Temporal and Aspectual Reference in Bassila Anii
Deborah Morton
The Ohio State University

Abstract
Anii is a little-studied West African Kwa language that is a member of a small group of languages known as Ghana-Togo Mountain Languages. This paper is an initial description and analysis of non-future temporal reference and perfective and imperfective aspectual reference in the Anii verbal system. Specifically, the paper focuses on unmarked clauses (clauses with no overt tense or aspect morphology) and clauses marked with the imperfective marker /tu/. The central role of dynamicity in the temporal and aspectual interpretation of Anii clauses is also illustrated. The data given here shows that unmarked eventive clauses in Anii have past temporal reference and perfective aspectual reference, while unmarked stative clauses in Anii have past or present temporal reference and imperfective aspectual reference. Eventive clauses marked with /tu/ have non-future imperfective interpretation, while stative clauses marked with /tu/ have only present habitual interpretation. An analysis of the data is given that draws on Reichenbach (1947) and Klein (1994), as well as Deo's (2009) work on the imperfective. The new data provided here (from fieldwork conducted in 2009) represents an important addition to linguistic knowledge of temporal and aspectual reference in West African (particularly Kwa) languages.
1.0 Introduction

This paper explores temporal and aspectual reference in Anii, a severely underdocumented West African Kwa language spoken in Togo and Benin, the farthest east of the Ghana-Togo Mountain languages. In particular, this paper describes and analyzes clauses with non-future perfective and imperfective aspectual reference. The data and analysis given here illustrate the importance of taking into account Aktionsarten (by which I mean, in Smith's (1997) terms, situational aspect, and its interaction with grammatical aspect) in the interpretation of temporal and aspectual reference in Anii.

The majority of clauses in the corpus used for this paper (79 out of 120) contain no overt tense or aspect markers. Such clauses are referred to in this paper as 'unmarked clauses'. For example, the clause in (1) consists only of the (class C) noun, gatii'hornbill', which is the subject, a (class C) noun class agreement marker ga and a verb, ʤɩ 'eat', with no other verbal morphology present. As will be shown below, clauses such as (1) have past perfective interpretation:

(1) Context: what did the hornbill do yesterday?
Languages other than Anii that have been shown to lack overt tense and aspect morphemes in at least some clauses include Ewe (Ameka 2008), Mandarin Chinese (Lin 2005), Paraguayan Guaraní (Tonhauser 2006), Sranan (Winford and Migge 2007), St'át'imcets (Matthewson 2006), West Greenlandic (Kalaallisut) (Shaer 2003, Bittner 2005), and Yucatec Maya (e.g. Bohnemeyer 2002). A common theme in analyses of unmarked clauses is that their temporal and/or aspectual interpretations are to some degree dependent on the Aktionsarten of the clauses. For example, Ameka (2008) mentions that the temporal interpretation of Ewe unmarked clauses depends on whether the predicate in the clause is inchoative or active. Matthewson (2006) claims that unmarked clauses in St'át'imcets have perfective aspectual reference and default temporal interpretations that are influenced by the Aktionsarten of the predicates.

Bohnemeyer and Swift (2004) discuss the influence of Aktionsarten on aspectual interpretations, as well, with a focus on telicity. They illustrate that in some languages (e.g. German, Russian, Iniktitut), telic clauses not
overtly marked for aspect are most naturally interpreted with perfective aspectual reference, while atelic clauses not marked for aspect are interpreted with imperfective aspectual reference. In this paper, I provide empirical evidence that in Anii, telicity does not affect temporal and aspectual reference, but dynamicity does.

The Anii data presented here illustrates the possible temporal and aspectual interpretations of unmarked clauses in Anii, as well as some of the temporal and aspectual markers that are available in contexts where unmarked clauses are inappropriate. It is shown that dynamicity affects temporal and aspectual reference in Anii, by providing evidence that eventive and stative clauses have differing temporal and aspectual interpretations. More specifically, the claim that is made here is that unmarked eventive clauses in Anii (both telic and atelic) are interpreted with past perfective meaning, but unmarked stative clauses are interpreted as having past or present imperfective meaning. With non-stative clauses, past and present imperfective meanings are only possible when the aspect marker /tʉ/ is present in the clause. Future temporal reference is only possible in both stative and eventive clauses when the marker /tə/ is present. Evidence supporting these claims is given in sections 3, 4.
The format of this paper is: section 2 provides an introduction to Anii and lays out the theoretical framework used here. Section 3 illustrates the interpretation of unmarked clauses, section 4 explores the uses of the imperfective marker /tɯ/, and section 5 provides a brief description of future temporal reference. Section 6 is a short formal analysis of the entire system as far as it is described in this paper, and Section 7 is the summary and conclusions.

2.0 Background
2.1 Anii

Anii is a severely underdocumented Kwa (GTM) language spoken by approximately 45,900 people (Lewis 2009) on the border between Togo and Benin in West Africa, approximately 125 miles north of the coast. There are at least four main dialects of Anii, which differ significantly from each other (Tompkins and Kluge 2009), and I estimate that there are 10,000-12,000 speakers of the Bassila dialect (called Gisida) on which this paper is based, though there is no official count available. The only published work on Anii consists of a few wordlists (e.g. Bertho 1951, Heine 1968a) and a 10-page sketch of the phonology and morphology (Heine 1968b). There is also some unpublished work,
specifically some brief mentions of the phonology and morphology by the anthropologist who helped develop the Anii alphabet (Elwert 1974, 1977), some orthography-related phonological observations by language-development workers (Zaske 2009), and a description of focus in Anii (Fiedler n.d.). There has been no previous work on the Anii verbal system, and this paper is a first step towards filling that gap.

The data used in this paper come from the Gisuda dialect of Anii, and were gathered during fieldwork in Bassila, Benin in Autumn 2009, with confirmation and some additional data elicited over email in 2010. These data include both texts and elicited data. The texts are all of the locally-published texts in Anii that were available to me in 2009, i.e. two folktales and one short story about the weekly market. The full glossed texts of these stories are available online (ADDRESS COMING) (a total of 59 sentences containing 120 clauses). The elicited data come from a modified version of Dahl's (1985) survey designed to elicit specific tense and aspect forms. The version used for this study was a French translation of the survey modified for a West African context by Donald Winford and Bettina Migge (cf. Winford and Migge 2007). Some of the questions used in the survey were expanded for the sake of clarity
during the elicitation sessions. All elicitation sessions were carried out in French. Many (but not all) of the contexts were also translated into Anii during elicitation, so some of the contexts used were given in French and others in Anii (but often with clarification in French) during the sessions.

The three consultants who provided the data used here (one with whom I did the entire Dahl questionnaire and supplements, and two with whom I did parts of the questionnaire for verification) are native speakers of Gsûda Anii in their 20s. They are multilingual, speaking French and other local languages as well.

2.2 Theoretical Background and Terminology

The framework used in this paper to describe temporal and aspectual reference is that used by Klein (1994), following Reichenbach (1947). In this framework, the time of situation (TSit) is the time interval during which the event referred to by the verb takes place (for states, it is the time interval during which the state holds). The topic time (TT) is the time interval that an utterance is about, and is generally contextually determined (e.g. by an immediately preceding utterance) or is constrained by temporal adverbials. Thus, the TT of an utterance is assumed to immediately
follow the TT of a preceding utterance and the TT can be thought of as being re-set with every non-stative utterance in a discourse (Hinrichs 1986, Dowty 1986). The time of utterance (TU) is the time at which an utterance is made.

