11 Associated motion in Chácobo (Pano) in typological perspective

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11 Associated motion in Chácobo (Pano) in typological perspective

Abstract: This paper has two related goals. The first goal is to provide a revised description of associated motion (AM) in Chácobo, a southern Pano language of the northern Bolivian Amazon. Previous studies reported only 3 AM markers, but I argue that there are at least 7, which express the three timing relations or prior motion, concurrent motion and subsequent motion. The second goal is to take up the non-motional readings of these markers and their importance for the definition and the typology of AM, in particular that concerned with the ranking of timing relations in terms of an implicational hierarchy. I argue that AM markers in Chácobo can be understood as varying according to how dedicated they are to their motion function as opposed to other non-motional functions (path, aspect, etc.). Data from naturalistic speech suggest that the prior motion morpheme is less dedicated than the concurrent and subsequent morphemes. The relative ranking of concurrent and subsequent motion morphemes vis-à-vis prior motion morphemes depends on how the diagnostics for identifying AM markers are understood. I assess the implications of this study for the general typology of AM markers.

Keywords: Pano, Amazonian, AM, aspect, discourse

1 Introduction

As in all documented Pano languages (Guillaume 2017), Chácobo has a complex set of Association Motion (AM) morphemes. AM morphemes combine with a lexical verb root with which they associate a motion event as illustrated in (1) which shows the lexical verb root *ara* 'cry' in combination with various AM morphemes.

(1) a. *ara=kaná* 'cry while going'
     b. *ara=kayá* 'cry and then go'
     c. *ara=koná* 'go away, cry and return'
     d. *ara=honá* 'cry while coming'
         ...

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The motion event expressed by AM morphemes has a specific timing relation with the event denoted by the lexical verb (prior, concurrent, subsequent, among others). AM morphemes are also a closed class and occupy a position in the syntactic structure distinct from the verb root. In this paper I revise the description of associated morphemes in Chácobo, based on original data gathered over approximately two years of field work. More examples of AM morphemes in Chácobo can be found in Tallman (2018). Previous literature identified only 3 AM morphemes (Guillaume [2016, 2017] citing data in Prost [1967] and Zingg [1998]). I argue that there are at least 7 and possibly 8 depending on what is considered to be a dedicated AM morpheme. The second goal of this paper is concerned with the importance of Chácobo's AM system for the typology of AM generally. Based on a survey of 66 languages of South America, Guillaume (2016) argues that there is an implicational scale in the timing relations encoded by AM morphemes: prior > concurrent > subsequent. To illustrate the predictions of Guillaume's scale above, (1a) and (1d) are a examples of a concurrent AM marking: the motion event is concurrent with the event denoted by the lexical root or main verb. (1b) is an example of subsequent AM marking. According to Guillaume's scale, if a language has subsequent AM marking it is likely to have concurrent AM marking, and if it has concurrent AM marking it is likely to have prior AM marking. Thus, we should predict that Chácobo to have prior AM marking.

The revised description of AM in Chácobo suggests that the language has a highly developed system of concurrent and subsequent motion without a concomitantly complex system for marking prior motion. This paper explores the extent to which this revised description presents a counterexample to Guillaume's implicational scale of timing relations in AM morphemes. I argue that this depends on how broadly or narrowly the notion of a "dedicated" AM morpheme is understood. The problem in definition arises because of the numerous circumstances in naturalistic speech where AM morphemes do not express or do not uniquely express motion events. For instance, the AM morpheme *=kaná~=boná* typically expresses concurrent translation motion, but occasionally only expresses continuative semantics.

I show that there are strong asymmetries across prior, concurrent, and subsequent morphemes in this regard that suggest that prior motion is on its way out in Chácobo's AM system. I suggest that these asymmetries arise from the aspectual semantics that emerge from AM timing relations in combination with the other syntactic resources of Chácobo for expressing motion events. Evidence for this thesis is primarily based on the distribution of meanings of AM markers found in naturalistic speech. In Section 2 I provide some background on the Chácobo language and the data for this study, before moving into a revision of the description of AM in the language in Section 3. Section 4 provides a critical discussion

of definitions of AM. I argue that while AM is a distinct domain from aspect, it is not orthogonal to it. Section 5 is concerned with non-motion meanings that emerge from AM morphemes and provides some quantitative data with respect to the frequency of motion vs. non-motion events across the different AM markers in Chácobo. Section 5 summarizes the results and discusses future research.

