the form of S-suffixes, (8).

\[(8) \text{ PERFECTIVE \ S-suffix for object; L-suffix for subject} \]

- a. xā=yoma, _SUPPLY-u  
  tre darwiše.  
  one=day come.PFV-L.3PL two beggars  
  ‘One day, two beggars came.’ (p. 72)

- b. ʔani min ʔilil šrux-.lu.  
  they from above call.PFV-L.3PL  
  ‘They called down from above.’ (p. 72)

- c. ʔe baxta mpulṭ-\-i-\-la  
  ?anna gure.  
  this woman remove.PFV-S.3PL-L.3FS these men  
  ‘This woman removed these men.’ (p. 98)

In imperfective aspect, what we find is the reverse: subjects trigger agreement in the form of S-suffixes (whether they are unaccusative, unergative, or transitive subjects), and definite/specific objects trigger agreement in the form of L-suffixes, (9).

\[(9) \text{ IMPERFECTIVE \ S-suffix for subject; L-suffix for object} \]

- a. naše g-meθ-i-wa  
  gu kolane.  
  people IND-die.IMPF-S.3PL-PST in streets  
  ‘People used to die in the streets.’ (p. 50)

- b. ... u g-bax-in  
  u k-šaṛx-in.  
  and IND-cry.IMPF-S.1MS and scream.IMPF-S.1MS  
  ‘... and I cry and I scream.’ (p. 47)

- c. ʔe baxta gi-mpalṭ-\-a-\-lu  
  ?anna gure.  
  this woman IND-remove.IMPF-S.3FS-L.3PL these men  
  ‘This woman removes these men.’ (p. 98)

An unusual feature of this agreement split is that there is no ergativity—both sides of the split have a nominative/accusative alignment. Further, as Hoberman (1989:99-105) carefully shows, what I have been calling the subject here really is the grammatical subject across aspects, and the subject always c-commands the object. The reversal, then, cannot plausibly be due to passivization.

Amadiya’s reversal is schematized in (10): S-suffixes and L-suffixes reverse function across aspects.

\[(10) \text{ Complete reversal in Amadiya} \]

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>OBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFV</td>
<td>L-suffix</td>
</tr>
<tr>
<td>IMPF</td>
<td>S-suffix</td>
</tr>
</tbody>
</table>

Unlike in many other NENA languages (Doron and Khan 2012, Kalin and van Urk 2015), there are no person restrictions on objects in the perfective in Amadiya, so the reversal is complete and symmetric.

### 3 A morphological analysis of reversal

Baerman (2007:39) defines morphological reversal as in (11):

\[(11) \]

- a. There is an alternation between exponents A and B whose associated values are switched between context 1 and context 2, and
- b. Each context implies the other, i.e., the paradigm found in context 2 constitutes the mirror image of the paradigm in context 1, and vice versa.
The first condition, (11a), sets up the basic criterion of reversal—that two exponents switch values across contexts—and the second, (11b), requires that this reversal be symmetric. Baerman discusses six different instances of morphological reversals, ranging from number morphology on nouns in Nehan (which reverses across noun classes) to tonal overlays on aspectual verb forms (which reverse under negation).

Baerman takes morphological reversal to be a purely morphological phenomenon, and argues that the best way to conceive of this alternation is via “polarity”, expressed as a two part operation in the form of a proportional analogy, (12) (Baerman 2007:57).

(12) Polarity (based on Hetzron 1967)
   a. \( A \) represents \( X : B \) represents \( Y :: B \) represents \( X : x \)
   b. \( x = A \) represents \( Y \)

Polarity takes one alternation to be basic (that of \( B \) representing \( Y \) in one context and \( X \) in another context), and completes the analogy with an equal and opposite alternation (that of \( A \) representing \( X \) in one context and \( Y \) in another context). Baerman suggests that this can explain the development of reversals, with a historical accident creating the situation in (12a), and speakers generalizing by completing the analogy as in (12b).

For the case of Amadiya, polarity would have the form in (13) (Baerman 2007:58).