Temporal reference is defined as the relationship between the TT and the TU, while aspectual reference is the relationship between the TT and the TSit. The relevant temporal relationships are past (TT precedes TU), present (TT is TU) and future (TT follows TU). Relevant aspectual relationships include perfective (TSit is included in TT) and imperfective (TT is included in TSit), which includes both episodic and habitual aspectual reference. I use the term episodic to refer to events or states that are not discontinuous, as other scholars (e.g. Carlson 2005) have done. Stative clauses are generally episodic due to their continuous nature. Perfective eventive clauses are also episodic, since they refer to one-time, non-repeated events. With imperfective eventive clauses, episodic meaning is often referred to as progressive aspectual reference, and can be discussed in opposition to habitual aspectual reference. The essential difference between episodic imperfective (progressive) clauses and habitual clauses is that episodic clauses express continuity of the event or state being referred
to, while habitual clauses refer to the regular repetition of an event or state, which is inherently discontinuous.

One problem within the Reichenbachian framework is that of adequately explaining the similarities and differences between progressive (episodic imperfective) and habitual aspectual reference, which are expressed in the same way (TT is included in TSit). An analysis that models the meaning of the imperfective more clearly (i.e. in a way that explains languages like Anii where the episodic and habitual meanings are expressed in the same way, but also explains languages like English where the two meanings are expressed differently) is given in Deo (2009). Deo argues that an imperfective marker (in any language) should be treated as a universal quantifier over regular partitions of a time interval that is on-going at TT. In her analysis, the difference between the progressive (episodic) and habitual readings of an imperfective clause is provided by context, specifically whether the relevant partition being quantified over is TT (episodic interpretation) or a superset of TT (habitual interpretation). The intuition behind this is that for an episodic eventuality, the partition cells must be infinitesimal, since the eventuality is essentially continuous. For a habitual eventuality, though, there are longer gaps between instances of the
repetition of the eventuality (which happens once in every partition interval), so the partition has a bigger time interval as its domain. An analysis of the Anii data using Deo's imperfective marker, along with further explanation of the theoretical mechanisms she uses, is given in section 6.

As mentioned above, dynamicity is central to the interpretation of Anii clauses. Many different kinds of events have been identified by researchers, for example Dowty (1986, based on Vendler 1967) defined activities (referred to here as atelic events), that is events without a defined endpoint (e.g. *I am walking*), versus telic events, e.g. *I am building a house*, events with a defined endpoint\textsuperscript{iv}. Telic eventive clauses\textsuperscript{v} are described in Dowty (1986) as clauses for which, if the clause is true at a given interval, it is false at all subintervals of that interval. Atelic eventive clauses, on the other hand, are those where if the clause is true at a given interval, it is also true at all subintervals of that interval down to a certain size. Smith (1997) added semelfactives (atelic, but instantaneous, e.g. *I am knocking*) to the list of event categories. As will be demonstrated below, all of these event categories have similar temporal and aspectual interpretations in the Anii clauses discussed here. Examples of both telic and atelic clauses will be given and
contrasted with stative clauses.

Stative clauses (following Dowty 1986) are defined here as those clauses for which if the clause is true at a certain interval, it is also true at all subintervals of that interval, no matter how small. Also, by their nature, states are durative rather than instantaneous (Vendler 1967). Clauses in this paper are assumed to derive their eventive or stative interpretation from the meaning of the verbal predicate in the clause (*am walking*, *am building a house*, and *am knocking* for the examples above).

Bohnemeyer and Swift (2004) described two ways in which Aktionsarten can affect verb systems. They focused on what they referred to as *telicity-dependent* systems, as in languages such as Russian and Inuktitut, where predicates not marked for aspect are interpreted differently depending on whether they are telic or atelic. Anii, as will be shown below, exhibits instead what Bohnemeyer and Swift (2004) called *dynamicity-dependent* systems, where clauses are interpreted differently depending on whether their predicates are stative or eventive. Many other African languages (e.g. members of the Gbe language family (Winford and Migge 2007, Bohnemeyer and Swift 2004), Badiaranke (Cover 2010), among others) also appear to have dynamicity-dependent systems.
3.0 Unmarked Clauses in Anii  
I will now discuss the verbal system of Bassila Anii, specifically the temporal and aspectual interpretation of unmarked clauses. Eventive and stative clauses will be discussed separately. At this initial stage of research, the Aktionsarten of the Anii clauses were determined largely by assuming they have the same Aktionsarten as their French translations. Attempts were made to confirm this assumption using Anii adverbials, but further research along those lines is still needed and is being undertaken.

3.1 Unmarked Eventive Clauses  
Event categories discussed here are atelic events (both activities and semelfactives) and telic events. Some examples of eventive clauses in Anii are given in example (2) below. This passage occurs in a folktale (Zatto 2007). The context of the story is that a hornbill and a dog have worked together in the hornbill's fields, but at lunch time the hornbill put their porridge in a gourd, and the dog could not eat because his mouth got stuck in the gourd. The passage in (2) is what occurred the next day at the dog's house. The bolded clauses exemplify eventive clauses:
OK, When it was the dog’s day, he made the porridge and poured it on a rock.

\[ \text{bá! kpá ba dzí ma gátíu} \]

they arrive they eat since the hornbill took [the food] and pecked,

\[ \text{áganó gádé ga} \]

his mouth that one he not be able

\[ \text{ti som götakəwa láŋ kɔkɔkɔ ná} \]

he not be able

\[ \text{ti som götakəwa láŋ kɔkɔkɔ ná} \]

he not be able

\[ \text{ti som götakəwa láŋ kɔkɔkɔ ná} \]

he not be able

The topic time for these clauses is given by the context of the story in which they occur. The first clause in the story (ampəɾə ɲ ʃəl, literally meaning “my story left”) is a formulaic
phrase used to introduce folktales, which automatically indicates a TT that is in the past. Since in this text there are no adverbials in any clauses that would move the TT to the present or the future, each clause takes its TT from the previous clause (advancing with each eventive clause), but stays in the past. Thus, from (2) we see that unmarked telic event clauses are felicitous in a context requiring past temporal reference, since they are felicitously used in this folktale.

In order to understand the relationship of the TT of a clause to its TSit (aspectual reference), we will examine the clause in (3), which immediately follows the excerpt in (2) above:

(3) asiná a dzəmpél ŋkorź
    CL.Æ.dog AGR.CL.Æ lick  CL.F.porridge
    ŋyuni
    AGR.CL.F.all

The dog licked up all the porridge

The TT here is in the past, since it is part of the same folktale as the clauses in (2). Since there are no adverbials in (3), however, the specific TT can only be determined from context. Klein (1994) admits that in texts the exact boundaries of a TT can be unclear, but assumes the TT to be after the TT of the
preceding non-stative clause. In this case, the TT would be after the hornbill pecked. The TSit in this situation is the time during which the dog licked up the porridge, which is included in the TT, since the licking did not take up all of the time after the pecking, meaning that the TSit here is included in a larger TT, showing that unmarked eventive verbs are compatible with perfective aspectual reference.