2 Chácobo language: an overview

Chácobo is a southern Pano language of the northern Bolivian Amazon, spoken by approximately 1200 people in 20 communities along the Geneshuaya, Ivon, Benicito and Yata rivers. The language is still being learnt as a first language. Education in some of the Chácobo communities is partially in Chácobo. However, many Chácobo move to the Bolivian town of Riberalta for a better education, where the language is not spoken in day-to-day life (Córdoba, Villar, Valenzuela 2012).

The language has a fairly simple phonological inventory with four vowels (/i, o, a, ɨ/) and 16 consonants (/p, t, k, β, ts, tʃ, ɾ, h, ʔ, n, m, w, j, s, ʃ, ʂ/). Syllable structure is (C)V(C) and only sibilants can occur in coda position. Chácobo has a tonal system that distinguishes high tone marked syllables from toneless syllables. The tonal system is lexically contrastive (e.g. *haná* 'vomit' vs. *hana* 'leave'; *kaʂá* 'play' vs. *káʂa* 'be angry'). Tone sandhi in Chácobo is complex and highly dependent on the type of juncture.

An important distinction in Chácobo syntax is between verbal and non-verbal predicate constructions. Verbal predicate constructions are defined by containing at least one verb root and a morpheme that encodes clause-type (Declarative, Interrogative, Imperative, Hortative). Non-verbal predicate constructions contain a special class of clause-type morphemes and involve juxtaposition of two constituents. Since non-verbal predicate constructions are not relevant to the category of AM they will not be discussed further (for more details see Tallman 2018). An example of a verbal predicate construction is provided in (2) below.

(2) *honi   kiá   **ara**=kana=tɨkɨ(n)=ní=**kɨ***
     man   REP   **CRY**=GOING:ITR:SG=AGAIN=REMP=**DEC:P**
     'It is said that the man went along crying again (a long time ago).' ᴇʟɪᴄ

Chácobo has a rich inventory of closed class bound morphemes that modify the verb, including tense, aspect, temporal distance, AM, modality, evidentiality, and adverbial concepts, some of which are seen in (2), including the AM morpheme

=*kana* 'while going'. Only the verb root and the clause-type rank morpheme are obligatory for the verbal predicate construction, as in *ara* 'cry' and =*kɨ* 'declarative, past/anterior' (in bold above). All other elements, including overt expressions of arguments (such as *honi* 'man') can be dropped. Non-overt arguments are always interpreted as third person.

Another notable property of Chácobo is that it displays an ergative case marking system on full NPs. Pronouns display an accusative alignment. There are a number of circumstances where the alignment system in case marking is neutralized. With some minor caveats, Chácobo is a dependent marking system. Arguments are not indexed on the verb.

Chácobo displays transitivity harmony across its grammar. Transitivity harmony refers to a system where a given verbal modifier displays suppletive allomorphy conditioned by the transitivity of the verb (see Valenzuela 2017 for transitivity harmony in Pano generally). Transitivity harmony will be illustrated in the context of the description of AM in Chácobo since it is a property of most AM morphemes.

The data for this paper are based on 26 hours of naturalistic speech and thousands of elicited sentences gathered by the author during approximately 22 months of original fieldwork. More details on the Chácobo language can be found in Tallman (2018) and much of the data gathered is archived at the Endangered Language Archive (ELAR).[1] The documentation project involved recording approximately 120 Chácobo speakers and running workshops in the Chácobo communities on documentation techniques.

Examples in this paper that are not from elicitation are presented with an English and Spanish free translation, where available. The Spanish translations correspond as much as possible to translations given by Chácobo in their own Spanish. Sometimes, the motion event expressed by AM morphemes is not expressed in these Spanish translations, which is to be expected given that the motion events expressed by AM markers are often backgrounded. In order to give the reader access to the raw data the Spanish translation is provided. For clarity, readability and in order to present the reader with my understanding of the sentence, I have provided literal English translations. Phonemic transcriptions of Chácobo follow the practice in Tallman (2018: Chapter 1 for details).