(13) a. S-suffixes represent \( \text{SUBJ} \) : L-suffixes represent \( \text{OBJ} :: \) L-suffixes represent \( \text{SUBJ} : x \)
   b. \( x = \) S-suffixes represent \( \text{OBJ} \)

Here, the alignment of affixes in the imperfective is taken to be the canonical one, with S-suffixes marking subjects and L-suffixes marking objects. The basic alternation is that L-suffixes switch their function in imperfective aspect, as indicated in the second part of (13a), and the proportional analogy is completed with S-suffixes also switching their function in perfective aspect, (13b). (In some NENA languages, the completion of this proportional analogy, (13b), is absent or restricted, resulting in incomplete reversals.) The idea, then, is that Amadiya speakers learn the proportional analogy in (13), and this analogy is active in the morphological component of the grammar. The analogy both assigns basic exponents for subject and object agreement in one context, the imperfective, and reverses these exponents in another context, the perfective.

There are both benefits and drawbacks to an analysis of reversal like that in (12)/(13). A clear benefit of this account is that it easily extends to other cases of morphological reversal, which are of a quite diverse nature, with different contextual triggers of reversal (e.g., negation, telicity), different targets of reversal (e.g., consonant voicing, agreement exponents), and different domains of reversal (e.g., verbs, nouns). This account also provides a straightforward analysis of reversal, claiming that there is nothing “deep” about it—it is just a surface swapping of morphological exponents. One drawback to this morphological analysis is that it is very powerful, especially when considered in light of the fact that true reversals are relatively rare. As noted by Baerman, many have the intuition that a morphological reversal rule like that in (13) should not exist (see, e.g., Stonham 1994, Lecarme 2002), an intuition I share.

A bigger drawback that I would like to call attention to is the fact that a morphological account of reversals does not predict that the reversal should correlate with other morphosyntactic changes across contexts, outside of the switching of exponents. A particular asymmetry that will be of interest in §5 is that, in perfective aspect, the verb stem seems to be syllabified alone, always surfacing in a form that would be phonotactically well-formed as a stand-alone word, e.g., \( \text{pitx} \) (‘open.PFV’) from (1a). (For the purposes of this paper I put aside the issue of four-consonant bases, which involve a causative prefix.) On the other hand, in imperfective aspect, the verb stem is syllabified with the S-suffix, and so the verb base in isolation is not necessarily phonotactically well-formed, e.g., \( \text{patx} \) (‘open.IMPF’) from (1b). There are other differences across aspects, too: in perfective aspect, the subject marker (L-suffix) can be dropped, yielding an impersonal subject interpretation, and the object marker (S-suffix) can be expressed as an independent pronoun rather than being marked on the verb; neither is possible with imperfective aspect (Hoberman 1989:110-112).

In the next section, I offer an alternative analysis of Amadiya in terms of syntactic mechanisms.

4 A syntactic analysis of reversal

The pattern of morphological reversal in Amadiya does not necessitate the use of a morphological mechanism. My analysis of Amadiya extends the syntax of partial agreement reversal in Neo-Aramaic as proposed by
Kalin and van Urk (2015) and incorporates two other independently-motivated syntactic mechanisms, namely that agreement is triggered at the phase level (Chomsky 2008), and that head movement extends the phase (den Dikken 2006, 2007, Gallego 2010).

There are several ingredients in the account. First, ϕ-probes are located on v and T, and the morphological form of agreement correlates with the agreement locus: ϕ-features on v are exponed by an S-suffix, and ϕ-features on T are exponed by an L-suffix. (In the trees below, ϕ-probes are subscripted for the type of suffix they are spelled out with, S or L.) Second, I assume that nominals that have already been agreed with are invisible to further agreement, along the lines of the Activity Condition (Chomsky 2000, 2001). Third, I make the relatively standard assumption that vP is a phase (Chomsky 2000, et seq., with the addition of phase extension/sliding through head movement (den Dikken 2006, 2007, Gallego 2010). Fourth, I follow Chomsky (2008) in taking operations (like ϕ-agreement) to apply at the phase level, not earlier. The novel result of combining these last two assumptions is that when phase extension occurs, any operations that would have taken place at the lower phase level are delayed until the extended, higher phase is completed.