The conclusions drawn from (3) are confirmed in situations where the TT of an event is made more explicit by the context. An example where TT is clearly defined by the context is given in (4) below:

(4) Context: what did you do yesterday?

\[\text{I go \, CL.E.market} \]

I went to the market.

The unmarked clause in this utterance, like those in (2) and (3) has past time reference and perfective aspectual reference, and the time of the event of the speaker going to the market (TSit), is included in the TT (given as yesterday by the context).

The sentence \(\text{I go \, CL.E.market}\) is not felicitous when uttered in a context where imperfective aspectual reference would be expected. This is illustrated below, with past time reference as in
(5a), and with present time reference, as in (5b):

(5) a. Context: what were you doing yesterday when I called?

#n ! tsó gójá
I  go cl.ɛ.market
Intended interpretation: I was going to the market

b. Context: what are you doing right now?

#n ! tsó gójá
I  go cl.ɛ.market
Intended interpretation: I am going to the market

In (5a), TT is given by the context, which is the Anii adverbial clause n jidá ma 'when I called'. In (5b), TT is right now, also defined in context, and in (5c) TT (from the context) is tomorrow at noon. In all three cases, TSit is the time of the event of going to the market. In (5a), (5b) and (5c), however, the TTs of the intended interpretations are included in TSit, rather than the other way round as in (4), and the utterance n ! tsó gójá is not felicitous in these contexts. In addition, n ! tsó gójá is infelicitous in a context where habitual aspectual reference is expected:

(6)  Context: what do you do on Monday mornings?
Examples (4)-(6), then, demonstrate that an unmarked eventive clause in Anii cannot be imperfective, and cannot have present time reference. In addition, the sentence ŋ! tsó gójá is infelicitous with future time reference, whether with perfective or imperfective aspectual reference:

(7) Context: what will you do tomorrow?

#ŋ! tsó gójá
I go cl.Ɛ.market
Intended interpretation: I will go to the market.

(8) Context: what will you be doing tomorrow at 3:00?

#ŋ! tsó gójá
I go cl.Ɛ.market
Intended interpretation: I will be going to the market.

It has been shown thus far that an unmarked eventive verb in a telic clause in Anii is only felicitous in a context that allows for a past perfective interpretation of the clause.
An atelic example is in (9) below, showing that unmarked atelic eventive clauses are also felicitous only in contexts permitting past perfective interpretation:

(9) Context: what did you do yesterday?
\[ \hat{n} \ t\text{or}^{vi} \]
I read
I read ([rɛd])

In the contexts in (10) below, \( \hat{n} \ t\text{or} \) is infelicitous:

(10) a. Context: what were you doing yesterday when I called?
\[ \#\hat{n} \ t\text{or} \]
I read
Intended interpretation: I was reading.

b. Context: what are you doing right now?
\[ \#\hat{n} \ t\text{or} \]
I read
Intended interpretation: I am reading.

c. Context: what will you be doing tomorrow at noon?
\[ \#\hat{n} \ t\text{or} \]
I read
Intended interpretation: I will be reading.
d. Context: what do you do on Monday mornings?

#ń tör
I read
Intended interpretation: I read ([rid])

e. Context: what will you do tomorrow?

#ń tör
I read
Intended interpretation: I will read.

The data given in this section indicate that unmarked eventive clauses in Anii, whether telic or atelic, have perfective aspectual reference and past time reference.

3.2 Unmarked clauses with stative verbs

An example of an unmarked stative clause (Affo Kossin'kan Inoussa 2007) is given in (11) below (boldface):

(11) Context: the beginning of a folktale about baboons:

\textit{am.póra} n tsó a tì ri
my.CL.F.story AGR.CL.F go to IMPF trap
\textit{ítò}.
CL.W.baboons
My story is about (a group of) baboons
(lit. my story went to trap baboons)
They were there and one day some people came and trapped their mother and returned with her into slavery.

The relevant clause here, *ba da*, a stative clause with past temporal reference and episodic imperfective aspectual reference. The TT is set by the folktale introduction as some unspecified time in the past (before the TU) before the baboons’ mother was kidnapped. The baboons were there before the story began (there is no mention of them coming there), and they were still there during the event of their mother's kidnapping, so the TSit extends an indeterminate amount of time before the TT of the clause, and likely also after the TT of the stative clause into the events of the following clause. Thus, the TT here is before the TU and included in the TSit. In fact, TSit always includes TT in stative clauses due to their durative nature, and the possibility that such clauses could have perfective interpretation is not further considered here.\(^\text{vii}\) The example in (12) below provides further evidence
supporting this claim, as well as illustrating that with Anii stative clauses, temporal reference can be either past or present:

(12) Context: speaking about a lake in which the speaker swam yesterday.

\[
\begin{align*}
\text{ʊrɔŋ} & \quad \text{butó} & \quad \text{bo} & \quad \text{sōda} \\
\text{CL.E.today} & \quad \text{CL.G.water} & \quad \text{AGR.CL.G be.hot} \\
\text{amá galáɩ} & \quad \text{butó} & \quad \text{bu} \\
\text{but yesterday} & \quad \text{CL.G.water} & \quad \text{AGR.CL.G} \\
\text{doó dóó} & \quad \text{be.cold} \\
\text{Today the water is hot (warm) but yesterday the water was cold.}
\end{align*}
\]

In (12), the aspectual reference for both clauses is imperfective. The topic times are set by the adverbs, ʊrɔŋ 'today' for the first clause, which includes the time of utterance\textsuperscript{viii} and galáɩ 'yesterday' for the second clause. In the first clause, TSit is the time during which the water is warm, a state continues at least through the TU, and likely beyond. Thus, the TSit can extend beyond the TT, and is assumed to do so. The same holds true for the second clause in (12), where the state of the water being cold is assumed to have been true before yesterday. For both clauses, then, the TSit includes the TT.

The hypothesis that unmarked stative verbs in Anii are felicitous only with
imperfective (episodic) aspectual reference and past or present temporal reference is further supported with the example below:

(13) Context: what kind of pet do you have right now?

\[ \text{n wōda áto} \]

I have cl.E.baboon

I have a baboon

The topic time for (13), from context, (the Anii adverbial \[ hŋəmə \] ‘right now’), is the time of utterance. In addition, the TT in (13) is included in the TSit, so this clause has imperfective aspectual reference. The sentence \[ n wōda áto \] is also felicitous with past time reference, as in (14) below:

(14) Context: what kind of pet did you have when you were a child?

\[ \text{n wōda áto} \]

I have cl.E.baboon

I had a baboon

In (14), the reference time precedes the utterance time, and the aspectual reference is still imperfective. Also, \[ n wōda áto \] is infelicitous in a context where habitual aspectual reference would be expected:
(15) Context: a baboon breeder is asked what kind of animal he regularly has at his house

*#í wəda áto*

I have cl.∃.baboon

Intended interpretation: I (usually) have a baboon.

The sentence *í wəda áto* is infelicitous in a context where future time reference is expected:

(16) Context: what kind of pet will you have next year?

*#í wəda áto*

I have cl.∃.baboon

Intended interpretation: I will have a baboon

Thus, verbs in unmarked stative clauses in Anii are interpreted with non-future temporal reference and imperfective (episodic) aspectual reference.