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1 https://elar.soas.ac.uk/Collection/MPI485795

3 AM categories

This section provides a description of AM categories in Chácobo and a discussion of the distinction between AM morphemes and lexical motion verbs. The full inventory of AM morphemes is provided in Table 1.[2]

Table 1: AM morphemes in Chácobo.

AM morpheme[3]		Temporal relation with verb event	Orientation to point of reference	Further semantic contribution on main verb
=kaná~=boná	GOING	concurrent	NA	durative
=honá~=bɨna	COMING		towards	
=kayá~=bayá	DO&GO	subsequent	away from	completive
=kiriá~=bɨriá	DO&COME		towards	
=koná~=boʔoná	CNTRDIR	counterdirectional	away from + towards	
=kó~=boʔó	DISTR	distributive	NA?	pluractional
=tá(n)	GO&DO	prior	away from	incipient
=tiari	COME_INTO_VIEW	concurrent/ subsequent	towards	

Previous descriptions identified only the concurrent motion morphemes *=kaná~=boná* and *=honá~=bɨná* and the prior motion morpheme *=tá(n)* as distinct markers of AM (see Guillaume 2016, 2017). A revised description also includes the subsequent morphemes *=kayá~=bayá* and *kiriá~biriá,* the counter-directional *=koná~boʔoná,* the distributive *=kó~=boʔó* and the coming-into-view morpheme *=tiarí*.

As stated above, most AM morphemes in Chácobo display transitivity based allomorphy. Six of the AM categories in Chácobo display this type of allomorphy.

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2 In related Pano languages AM morphemes are classified as suffixes (Fleck 2003; Valenzuela 2003; Zariquiey 2018; Valle 2017). I classify AM morphemes in Chácobo as clitics because they can be interrupted by free forms (see Tallman 2018: Section 3.2 and Section 5.2.2 for details on the constituency of the verb complex). In other Pano languages, free forms do not interrupt the verb complex to my knowledge; however, future research on the internal constituency of "words" in other Pano languages might reveal that the distinction between suffixes and enclitics in this case is terminological rather than empirical.

3 The left-hand variant refers to the intransitive allomorph and the right-hand variant to the transitive allomorph.

I illustrate it with the concurrent andative (away from point of reference) below. The form *=kaná* surfaces when the verb it combines with is intransitive (3a) and the form *=boná* when it is transitive (3b).

(3)   a.   *tsaʔo=**kaná**=ki*
          sit=**GOING:ITR**=DEC:NONP
          'He sits down (repeatedly) <u>while going</u>.' ELIC

     b.   *tsáya=**boná**=ki*
          see=**GOING:TR**=DEC:NONP
          'S/he sees him/her/them <u>while going</u>.' ELIC

Transitivity harmony in AM morphemes interacts with the number and person of the subject. When the subject (A or S argument) is expressed by a plural third person pronoun *(ha) ... =kán,* the transitive allomorph surfaces even when the main verb is intransitive as in (4a). Otherwise, when the subject argument is expressed by a plural NP or a 1st or 2nd person pronoun (singular or plural), the intransitive allomorph surfaces on intransitive verbs as in (4b) and (4c).

(4)   a.   *tsaʔo=**bona**=ká(n)=ki*
          sit=**GOING:TR**=PL=DEC:NONP
          'They sit down (repeatedly) <u>while going.</u>' ELIC

     b.   *hóni=bo*   *tsáʔo=**kaná**=kɨ*
          man=PL   sit= **GOING:ITR**=DEC:P
          'The men sat down.' ELIC

     c.   *ma/no*   *tsaʔo=**kaná**=kɨ*
          2PL/1PL   sit=**GOING:ITR**=DEC:P
          'You (pl)/we sit down (repeatedly) <u>while going</u>.' ELIC

Only the prior motion *=tá(n)* and the concurrent/subsequent *=tiarí* do not participate in the system of transitivity harmony.