The final ingredient is a proposal about head movement in Amadiya: v raises to Asp in imperfective aspect, but remains in situ in perfective aspect, (14). The basic difference between perfective and imperfective aspect, then, is just the location of v (and therefore the location of the S-suffix ϕ-probe that is hosted on v).

(14) a. **PERFECTIVE ASPECT**

```
TP
  ┌───────┐
  vP      AspPFvP
  |       |
  └───────┘
  T
   ϕL
```

b. **IMPERFECTIVE ASPECT**

```
TP
  ┌───────┐
  vP      AspIMPFvP
  |       |
  └───────┘
  T
   ϕL
```

Putting this all together has the consequence that in perfective aspect, (14a), the ϕ-probe on v only c-commands internal argument(s); in imperfective aspect, (14b), this ϕ-probe is in a higher position and therefore c-commands everything in vP.

The core components of my account, as discussed above, are listed in (15).

(15) Components of the account

a. General claims

(i) Agreed-with nominals are inactive/invisible (≈ Activity Condition, Chomsky 2000, 2001)
(ii) vP is a phase, can be extended by head movement (den Dikken 2006, 2007, Gallego 2010)
(iii) ϕ-agreement is triggered at the phase level (Chomsky 2008)

b. Specific to Amadiya

(i) v bears a ϕ-probe, morphologically realized as an S-suffix
(ii) T bears a ϕ-probe, morphologically realized as an L-suffix (Kalin and van Urk 2015)
(iii) v raises to Asp in the imperfective but not in the perfective, (14)

After illustrating how the account works, I will turn to the question of why it should be that v raises to Asp in the imperfective but not in the perfective, (15b-iii).

I begin the illustration of this account with unergatives. Recall the pattern we are trying to derive: in perfective aspect, unergative subjects are marked as L-suffixes, (8b), and in imperfective aspect, unergative subjects are marked as S-suffixes, (9b). The account outlined above produces the structures in (16) for unergatives, with (16a) and (16b) differing only in whether v raises to Asp or not. When v stays in situ, (16a), the ϕ-probe on v probes from its base position, and so does not find any nominal to Agree with. When v raises to Asp, (16b), the ϕ-probe on v probes from its derived position (Asp), and therefore does find a nominal to Agree with, the subject. At first glance then, we can easily see the cause of agreement reversal: the perfective subject agrees with T—resulting in an L-suffix—while the imperfective subject agrees with v—resulting in an S-suffix. I go through these derivations in more detail below. (Lower phase is boxed in all structures.)
Let’s look at the derivations in (16) a little more closely. In (16a), the perfective, $v$ stays in situ, and so $vP$ is a phase. $v$ thus probes from its base position at the completion of $vP$, and does not find any nominal to Agree with, as there is no nominal in its c-command domain. Following Preminger (2011), I assume that failure of Agree to successfully culminate does not result in ungrammaticality, but rather may result in a default or other agreement morpheme; in Amadiya, it seems that failure of agreement uniformly results in a null agreement morpheme (or perhaps no agreement morpheme at all). When the $\varphi$-probe on $T$ later probes in (16a), the subject is still active and is in the c-command domain of the probe. $T$ therefore Agrees with the subject, resulting in an L-suffix encoding subject agreement in the perfective. In (16b), the imperfective, what we see is quite different. $v$ raises to Asp, extending the phase; $v$ thus probes from its derived, higher position at the completion of AspP. Here, $v$ does not fail to Agree, since the subject is in its c-command domain. Thus, $v$ Agrees with the subject, and an S-suffix encodes subject agreement in the imperfective. Finally, the $\varphi$-probe on $T$ attempts to Agree but there are no active goals left, so $T$’s agreement fails.

The picture is a little more complicated when we look at transitives. A reminder of the pattern: in perfective aspect, S-suffixes mark objects and L-suffixes mark subjects, (1a)/(8c); in imperfective aspect, S-suffixes mark subjects and L-suffixes mark objects, (1b)/(9c). Reversal is brought about by successful object agreement instantiated by the “leftover” (unused) probes from the derivations in (16).