### 3.3 Summary of the interpretation of unmarked verbs in Anii

The evidence presented in this section has shown that in Anii, temporal interpretation of unmarked clauses depends on the discourse context and the dynamicity of the clause, while aspectual interpretation depends only on clause
dynamicity. A summary of the interpretations of Anii unmarked clauses is given in Table 1, where √ means a context where that clause type is felicitous and # means infelicitous:

<table>
<thead>
<tr>
<th>Temporal Reference</th>
<th>Aspectual Reference</th>
<th>Eventive Verbs (telic and atelic)</th>
<th>Stative Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>Perfective</td>
<td>√</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Imperfective</td>
<td>#</td>
<td>√</td>
</tr>
<tr>
<td>Present</td>
<td>Imperfective</td>
<td>#</td>
<td>√</td>
</tr>
<tr>
<td>Future</td>
<td></td>
<td>#</td>
<td>#</td>
</tr>
</tbody>
</table>

*Table 1: Possible interpretations for unmarked clauses in Bassila Anii*

**4.0 The Marker /tɩ/**

Given Table 1 above, the natural question is, how are the interpretations that are not possible with unmarked clauses expressed? A partial answer to that question lies with the aspect marker /tɩ/. This marker occurs after the subject (and after noun-class agreement marking, where applicable) but before the verb, as is illustrated in example (17) below from Ayah Gado (2007), discussing what usually happens at the weekly market (note that the vowel in the imperfective marker changes due to vowel harmony):
Possible interpretations for clauses marked with /ti/ are given below, illustrating that /ti/ is an imperfective marker. Additionally, it is shown that stative clauses marked with /ti/ have a habitual reading.

4.1 /ti/ with Eventive Clauses

Anii eventive clauses marked with /ti/ are compatible with both progressive (episodic) and habitual interpretation.

4.1.1 Eventive Clauses with Progressive Readings

The instances of /ti/ in the corpus used here are limited, so an elicited example of the progressive use of /ti/ in a telic eventive clause is given in (18):

(18) Context: what are you doing right now?
    n ti! tsó gojá
    I IMPF go CL.ɛ.market
    I am going to the market

From the context in (18), the TT is the TU, and the TSit is the time taken by the event of going to the market. The clause has present
progressive interpretation. The same sentence is felicitous where past imperfective interpretation is expected. The TT for (19) below is (from context) the time when the call took place, only a part of the time it took to go to the market. In (19), TT precedes TU, (from the meaning of 'yesterday' in the given context), so the utterance has past temporal reference:

(19) Context: what were you doing yesterday when I called?
    n tì ! tsò gójá
    I IMPF go CL.Ҫ.market
    I was going to the market

The utterances in (18) and (19) are not felicitous in a perfective context:

(20) Context: what did you do yesterday?
    # n tì ! tsò gójá
    I IMPF go CL.Ҫ.market
    Intended interpretation: I went to the market.

This sentence is also not felicitous with future time reference, whether with perfective aspectual reference, as in (21a), or imperfective aspectual reference, as in (21b):
(21) a. Context: what will you do tomorrow?
   \[ n \ tî ' tsô \ gôjâ \]
   I IMPF go CL.£.market
   Intended interpretation: I will go to the market.

b. Context: what will you be doing tomorrow when I arrive?
   \[ n \ tî ' tsô \ gôjâ \]
   I IMPF go CL.£.market
   Intended interpretation: I will be going to the market.

In atelic eventive clauses, /t\ has the same interpretation as with the telic clauses given above. In examples (22a) and (22b), the TS\(I\) (the time while the event of reading is occurring) includes the TT, which in (22a) is TU, and in (22b) precedes TU:

(22) a. Context: what are you doing right now?
   \[ n \ tî \ tôr \]
   I IMPF read
   I am reading

b. Context: what were you doing yesterday when I called?
   \[ n \ tî \ tôr \]
   I IMPF read
   I was reading
Atelic clauses marked with /tɩ/ are also infelicitous in past perfective contexts as in (23), and with future time reference as in (24):

(23) Context: what did you do yesterday?
\[
\#n tɪ tɔr
\]
I IMPF read
Intended interpretation: I read ([ɾɛd])

(24) a. Context: what will you do tomorrow?
\[
\#n tɪ tɔr
\]
I IMPF read
Intended interpretation: I will read.
b. Context: what will you be doing tomorrow when I arrive?
\[
\#n tɪ tɔr
\]
I IMPF read
Intended interpretation: I will be reading.

Thus, both telic and atelic eventive clauses marked with /tu/ have non-future imperfective interpretation.

4.1.2 Eventive Clauses with Habitual Readings

All the examples given thus far in Section 4 have indicated that /tu/ is a progressive marker. /tu/ in Anii, however, has a wider
interpretation than that. Compare (25a) and (25b):

(25) a. Context: What is your older brother doing right now?

\[
\text{amunjono } \ a \ t\ i \ \text{lee}
\]
\[
\text{my.CL.Ž.older.brother AGR.CL.Ž IMPF do}
\]
\[
\text{ntemá } \ \text{biróo } \ ní
\]
\[
\text{CL.F.work \ office \ in}
\]

My older brother is working in an (or the) office.

b. Context: What does your older brother do for a living now?

\[
\text{amunjono } \ a \ t\ i \ \text{lee}
\]
\[
\text{my.CL.Ž.older.brother AGR.CL.Ž IMPF do}
\]
\[
\text{ntemá } \ \text{biróo } \ ní
\]
\[
\text{CL.F.work \ office \ in}
\]

My older brother works in an office.

(25a) is similar to previous examples in that it refers to an episodic event. In (25b), however, the exact same sentence uttered in a different context refers to a habitual event, in this case an indeterminate period during which the speaker's older brother has been working in an office. This is Deo's (2009) characterizing reading. Thus, /tɩ/-marked eventive clauses can have either progressive or habitual readings.

The use of /tɩ/ to express habitual action is also illustrated by Ayah Gado (2007). The entire
story is habitual, explaining what happens every week on market day. An excerpt is in (26):

(26) Context: this section is preceded by a description people preparing for market.

\[ \textit{bidin} \textit{ba \textit{tt} kpá na sə} \]
\[ \text{CL.Y.others AGR.CL.Y IMPF arrive and sit} \]
\[ \textit{atón} \textit{bidin} \textit{biboi ní gən} \]
\[ \text{down CL.Y.other CL.Y.stool with there} \]
\[ \textit{atala bá náix sə ma} \]
\[ \text{CL.T.stones they IMPF sit REL} \]
Some arrive and sit down [on the ground] while others sit on stools or stones

\[ \textit{gojá go ti rəŋ} \]
\[ \text{CL.Ɛ.market AGR.CL.Ɛ IMPF fill} \]
The market fills up

\[ \textit{bəpi bayono basəmpərə} \]
\[ \text{CL.Y.children CL.Y.old.ones CL.Y.women} \]
\[ \textit{basoro badón} \textit{ba \textit{ti} tsò} \]
\[ \text{CL.Y.men CL.Y.others AGR IMPF go} \]
\[ \textit{badón} \textit{ba \textit{tt fən} \]
\[ \text{CL.Y.others AGR IMPF leave} \]
Children, old people, women, men, some come, others leave.

All the clauses in this excerpt describe a situation that is repeated once a week, on every market day, (habitual actions). Rəŋə ‘fill’ is a
telic verb, and similar interpretations are given for atelic verbs, as in the example in (27), where there is one event of reading for each Wednesday afternoon:

(27) Context: what do you do on Wednesday afternoons?
    \( n \ t\i \ t\ov \)  
    I \ IMPF \ read  
    I read ([rid])

The data in this section have shown that in different contexts, the /tɩ/ marker combined with a telic or atelic eventive verb can indicate either progressive or habitual action, showing it to be imperfective marker.