As indicated in Table 1, AM morphemes are distinguished according to three other variables: (i) timing, (ii) orientation and (iii) aspectual semantics. AM morphemes in Chácobo always relate to the movement of the subject (A/S) and never other arguments. The display of paradigmatic relations provided in Table 1 somewhat oversimplifies the orientation parameter since it does not distinguish between orientations which are entailed and those which are pragmatic defaults. The distinction is teased out in the discussion below.

3.1 Timing

The most frequent AM morphemes express the simple relations of prior motion, concurrent motion and subsequent motion. The three timing relations are illustrated in (5)-(7) below: subsequent motion with *=bayá* in (5); concurrent motion with *=boná* in (6); prior motion with *=tá(n)* in (7).

(5) *hátsi kiá hawɨ ṣani ha bi=**baya**=ní=kɨ*
      then REP 3SG:GEN pubic_hair 3 grab=**DO&GO:TR** =REMP=DEC:P
      'Entonces él recogió el pendejo y después él se fue.'
      'Then he (the man) grabbed her (his grandmother's) pubic hair and <u>left (went away from his grandmother).</u>' Txt 083: 104

(6) *ʃino no ṣiri-ʔa=ṣo pi=**bona**=ʔái=na*
      monkey 1PL boil-TR=PRIOR:A eat=**GOING:TR** =NMLZ =EPEN
      'Después de sancuchar el mono, comíamos de ida.'
      'After boiling the monkey, we left and ate it (the monkey) <u>while going.</u>'
      Txt 045: 153

(7) *ʈ͡ʃama=yá t͡ʃani-na=**tá(n)**=ki*
      leader=com converse-intrc2=**GO&DO**=dec:nonp
      'Ella/él se va y habla con el capitán.'
      'S/he goes and speaks with the leader.' ELIC

In many Panoan languages, AM morphemes are polysemous with respect to concurrence and subsequence, rather than strictly encoding subsequence (Guillaume 2017). Based on data in Valenzuela (2003: 159), Guillaume (2016: 153, 2017: 237) categorizes two morphemes in Shipibo, the andative *-kain/-bain* and the ventive *-kiran/-beiran*, which are partly cognate to the subsequent *=kayá~=bayá* and *=kiriá~=biriá* of Chácobo, as concurrent-subsequent. However, the polysemy displayed by the corresponding subsequent morpheme in Chácobo, summarized in (8), is different from the polysemy of Shipibo. Importantly, the completely overlapping concurrent reading in (8iv) is not compatible with the semantics of the morpheme (it apparently is in Shipibo). This example shows that subsequent AMs in Chácobo are subsequent morphemes (for more details see Tallman 2018: Section 12.2) in the sense of requiring that the motion continue after the termination of the main event.[4]

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4 For many authors the 'on the way' reading in (9iii) is a concurrent reading because motion occurs prior and subsequent to the main event (Koch 1984; Guillaume 2016). In my view, the fact

(8) *tsaya=**bayá**=kɨ*
     see=**DO&GO:TR/PL**=DEC:P
     (i) 'S/he visited him/her/them for a while and left.'
     (ii) 'S/he looked/glanced at him/her/them and then went.'
     (iii) 'S/he saw him/her/them on the way.'
     (iv) *'S/he was looking at him/her/them the whole-time s/he was going.' ELIC

The counterdirectional and distributive AM markers are not strict with respect to the timing relation they have with the main verb. They are discussed below in the context of orientation.

3.2 Orientation

Another basic parameter of variation within Chácobo's AM system is orientation to a point of reference. The path encoded by an AM morpheme can refer to a source and a goal. The source or goal are not necessarily the speaker or addressee but can refer to a salient place (see Vuillermet 2012: 660); "away from" from refers to a trajectory with an explicit source; "towards" refers to a path with an explicit goal. A typical distinction in this regard is between the andative/itive and the ventive, the former encoding an "away from" orientation and the latter a "towards" orientation with respect to a point of reference. In this paper, I use the term "andative" markers as those without a ventive "towards" orientation, rather than as a marker that necessarily has an "away from" orientation. The term "itive" is used for those AM markers that *always* seem to code an away from orientation. The only AM markers that might fit this description are subsequent AM markers.