In the perfective, (17a), the in situ $v$ has a nominal in its c-command domain, the object, and so $v$ Agrees with the object, resulting in an S-suffix. As in (16a), $T$ Agrees with the subject, so the subject is marked with an L-suffix. In the imperfective, (17b), $v$ raises to Asp and probes from there, Agreeing with the subject; the subject triggers S-suffix agreement and becomes inactive. Finally, $T$’s $\varphi$-probe looks into its c-command domain and Agrees with the remaining active nominal, the object, which gets marked as an L-suffix.

Before we turn to unaccusatives, two implicit components of the above derivations merit further discussion: the status of objects that are indefinite/nonspecific, and $T$’s ability to probe a VP-internal object across
a phase boundary. First, I assume following Kalin and van Urk (2015) that indefinite/nonspecific objects remain in situ throughout the derivation and are ineligible for agreement relations, along the lines of pseudo-incorporation (Massam 2001). This means that if there is an indefinite/nonspecific object, the derivations will look like they did for intransitives, (16), rather than for transitives, (17); when \( v \) probes in a perfective, and when \( T \) probes in an imperfective, there simply will be no eligible nominal for these probes to Agree with. (See Kalin (2015) for an alternative account of why these objects do not trigger agreement.) Second, I follow Baker (2014, 2015) in taking there to be both “soft” and “hard” phases. While CP is always a hard phase—the complement of C is never accessible to later operations—\( vP \) may be a soft phase—the complement of \( v \) may or may not be accessible to later operations, depending on the language. In Amadiya, then, \( vP \) is a soft phase: the probe on \( T \) in imperfectives can Agree with an object inside of the lower phase.

The final derivations to consider are those of unaccusatives. As the system is currently set up, the prediction is that unaccusative subjects, since they are internal arguments, will always agree with \( v \), regardless of aspect. In other words, unaccusative subjects should always trigger an S-suffix. In the imperfective, this is the correct prediction, as seen in (9a). However, in the perfective, this predicts that a split-S pattern will emerge: unergative subjects will agree with \( T \), like in (16a), while unaccusative subjects will agree with \( v \). This prediction is wrong. As noted at the outset of this paper, Amadiya’s aspect split is nominative/accusative on both sides of the aspect split: subjects always pattern alike in a given aspect, whether the subject is unergative, unaccusative, or transitive.

Why is \( v \) able to agree with an unaccusative subject in the imperfective but not in the perfective? The answer I’d like to offer is that there are dynamic, syntactic conditions on the activation of \( v \)’s \( \varphi \)-probe. More specifically, although \( v \) is always a potential agreement locus in Amadiya, it is only an active agreement locus in the right sorts of syntactic configurations. There are two ways to “activate” the \( \varphi \)-probe on \( v \) in Amadiya: (i) when \( v \) projects an external argument (à la Burzio’s Generalization); and (ii) when \( v \) is in a local configuration with (imperfective) Asp. What these two conditions achieve is the following. In perfective aspect, \( v \) is not an active agreement locus when there is no external argument, (18a). As a result, an unaccusative subject must agree with \( T \) (L-suffix). In imperfective aspect, \( v \) is always an active agreement locus by virtue of being in a local (head-adjunction) configuration with (imperfective) Asp, (18b). As a result, the subject agrees with \( v \) (S-suffix), whether the subject is merged as an internal or external argument.

(18) **Intransitives (unaccusatives)**

\[
\begin{align*}
\text{a. PERFECTIVE} & \quad v \text{ in situ} \\
\text{b. IMPERFECTIVE} & \quad v\text{-to-Asp}
\end{align*}
\]

To wrap up this section, I’d like to suggest a reason why it might be that imperfective Asp attracts the verb, while perfective Asp does not, as this is the crux of the whole system. Crosslinguistically, imperfective aspect is more complex both syntactically and semantically than perfective aspect (Demirdache and Uribe-Etxebarria 2000, 2007, Laka 2006, Coon 2010, Coon and Preminger 2011, 2012, i.a.). In particular, imperfective aspect seems to involve a predicate in a way that perfective aspect does not. For example, imperfective/progressive aspect is often expressed with a preposition or verb of central coincidence (Bybee et al. 1994, Demirdache and Uribe-Etxebarria 2000, Coon 2010), while perfective aspect is not. What I suggest, then, is that imperfective Asp draws up the predicate (the verb) because imperfective Asp wants to combine with a predicative element. Perfective Asp, on the other hand, does not have this property, and so the verb does not raise. The predicative nature of imperfective Asp may also relate to the suggestion made above, with respect to unaccusatives, that being in a local configuration with imperfective Asp activates \( v \)’s \( \varphi \)-probe.
5 Morphophonological consequences