4.2 /tɩ/ in Stative Clauses

Stative clauses marked with /tɩ/ express Deo's (2009) characterizing reading, i.e. “habitual or generic” interpretation (476). Elicited examples are used throughout this section due to the lack of examples in the corpus. An example of /tɩ/ in a stative clause is in (28):

(28) Context: how do snakes reproduce?
    \( \b\i\u \ b\a \ t\ \w\o\da \)  
    CL.W.snakes AGR.CL.W \ IMPF \ have
Snakes (normally) have eggs.

(28) expresses the general world knowledge that snakes regularly have eggs. Without /tu/, as in (29) below, the sentence expresses the fact that particular snakes have eggs at TT (from context, this week):

(29) Context: what is special about the snakes in the garden this week?
ibú ba wóda asilá
CL.W.snakes AGR.CL.W have CL.T.eggs
The snakes (currently) have eggs.

In (29), it may be a one-time or rare event that the snakes in that garden have eggs, not a normal situation. If the clause is marked with /tu/, it cannot refer to noteworthy behavior by a group of snakes, and the unmarked clause cannot express the observation that it is in the nature of snakes to have eggs:

(30) a. Context: What is special about the snakes in the garden this week?
# ibú ba ti wóda
CL.W.snakes AGR.CL.W IMPF have
asilá
CL.T.eggs
Intended interpretation: The snakes (currently) have eggs.
b. Context: how do snakes reproduce?

# ibú ba wòda asilá
  CL.W.snakes AGR.CL.W have CL.T.eggs

Intended interpretation: Snakes (normally) have eggs.

Examples (31) and (32) show the use of /tu/ with singular subjects in stative clauses:

(31) Context: what are the characteristics of this snake I am holding?

  ubú a ti wòda
  CL.A.snake AGR.CL.A IMPF have

  asilá
  CL.T.eggs

The snake (normally) has eggs.

The interpretation for (31) is that a particular snake generally has eggs. (31) is still felicitous if uttered during one of the rare times when this fertile snake is between egg-laying bouts. Without /tu/, however, the interpretation is (as was discussed in section 3.2), past or present episodic interpretation, as in (32):
(32) Context: Why is the snake in her hole?  
\textit{ubú a wòda asilá}  
\textbf{CL.A.snake} \textbf{AGR.CL.A} \textbf{have} \textbf{CL.T.eggs}  
The snake (currently) has eggs

(32) asserts that it is the current state of affairs that the snake has eggs, making no claim about the regularity of that occurrence.  

The data given thus far in this section indicate that when an imperfective marker is added to a clause that already has episodic (durative) meaning because of its lexical content (because it is a stative clause), the clause has habitual interpretation.  

Though unmarked stative clauses (section 3.2) and eventive clauses marked with /\textit{t'i}/ (section 4.1.1) are compatible with past temporal reference, stative clauses marked with /\textit{t'i}/ cannot express habitual meaning in past contexts without an additional morpheme. Compare (33) and (34) below:

(33) Context: what were snakes like long ago?  
\textit{# doodóódo ibú ba ti}  
\textbf{long.ago} \textbf{CL.W.snakes} \textbf{AGR.CL.W} \textbf{IMPF}  
\textit{wòda asilá gboo\textsuperscript{x}}  
\textbf{have} \textbf{CL.T.eggs} \textbf{also}  
Intended interpretation: Long ago, snakes had eggs (and they still do).
Past habitual meaning is expressed by another morpheme (/bʊŋa/), added before /tu/. See (34):

(34)  Context: what were snakes like long ago?

\[
doodóódo \quad ibú \quad ba \quad bʊŋa\]

long.ago  CL.W.snakes  AGR.CL.W  PST?

\[
ti \quad wǒda \quad asilá \quad gboo\]

IMPF  have  CL.T.eggs also

Long ago, snakes had eggs (and they still do).

An investigation of the meaning of /bʊŋa/ is beyond the scope of this paper, but will be undertaken in future research.

It has been shown in this section that stative clauses marked with /tu/ have present habitual interpretation. The difference in interpretation between unmarked stative clauses and stative clause containing /tu/ will be central to the analysis in Section 6.

4.3 Summary of the interpretation of /tu/

The evidence presented in this section shows that the marker /tu/ in Gisida is an imperfective marker, adding progressive or habitual meaning to the interpretation of the clauses it marks. The possible interpretations
for clauses marked with /tI/ are summarized in Table 2 below:

<table>
<thead>
<tr>
<th>Temporal Reference</th>
<th>Aspectual Reference</th>
<th>Eventive Verbs</th>
<th>Stative Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>Perfective</td>
<td>#</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Imperfective</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Present</td>
<td>Imperfective</td>
<td>√</td>
<td>habitual only</td>
</tr>
<tr>
<td>Future</td>
<td></td>
<td>#</td>
<td>#</td>
</tr>
</tbody>
</table>

*Table 2:* Possible interpretations for clauses containing the imperfective marker /tI/ in *Gisida*

### 5.0 The Future

As noted above, future time reference cannot be expressed in Anii by unmarked verbs, or by the imperfective marker. To express future time reference, the marker /tə/ must be used, as in (35a). Also, /tə/ cannot be used with non-future time reference, as in (35b) and (35c):

(35) a. Context: what will you do tomorrow?

\[ n \ tō ꞌ ꞌ mā \ tsá \ gójá \]

I FUT I go cl.Ś.market

I will go to the market
b. Context: what did you do yesterday?
\
*n tɔ́' má tsó gójá
I FUT I go CL.É.market
Intended interpretation: I went to the market

c. Context: what are you doing right now?
\
*n tɔ́' má tsó gójá
I FUT I go CL.É.market
Intended interpretation: I am going to the market

As can be seen in (35), the future marker in Anii is different from the other aspect markers in this paper in that it must be followed by a second subject pronoun. Further research is needed to determine the exact syntactic status of /tɔ/, but from a semantic standpoint, it indicates future time reference, and cannot be used in non-future contexts.

With stative verbs, /tɔ/ is also compatible with future time reference only, as is shown in (36). These examples show that in clauses marked with /tɔ/, there is no difference in interpretation caused by the dynamicity of a clause.

(36) a. Context: What kind of pet will you have next year?
\
*n tɔ́' má wɔda áto
I FUT I have CL.É.baboon
I will have a baboon.
b. Context: What kind of pet did you have last year?
#n tó ʼ má wəda áto
I FUT I have CL.Ǝ.baboon
Intended interpretation: I had a baboon
c. Context: What kind of pet do you have right now?
#n tó ʼ má wəda áto
I FUT I have CL.Ǝ.baboon
Intended interpretation: I have a baboon

It has been shown that clauses with future temporal reference are marked with /tə/ in Gisida Anii. Further research will investigate whether this marker is in fact a tense marker or is instead an aspect or mood marker (cf. Matthewson 2006).

6.0 Formal Analysis
The data presented thus far establishes empirical generalizations as to the temporal and aspectual interpretation of unmarked clauses in Anii, as well as the interpretations of various aspect markers that occur in the corpus. The generalizations given here describe 109 out of 120 clauses in the corpus, and the remaining clauses will be analyzed in future research.