In Chácobo the distinction between AM morphemes according to orientation crosscuts the concurrent and subsequent morphemes. The distinction between itive and ventive AM can be discerned by comparing (5) with (9). In (5), the subsequent motion is away from the point of reference (the subject's grandmother). In (9) the subsequent motion is towards the point of reference (the subject's home) (see Tallman 2018: 951–961; 977–983).

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that a concurrent reading is possible with a subsequent morpheme does not provide sufficient evidence to consider this morpheme to be concurrent. The translation evidence in (9i) and (9ii) suggests that subsequent motion is entailed, while concurrent motion emerges contextually. In other words, the translation in (9iii) does not imply that *=kayá/=bayá* 'do and go (transitive)' *encodes* concurrent motion, just that motion could be occurring concurrently.

(9) *ʂɨbi*   *ho=kí*   *nó*   *bi=**biria**=itá=kɨ*
    motacu   come=CONCUR:A   1pl grab=**DO&COME:TR**=RECP=DEC:P
    'De regreso hemos cogido motacu'
    'We grabbed the motacusillo (type of palm tree) and came (towards our
    home, here).' Txt 094:058

The distinction between itive and ventive seems to relevant for subsequent
AM markers. However, there is an asymmetry in concurrent motion such that
the ventive requires an orientation, whereas the andative has a particular
orientation as a pragmatic default. Evidence for this comes from the fact that
"andative" AM morphemes can co-index (or "echo": Guillaume 2016: 91, fn11)
a motion event that is expressed by a ventive lexical motion verb in the same
clause. By co-index I mean that the motion event that seems to be expressed by
an AM marker is also expressed by a lexical motion verb. The reverse does not
appear to be true, however: when ventive AM morphemes co-index a lexical
motion verb, it must be a ventive motion verb; see §3.3 for more discussion on
this co-indexing/echo phenomenon. The asymmetry is partially illustrated in
(10) where the andative *=boná* appears to co-index a motion event with the
lexical motion verb *ho* 'come'.

(10) *hó=ki*   *hó=ki*   *habi*   *yóʂa=bo*
     come=DEC:NONP   come=DEC:NONP surely   woman=PL
     ka=ʔá=kato=́   *tsi*   *ʂiti=**boná**=kiá*
     go=NMLZ:P=REL=SPAT   LNK   smell=**GOING:TR**=REP
     'Viene, viene, viene, atrás de las dos mujeres, se fue oliendo en camino.'
     'He (the jaguar) is <u>coming</u> … he (the jaguar) keeps <u>coming</u>, surely he is
     smelling <u>while going/coming</u> where the women have gone.' Txt 050:
     204–206

More evidence of the weak orientation for the "andatives" in Chácobo comes
from the fact that they do not have to encode a direct path. Speakers associate
situations where a participant "wanders-about" in no particular direction with
the "andative" AMs.[5] For instance, a participant that follows a path like the one

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5 Guillaume (2017: 236–239) shows that "wandering-about" (Spanish deambulando) or "in-
direct motion" is a distinct category from the andative in certain Panoan languages such as
Kashibo-Kakataibo and Kashinawa. Perhaps the "andative" morphemes in Chácobo should
not be classified as andative because they do not imply a straight path. Alternatively, the
meaning of the "andative" morphemes in Chácobo suggests that Guillaume's (2016, 2017) clas-

depicted in Figure 1 while performing some action will be described with an andative AM as in (11).
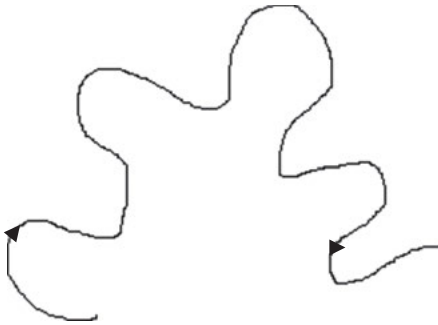

Figure 1: Indirect motion of the Chácobo andative, as drawn by a Chácobo speaker.