To wrap up the paper, I’d like to draw a tentative connection between the analysis offered above for the
morphosyntax of Amadiya’s aspect split and a novel morphophonological analysis of the verb bases involved
in this split. As noted at the end of §3, there is an asymmetry in the syllabification of the perfective and
imperfective verb bases. An important note to start is that in Amadiya, two-consonant onsets consisting of
nearly every logically possible sequence of consonants are allowed, while complex codas are completely
disallowed (Robert Hoberman, pc). With this in mind, it can be seen that the perfective verb base in isolation
(separate from its suffixes) is always a well-formed phonological word, e.g., *ptix*, while the imperfective verb
base is not, e.g., *patx*. This holds quite regularly for all triconsonantal roots, which make up the majority of
roots in the language. (I put aside non-triconsonantal roots for the purposes of this brief discussion.)

Bobaljik and Wurmbrand (2013) have recently proposed that the phase heads that one observes in the
syntax are the same as those found in the morpho(phonology). In particular, phase heads spell out their
complement both in the syntax (the “big sister” of the phase head) and in the morphology (the “little sister”
of the phase head). A fixed theory of phase heads, where *v* and *C* are always phase heads (e.g., Chomsky
2008), does not give us any purchase for approaching differences between the perfective and imperfective in
Amadiya. This is because under a fixed theory of phase heads, *v* is always a phase head, no matter whether
the phase is “extended” to AspP. An alternative approach to phases is contextual: the highest projection in
any domain is a phase, no matter what the identity of that highest projection is (Bošković 2014, Wurmbrand
2014). Applied to the case at hand, *v* is a phase head when *vP* is the highest projection in the *v*/V domain
(i.e., in the perfective), but Asp is a phase head (and not *v*) when AspP is the highest projection in the *v*/V
domain (i.e., in the imperfective, where head movement extends *v*’s domain to AspP).

How does this relate to the asymmetry between verb bases—that the perfective base is a well-formed
phonological word while the imperfective base is not? Let’s start with a very simple hypothesis, that the
perfective and imperfective verb bases are underlyingly the same phonologically and contain both vowels
independently seen in the verb bases as they are overtly realized. For the verb root realized as *ptix* and *patx*
(‘open’), this hypothesis would hold that both are underlyingly *patix*. Now let’s combine this hypothesis
with (i) the contextual theory of phases, (ii) a process of syllabification that applies cyclically and respects
Amadiya’s phonotactic constraints (noted above), and (iii) a process of syncope that applies in a light penult.

The internal structure of the head containing the verbal complex in Amadiya differs based on aspect,
since *v* raises to Asp in the imperfective but not in the perfective, (14). These complex verbs (after head
movement) are shown in (19), with the complement of the (contextually determined) phase head boxed. I use
the verb root for ‘open’ (hypothesized above to be *patix*) and the first person S-suffix (*-an*) for the illustration.

\[
\begin{align*}
\text{(19) a. PFV:} & \\
& v \\
& V \\
& \text{ROOT} \\
& \text{patix} \\
& \text{AGR} \\
& \text{-an} \\
\text{b. IMPF:} & \\
& v \\
& V \\
& \text{ROOT} \\
& \text{patix} \\
& \text{AGR} \\
& \text{-an} \\
& \text{Asp}
\end{align*}
\]

In the perfective, (19a), the verb root is in its own spellout domain, as complement of the phase head. Syllab-
ification of just the root results in two syllables, *pa.tix*, and syncope of the first vowel (since it is a vowel in
a light penult) produces the form that I have been calling the perfective base, *ptix*. Importantly, the complex
onset in this form is allowed by Amadiya’s phonotactic constraints.