Table 3 below provides a summary of the empirical generalizations established thus far:
Table 3: A summary of temporal and aspectual reference in Bassila Anii unmarked clauses and relevant markers

<table>
<thead>
<tr>
<th>Temporal Reference</th>
<th>Aspectual Reference</th>
<th>Eventive Verbs</th>
<th>Stative Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>Perfective</td>
<td>unmarked</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Imperfective</td>
<td>/tɩ/</td>
<td>unmarked</td>
</tr>
<tr>
<td>Present</td>
<td>Imperfective</td>
<td>/tɩ/</td>
<td>unmarked</td>
</tr>
<tr>
<td></td>
<td>(episodic)</td>
<td>/tɩ/</td>
<td>(habitual)</td>
</tr>
<tr>
<td>Future</td>
<td></td>
<td>/tə/</td>
<td>/tə/</td>
</tr>
</tbody>
</table>

The goal of the formal analysis here is to capture the generalizations in Table 3, i.e. that the most salient temporal contrast in Gisida Anii is between future and non-future, and the most salient aspectual contrast is between perfective and imperfective. Also, the analysis takes into account the central role of dynamicity in the temporal and aspectual interpretation of Gisida clauses.

This analysis is in the framework of Montague semantics (Dowty, Wall and Peters 1981), using higher-order predicate logic to represent the interpretation of clauses. The logical types used here are: $i$ for time intervals,
\( t \) for truth values and \( \varepsilon \) for eventualities. I assume that the meaning of utterances is composed in the order in (37):

\[
(37) \text{Tense}_i (\text{Aspect}_{<\varepsilon_i, t_i, i_i, t_i>>} (\text{sentence radical}_{<\varepsilon, i, t>}))
\]

That is, sentence radicals in Anii first receive aspectual interpretation from aspect markers, then temporal interpretation from tense markers. I assume that in unmarked clauses, temporal and aspectual interpretation comes from phonologically empty morphemes.

For example, take the simple sentence \( \hat{\imath} \text{tør} \ 'I \text{read} \ ([\text{red}])', \) whose analysis is here assumed to consist of a sentence radical marked with phonologically empty tense and aspect markers. The meaning of the sentence radical in \( \hat{\imath} \text{tør} \), i.e. the event of the speaker is reading, is given in (38), where \( e \) is a variable ranging over events, and \( sp \) is a contextually-defined variable denoting the speaker of the utterance:

\[
(38) [\lambda e \text{'read}\ (e, sp)]
\]

Thus, the radical \( \hat{\imath} \text{tør} \) denotes a function from eventualities to truth values such that \( e \) is an event of the speaker reading. Since the clause has no overt aspect markers, and it is an eventive clause, it is assumed to be marked with the phonologically null perfective aspect
marker PERF, defined below. Aspect is assumed to be of type $\langle\varepsilon,t\rangle,\langle i,t\rangle$, and $P$ is a function from eventualities to truth values, while $e$ is a variable ranging over eventive eventualities:

$$
(39) \quad \text{[[PERF}$\langle\varepsilon,t\rangle,\langle i,t\rangle\text{]] =[[\lambda P_{\varepsilon,t}\lambda i\exists e[P(e) \land \tau(e) \subset i]]]]
$$

PERF causes the TSit of an event ($\tau(e)$) to be properly included ($\subset$) in a certain contextually-determined time $i$ (the TT).

The TT is further constrained by tense marking. Since the clause $\acute{n} t\text{ör}$ is not marked with the future marker /tə/, I assume there is a phonologically null nonfuture marker, whose meaning is defined with reference to a variable assignment function $g(i)$. This morpheme, labelled NONFUT, is defined in (41) (following Matthewson 2006). $t_u$ is the utterance time:

$$
(40) \quad \text{[[NONFUT]]: [][\mu^g i][\mu^g i]}\quad \text{only defined if } g(i) \leq t_u
$$

(40) means that the topic time interval (TT) is before or equal to the utterance time in all clauses where NONFUT is defined. Thus, the interpretation of the sentence $\acute{n} t\text{ör}$, is assumed to be NONFUT(PERF($\acute{n} t\text{ör}$)), as derived in (41):
(41) says that there is an event of the speaker reading for which the TT interval \( i \) includes the TSit \( \tau(e) \), and the TT is before or equal to now. The fact that an unmarked eventive clause in Anii can only have past temporal reference (not present) comes from the fact that TT includes TSit. In the case of \( t_u = \text{now} \), TT is a single moment, which is not a long enough time to include the TSit of an event of reading. Thus, in this analysis, the fact that perfective clauses cannot have present time reference is assumed to come from the real world context in which they are uttered.

An analysis of the stative sentence \( \text{'I had/have a baboon'} \) is like the analysis for \( \text{'tør'} \), except for the difference in dynamicity between the two clauses. It is assumed here that PERF is incompatible with stative verbs. Instead, a second null aspect
marker, which I will call STATE, because it is a marker of the inherent property of durativity that states have, is used. STATE is defined in (42), where $s$ is a variable ranging over stative eventualities:

\[
\text{(42)} \quad [[\text{STATE}_{<\ell,\tau,\langle i,t\rangle}]] = [\lambda P_{<\ell,\tau} \lambda i: \exists s [P(s) \land \tau(s) \supseteq i]]
\]

This marker causes the TT interval ($i$) to be included ($\supseteq$) in TSit ($\tau(s)$) of a stative eventuality to which STATE is applied. The stipulation that stative verbs select for STATE (which then precludes the use of PERF) is intended to capture the intuition that stative eventualities are inherently durative, while eventive eventualities are not.

Using STATE, the derivation of the meaning of the stative clause \( \dot{n} \ wəda áto \) ('I have a baboon') is given below. The meaning of the stative radical \( \dot{n} \ wəda áto \), where $s$ is a variable ranging over states, and $sp$ is a variable denoting the speaker of the utterance, is given in (43):

\[
\text{(43)} \quad [[\dot{n} \ wəda áto]] = [\lambda s [\text{have.baboon'} (s, sp)]_{<\tau,\tau}]
\]

That is, the radical \( \dot{n} \ wəda áto \) denotes a function from states to truth values such that $s$ is a state of the speaker having a baboon. The surface form \( \dot{n} \ wəda áto \) is assumed to be
underlyingly $\text{STATE} (\text{NONFUT}(\text{n wọda áto}))$, and the derivation of the meaning of this stative clause is given in (44):

(44) says that there is a state of the speaker having a baboon which is on-going at $\text{TT}$ ($\tau(s) \supseteq i$) and only defined for non-future temporal reference (where $g(i) \leq t_u$). Since $\text{TT}$ is included in $\text{TSit}$ here, present temporal reference is possible, unlike in (41), since in (44), the short time interval of $\text{TT}$ is included in $\text{TSit}$, rather than vice versa. This explains why unmarked stative clauses are compatible with past or present temporal reference while unmarked eventive clauses can only have past temporal reference. Note that the translation given here is compatible only with episodic (not habitual) interpretation, as there is no discontinuity in the state of the speaker having a baboon.
The derivations in (41) and (44) provide analyses for unmarked stative and eventive clauses in Anii. I now turn to the analysis of Anii clauses marked with the imperfective marker, /tu/, which expresses both habitual and episodic meaning. I turn to Deo (2009) to explain how one marker can express these two related meanings.