(11) *mɨra=**bona**=ʔái=na*
      look_for=**GOING:TR/PL**=NMLZ:IPV=EPEN
      'He was looking <u>while going.</u>' ELIC

Chácobo also contains morphemes that express more complex path semantics. The AM morpheme *=koná~=boʔoná* associates one or more motion events with the main verb that move in opposing directions. The timing relation with respect to the main event is unspecified, being timed concurrently or non-concurrently depending on context.[6] For concurrent motion events the counterdirectional denotes a circular path such as (12).

(12) *ho=ʂó   ha-to   hói-wa=**boʔoná**   hɨnɨ*
      come=PRIOR:A   3-ACC:PL   speak-V:TR=**CNTRDIR:TR**   chicha
      ama=kán=ikiá
      send=PL=REP
      'Llega y saluda después se anda invitandoles chicha.'
      'When he arrived, he greeted them and offered them chicha (fermented yuca beverage) (going around in a circle where they were seated passing it around).' TXT 001:006

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sification of path semantics could be made more fine grained to account for the distinction between entailed meanings and those that arise via implicature (see Wilkins and Hill 1995).
6 Here context could refer to the aspectual class of the main verb or the discourse context. How different timing relations emerge out of discourse requires future research.

For non-concurrent timing, the counterdirectional expresses motion events prior to and subsequent to the main event that have orientations in opposite directions as in (13).

(13)   *toka=Ɂá*   *tsi*   *káko*   *aʃi=**kona**=Ɂá*
         do_so=NMLZ:P   LNK   Caco   bathe=**CNTRDIR:ITR**= NMLZ:P
         tsi   *aʃi=kí=a*   *iwî̵*
         LNK   bathe=DEC:NONP=1SG   EXCLAM
         i   *kia*   *ha*   *=ní=kɨ*
         say   REP   3   =REMP=DEC:P
         'Cuando Caco hizo así, vino "voy a bañarme, ¡¿pero que es eso?!" dice él (Caco) a su otro hermano.'
         'And after he (Caco) did this, Caco went to bathe himself and then came back.' (before he went to bathe himself, he said) "I'm going to go bathe myself. But what's this?!" he said (and then he turned back). Txт 026: 328

Chácobo also displays a distributed AM that encodes that the event took place in multiple places and multiple times. In all text examples I have, it implies motion. The distributive *ko~boɁó* requires the verb to reduplicate. An example is provided in (14) below.

(14)   *ha-Ɂ-îwa*   *ara=**ko***   *ara=**ko**=Ɂái=ka*
          3-EPEN-mother   cry=**DISTR:ITR**   cry=**DISTR:ITR**=NMLZ:IPV=REL
          obiyá
          over_there
          'Su madre empezaba a llorar en toto lugar, y allí está.'
          '(After losing her daughter in the woods), her mother was crying in multiple places everywhere she went (stopping and starting to cry again) "And look now she's over there!" (her mother said).' Txт 110:009

Finally, Chácobo has a morpheme *=tiarí* which encodes that one of the participants of the event denoted by the main verb is coming or will come into view. The morpheme *=tiari* does not display suppletive allomorphy according to the transitivity of the verbal predicate. Also, it does not always encode motion as it can just refer to the fact that an event is being performed away from the speaker. However, ventive motion meanings often emerge from its use and some examples of this are provided in (15), (16) and (17).

(15) *hísiki=**tiarí***   *hóno*   *i=kiá*
appear=**COME_INTO_VIEW**   taitetu   say=REP
'"De repente va a aparecer más allá taitetu." le dice a su mujer.'
'"Perhaps a taitetu will appear (coming) within our vision" (he) said (to his wife).' Txt 807:061

(16) *hawɨ*   *hoi=nomarí*   *pa*   *i-kí*
3SG:GEN   speech=IMAGIN   MIR   1SG-DAT
pístia=ka   *nia=**tiarí**=ki*   *ható*   *tʃaʔíta*
small=REL   throw_away=**COME_INTO_VIEW**=DEC:NONP   3PL:GEN   uncle
bóka
Boca
'A ver si es cierto su palabra de su abuelo Boca de repente me va a dar algo con eso puedo comprar Lima yo digo también.'
'Perhaps his (Boca's uncle's) word (can be trusted) and Boca's uncle will come (to Alto Ivon) to give (throw away) me a little something (i.e. money).' Txt 2153: 435