In the imperfective, the verb root is accompanied in its spellout domain by an S-suffix agreement mor-
pheme (on *v*), all of which consist of at least one vowel or are entirely null, (4). For a non-null S-suffix, when
syllabification applies, the result is three syllables, like *pa.ti.xan* from the structure above. Syncope results
in the loss of the penultimate vowel (since it is in a light syllable), resulting in *patxan*. The verb base taken
on its own here is *patx*, and is not a well-formed phonological word on its own precisely because it is never
syllabified apart from the agreement morpheme generated on *v*.

A special note is in order for verb bases that take a third person S-suffix, since this agreement mor-
pheme is null. The observed surface forms are *ptix* (perfective base with null third person S-suffix) and *patix*
(imperfective base with null third person S-suffix). The perfective form looks precisely as expected under the current account, since the form of the S-suffix does not enter into the calculation of syllabification and subsequent syncope. The imperfective form, however, is surprising: with a null S-suffix, syllabification and syncope should look like it does in the perfective, resulting in the surface form \textit{ptix}. A detail about Amadiya’s phonotactics can shed light on this puzzle: in the imperfective (and more generally throughout Amadiya), the minimal word size is disyllabic. Perfective forms, on the other hand, are an exception (along with the imperative and loanwords), and tolerate bimoraicity (Hoberman 2015). Thus while syncope in \textit{pa.tix} is allowed to happen in the perfective, since the result, \textit{ptix}, is bimoraic, syncope is not allowed to happen in the imperfective, since this would create a word that is smaller than two syllables. In other words, the imperfective verb form \textit{pa.tix} resists syncope to maintain disyllabicity. (Note: unstressed \textit{i} in a closed syllable is reduced to \textit{i}.)

What we have seen in this section is that a proposed syntactic difference between aspects—whether \textit{v} raises to Asp or not—can be recruited to explain a difference in syncope in verb roots. The generalizability of this account to all verb bases in Amadiya, and the relation of this account to the debate on so-called non-concatenative morphology, is left for future research.

6 Conclusion

The goal of this paper is to show that agreement reversal can be handled in the syntax, with independently-motivated syntactic mechanisms, and without recourse to a morphological reversal rule. The core of the analysis is that a head-movement operation displaces a \(\phi\)-probe in imperfective aspect, giving this \(\phi\)-probe access to a different set of goals than it had in its base position. It remains to be seen whether other morphological reversals, too, may be amenable to a syntactic treatment along these or other lines.

The analysis presented in this paper has several implications more generally for the architecture of the grammar. First, \(\phi\)-agreement must not be triggered immediately upon merge of a \(\phi\)-probe; \(\phi\)-probes can “wait” to Agree. Second, for movement of a \(\phi\)-probe to feed agreement relations that take place in the syntax, head movement must also happen in the syntax (Pesetsky and Torrego 2001, den Dikken 2006, 2007, Gallego 2010, Roberts 2010, Arregi and Nevins 2012, i.e.). Finally, putting this all together, a natural way to state when \(\phi\)-agreement happens is along the lines of Chomsky (2008), who for mainly conceptual reasons proposes that all operations take place at the phase level. If operations take place at the phase level, and phases can be extended by head movement (den Dikken 2006, 2007, Gallego 2010), then it follows naturally that head movement of a phase head that bears a \(\phi\)-probe will extend that \(\phi\)-probe’s c-command domain. In other words, phase extension combined with delayed operations predicts precisely the sort of agreement phenomenon attested in Amadiya, where head movement feeds agreement.

The analysis presented here can also be extended to cover several other aspect splits in Neo-Aramaic, in a slightly different way than they are accounted for by Kalin and van Urk (2015). In particular, \textit{v} and T could be held constant as agreement loci in Neo-Aramaic, with differences between Neo-Aramaic languages boiling down to differences in verb movement and contextual \(\phi\)-activation (along the lines discussed for unaccusatives in §4). This is left for future work.

References

Bošković, Željko. 2014. Now I’m a phase, now I’m not a phase. \textit{Linguistic Inquiry} 45:27–89.


Hoberman, Robert. 2015. Morphologically-motivated phonological change in Modern Aramaic. Talk in Yale University Colloquium Series.