As mentioned in section 2.2 above, Deo (2009) proposes that an imperfective marker is a universal quantifier that quantifies over regular partitions of a contextually-determined time interval that is on-going at TT. Crucially, in her analysis the difference between the episodic and habitual readings comes from context, in particular from the size of the interval being quantified over. If the time interval being quantified over is TT, a clause will have progressive interpretation because the partitions of TT are extremely small. Since there is one event in each partition cell, the eventuality is essentially continuous (episodic) when the cells are infinitesimally small, since an instance of the event takes up the entirety of each cell. If, however, the interval being quantified over is larger (a superset of TT), there will be regular gaps between instances of the eventuality, since there is only one instantiation of the eventuality in each partition cell, and parts of each cell may not be included
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in TSit, leading to a habitual reading.

Deo’s proposal makes use of the idea of inertia futures (Dowty 1979) to define the domain of the quantifier. More specifically, a history \( h \) within a set of inertial histories containing the TT \( i \left( H_{\text{inr}} \right) \) within branching time semantics (Thomason 1970, 1984) is used to represent the partition of a given time interval. For more information on inertial histories, see Deo (2009), pages 489-490. Deo’s (2009) definition of an imperfective marker is given in (45) below:

\[
\text{(45) IMPF: } \lambda P \chi. \forall h\in H_{\text{inr}} \rightarrow \exists j[i \subseteq_{\text{ini}} j \land \forall k\in \mathcal{R}_j \rightarrow \text{COIN}(P, k, h)]\] (Deo 2009 508)

where COIN\((P, k, h)\) (if \( P \) is an eventuality) =
\[
\exists e[P(e) \land \tau(e) \circ k \land \tau(e) \subset h]\] (Deo 2009, 490)

(45) says that a clause marked with IMPF (IMPF\((P)\), where \( P \) is a predicate of eventualities) denotes the set of initial subintervals \( i \) of an interval \( j \) \( (i \subseteq_{\text{ini}} j) \) for each inertial history \( h \) in \( H_{\text{inr}} \) such that one instance of \( P \) is instantiated in every cell \( (k) \) of a contextually-defined regular partition of \( j \) \((\mathcal{R}_j)\). The requirement that one instance of \( P \) is instantiated in every cell of this partition comes from the coincidence relation \((\text{COIN}(P, k, h))\).

\text{COIN}(P, k, h)\) says that \( P \) coincides with (i.e. is in
a temporal coincidence relation with) $k$ and $h$

"if $P$ is instantiated within $[k]$ or a superinterval of $[k]$, and the time of instantiation [TSit] is a subset of $h$" (Deo 2009, 490). If $P$ is instantiated within $k$, the clause would have episodic interpretation, and if $P$ is instantiated within a superinterval of $k$, the clause would have habitual interpretation. I assume that the Anii imperfective marker $/tɩ/$ is defined using Deo’s definition of an imperfective marker, as in (46):

(46) $[[tɩ]] = [[[\text{IMPF}] ]$

The derivation of the sentence $n \ tɩ \ tʊr$, meaning 'I am reading' or 'I read ([rid])' is given in (47) below, based on the sentence radical $n \ tʊr$ defined in (38) above:

(47)
When COIN is spelled out, the final translation of (47) is as given in (48):

\[(48) \forall h[h \in H_{\text{inr}} \to \exists j[i \subseteq j] \land \forall k[k \in \mathcal{R}_j \to \exists e[\text{read}(e, sp) \land \tau(e) \circ k \land \tau(e) \subset h]]]]
\]

(only defined for intervals where \(g(i) \leq t_u\))

(48) says that for each inertia future \(h\) of an interval \((i)\), there is a non-future interval \((j)\), which is regularly partitioned, and every cell \(k\) of the regular partition of \(j\) there is an event \(e\) of the speaker reading whose TSit (\(\tau(e)\)) coincides with \(k\) and is included in \(h\). Because the sentence translated by (47) is given out of context, it could have either an episodic or a habitual meaning. If \(i = j\) it is episodic, since in that case there would be no gaps between instantiations of the event, while if \(i \subset j\) it is habitual, since there would be parts of \(j\) not included in \(i\), leaving regular gaps where the event is not occurring.

If the imperfective marker /t/ is combined with a stative verb, such as in the clause \(n ti \ w\o\da \ áto\), the clause would be analyzed as in (49) below, assuming the sentence radical \(n \ w\o\da \ áto\) as defined in (43) above:
When COIN is spelled out, the translation in (49) would be:

\[(50)\]  
\[\forall h[h \in H_{linr} \rightarrow \exists j[i \subseteq_{ini} j \land \forall k[k \in R^j \rightarrow \ \exists s[have.baboon'(s, sp) \land \tau(s) \circ k \land \tau(s) \subseteq h]]]]\]

(only defined for intervals where \(g(i) \leq t_u\))

(50) is very similar to (48), saying for each inertia future \(h\) of an interval \((i)\), there is a non-future interval \((j)\), which is regularly partitioned, and every cell \(k\) of the regular partition of \(j\) there is a state \(s\) of the speaker having a baboon whose TSit \((\tau(s))\) coincides with \(k\) and is included in \(h\). Like the eventive sentence in (48), the clause in (50) is given out of context, and thus in principle could have either an episodic or a habitual meaning, that is,
if \( i = j \) it is episodic (durative), or if \( i \subset j \) it is habitual.

Thus, in this analysis, the unmarked stative clause in (44) has limited interpretation (it cannot express habitual meaning) while the stative clause marked with /\( t\ell \)/ in (50) can express both episodic and habitual meaning. However, the facts of Anii, as presented above, indicated that unmarked stative clauses are interpreted with episodic meaning only, and stative clauses marked with /\( t\ell \)/ have habitual interpretation only. Dowty's (1979) Gricean Blocking Principle is used in Deo's (2009) work to explain data from languages which mark both the imperfective and the progressive. This principle can be used here to explain the difference in meaning between the episodic sentence \( \text{n} \ \text{\( w\ddot{o}da \) \( \acute{a}t\)o} \) (meaning 'I (currently) have a baboon') and the habitual sentence \( n \ \text{\( t\i\) } \ \text{\( w\ddot{o}da \) \( \acute{a}t\)o} \) (meaning 'I (normally) have a baboon'). That is, the Gricean Blocking Principle can explain why stative clauses marked with /\( t\ell \)/ have, in practice, only habitual interpretation. The principle (as quoted in Deo 2009) is as follows:

\[
\text{(51)} \quad \text{A Neo-Gricean conversational principle:}
\]
If a language has two (equally simple) types of syntactic structures A and B, such that A is ambiguous between
meanings X and Y while B has only meaning A, speakers of the language should reserve structure A for communicating meaning Y (since B would have been available for communicating X unambiguously and would have been chosen if X is what was intended (Dowty 1979, 32)

In the case of Anii, structure A would be stative clauses marked with the imperfective marker /tɩ/, which can in principle be both progressive and habitual, and structure B would be stative clauses marked with the null morpheme STATE, which are episodic (durative), but not habitual. Thus, the state of affairs described here, where /tɩ/-marked stative clauses express habituality while clauses marked with STATE express episodic meaning, can be straightforwardly derived from this principle.

7.0 Conclusions
In this analysis, the tense and aspect paradigms in Anii have been assumed to be as shown in Table 4:
The formal analysis given here captures the empirical generalizations of Gisida Anii by applying Reichenbach’s (1947) and Klein’s (1994) characterization of perfective and imperfective aspectual reference and past, present and future temporal reference. This analysis also made use of Deo’s (2009) framework for understanding how an imperfective marker can express both episodic and habitual meaning. Thus, this paper illustrates that Deo’s analysis works for a language unrelated to those for which her framework was developed. Future research will examine whether it is possible to analyze Anii without the necessity of positing phonologically null morphemes.

Future research will also provide further analysis of the future marker, as well as investigation of other markers that have been only briefly mentioned in this study (e.g. the past marker /bʊŋa/, among others).

<table>
<thead>
<tr>
<th>Temporal Reference</th>
<th>Tense Markers</th>
<th>Aspectual Reference</th>
<th>Aspect Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Future</td>
<td>NONFUT</td>
<td>Perfective</td>
<td>PERF</td>
</tr>
<tr>
<td>Future</td>
<td>/tə/</td>
<td>Imperfective</td>
<td>STATE and /tu/</td>
</tr>
</tbody>
</table>

*Table 4: Tense and Aspect Markers in Bassila Anii*
From the data and analysis presented here, several conclusions can be drawn. First, temporal and aspectual interpretation of Anii clauses is dependent on aspect marking (and perhaps tense marking as well, pending future research on the future and other markers), discourse context, and Aktionsarten (situational aspect). Two categories of clauses clearly emerge in Anii, i.e. eventive clauses (telic and atelic, which behave similarly) and stative clauses. Unmarked clauses (analyzed here as being marked with phonologically null morphemes), as well as clauses marked with the imperfective marker are interpreted differently depending on whether the clause is eventive or stative.

This type of aspectual system also occurs in other African and African-influenced languages. For example, Winford and Migge (2007) claim that dynamicity affects the interpretation of unmarked verbs for the Gbe family of languages, as well as for three Surinamese Creoles that have West African (likely Gbe) substrates. Harley (2008) makes a similar claim for Tuwuli, a GTM language spoken in Ghana, though his analysis considers unmarked stative verbs to have perfective aspect. There are also many descriptions of other languages, particularly West African Niger-Congo languages, which may have
similar systems, though this has not yet to my knowledge been demonstrated through detailed semantic analysis. These languages include Nawuri, a Kwa language spoken in Ghana (Casali 1995), Obolo, a Cross River language spoken in the Niger Delta area of Nigeria, Yoruba, a West Benue-Congo language spoken in southwestern Nigeria, Ejagham, an Ekoid Bantu language of Southwest Cameroon, Doyayo, and Ubangian language from Northern Cameroon, Godié, a Kru language of Côte d'Ivoire, Kisi, an Atlantic language spoken in Guinea, Liberia and Sierra Leone (Nurse, Hewson and Rose 2010), as well as Temne, a Southern Atlantic language of Sierra Leone (fieldwork conducted by the author).

Other languages of the region, such as Kabiye (Nurse, Hewson and Rose 2010), Išekiri (Omamor 1982), Badiaranke (Cover 2010), and Foodo (Plunkett 2009) appear to have overt aspectual markings for both perfective and imperfective clauses, but otherwise their aspectual systems also appear similar to Gisüda Anii. Further research on Anii as well as other languages will allow fuller comparisons than the sketches currently available.

Several West African Kwa languages (e.g. Ewe (Ameka 2008)) have been claimed to be tenseless. That is, the time reference of a clause is provided solely by context or
adverbials rather than tense marking of any kind. Tenselessness has been proposed for languages around the world (e.g. West Greenlandic (Kalaallisut) (Shaer 2003, Bittner 2005), Chinese (Lin 2005) and Paraguayan Guaraní (Tonhauser 2006)), but few in Africa. Even Kwa languages that have not been analyzed as tenseless, however, have been shown to be aspect-dominant in the sense that aspectual distinctions are more likely to be expressed than temporal ones in the verbal morphology (e.g. Tuwuli (Harley 2008) and Akan (Boadi 2008)). Additionally, where tense does play a role in Kwa languages, the most important distinction has been future versus non-future, as in Anii (c.f. Harley 2008 for Tuwuli and Aboh 1998 for the Gbe languages), though the question of whether the future marking in these languages is a tense marker or a mood marker is still a matter for continuing research (cf. Defina (2009) who reanalyzed what Harley claimed to be future tense in Tuwuli as potential and intensive mood).

This partial study of the verbal system of Gisida Anii has provided data that can be compared to other languages of the region, and has shown again that the study of the verbal systems of African languages can add important insights to our understanding of temporal and aspectual reference. The data and analysis
presented here adds to the limited knowledge currently available as to the semantics of the verb systems of African languages. Additionally, this paper represents a step towards understanding the role of dynamicity in African languages. Future research will show whether Anii is tenseless (since questions remain about the meanings of many verbal markers), or merely aspect-dominant. In addition, future research will investigate the interpretation of verbal morphology whose analysis was beyond the scope of this paper.

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(draft version).


Notes:
Tone transcriptions given here are phonetic rather than phonemic, since an analysis of the Anii tone system has not yet been completed. High tone is indicated by an accent, low tone by the lack of accent, downstep by an exclamation point.

All Anii verbs require subject agreement markers for non-pronoun subjects, and these markers appear before the verb. In (1), for example, *gatų* ('hornbill'), the subject, is a member of noun-class C, so the verb *ʤɩ* ('eat'), must be marked with a class C agreement marker, *ga* to agree with the subject. The agreement is written as a separate word due to current Anii orthography conventions (Zaske 2009).


In this paper, I will follow Dowty (1986) in considering what are often referred to as accomplishments and achievements as one category, for which I use the label 'telic events'. Dowty (1986) actually refers to sentences in his definitions, but his examples are all monoclausal sentences, so for this paper, I assume his definitions to apply to clauses.

The verb *tʊr* can also mean 'count', so speakers often add the word *gʊbɔ*, meaning book, or page, to specify reading, i.e. 'I read' is often translated as *ń tʊr gʊbɔ*, but *ń tʊr* is also acceptable as 'I read ([rɛd])', though it can also mean 'I counted'.

In some languages, it has been claimed that perfectives of stative verbs have an inceptive or inchoative reading (Comrie 1976, referenced in Cover 2010), but since there is no evidence that that is the case in Anii (the verb *səba*, 'begin', is usually necessary for such a reading), this possibility is not
explored further here, pending further fieldwork. During the elicitation, it was specified that for the utterance in (12), the water is warm at the moment of utterance though the same sentence could also be uttered in a situation where the water was warm earlier today and is not warm any longer, though additional time specification (such as 'this morning', or 'at 3:00') is more likely in the second context.

/na/ here is an imperfective marker that is used instead of /tu/ in many focused constructions and irrealis situations. The distribution of the imperfective markers /tu/ and /na/ will be explored in future research, but is not discussed further here.

gboo 'also' is used here to indicate that snakes still have eggs these days. Without gboo, the sentences in (35) and (36) refer to the fact that snakes used to have eggs and no longer do. Here, snakes still have eggs, so gboo is included in the sentences in (33) and (34).

The surface form of this marker is extremely variable, but pending further phonological investigation, the underlying form is assumed to be /tə/.