(17) *mató*   *mi-ʔ-ípa*   *ṣo*
2PL:GEN   2-EPEN-father   DEC
hawî   *píʃa*   *a=**tiari**=ʔái=na*
something   small   kill=**COME_INTO_VIEW**=NMLZ:IPV =EPEN
tɨʃiná=ki   *mi-ʔ-ípa*
thirsty=DEC:NONP   2-EPEN-father
'Por allí tu padre mata algo bicho viene con sed.'
'From there your father kills a little something and comes (towards us) and your father is thirsty.' Txt 582: 241

The counterdirectional, distributional and coming-into-view morphemes are not very common in naturalistic speech compared to the other AM markers. More details can be found in Tallman (2018: Chapter 12).

3.3 Lexical motion verb roots versus AM clitics

There are three lexical motion verbs that are similar in form and function to AM morphemes with which they are probably diachronically related (see Guillaume 2017 for such correspondences across the Pano family). The verb root *ka~bo* 'go' is related in form and orientation to the andative and itive AMs (=***ka***ná~=***bo***ná 'do while going', =***ka***yá~=***ba***yá 'do and go'), except that the subsequent itive begins

with *ba* rather than *bo*. The verb root *ho~bɨ* 'come' is related in form and orientation to the ventive AMs (=***ho***ná~=***bɨ***ná 'do while coming', =***kɨ***riá~=***bɨ***riá 'do and come'), with the exception of the intransitive allomorph of the subsequent, which appears to not be related. The verb root *kó~boʔó* 'hunt, go and return' is related in form and orientation to the counterdirectional and the distributive AMs (*koná~boʔoná* and *kó~boʔó* respectively). Across the board these three lexical motion verbs display the same transitivity harmony that is displayed in the AMs. There are corresponding lexical motion verbs for the prior AM =*tá(n)* and the coming-into-view AM =*tiari*.[7]

The discussion above has focused on the semantic properties that distinguish AM morphemes from each other. Since Chácobo also contains formally related lexical motion verbs, it is important to discuss how these are distinct from AM morphemes. Three properties distinguish them, listed below.

– **Selection:** Lexical motion verb roots do not require another lexical verb root to combine with in order to surface. AM morphemes cannot surface without a lexical verb root.
– **Class size:** Lexical motion verb roots pattern syntactically and phonologically with lexical verb roots in general, which are open class. AM morphemes are, in contrast, closed class morphemes.
– **Pragmatic backgrounding:** Compared to lexical motion verbs, AM morphemes are more likely to express backgrounded motion events rather than introduce new motion events into discourse (Wilkins 1991: 251).

Selection and class size are fairly straightforward. They are important criteria for identifying AM morphemes because they are what distinguish AM constructions from serial verb constructions with a motion verb (I assume that serial verb constructions involve the combination of open class lexical verb roots).

Pragmatic backgrounding is less obvious because it refers to a tendency. That an AM encodes pragmatically backgrounded motion can be seen from redundant repetition of the same AM marker or redundant use of an AM marker following or preceding a lexical motion verb that expresses the same semantics (cf. the co-indexing/echoing function described in §5.2). Examples of such redundant repetition are provided in (18) for the concurrent and (19) for the subsequent (more examples are found in Tallman 2018: Chapter 12). The AM morphemes repeated in these examples are encoding the same motion event.

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7 One exception might be the lexical verb *nata(n)* 'pass by'. However, the relationship in form is less clear.

(18) | *bona* | *mɨra=**boná**=ʔikiá* | *pi=**boná**=ʔikiá* | | *noʔó* |
| --- | --- | --- | --- | --- |
| ant | look=GOING:TR=REP | eat=**GOING:TR**=REP | | 1SG:GEN |
| *yotʃĩ* | *yoi* | *mɨra=**bona**=kí=a* | | |
| peppers | SYMP | look_for=**GOING:TR**=DEC:NONP=1SG | | |

'Buscando tuandero, comiendo en camino, "estoy buscando mi querido aji." (dijo el oso bandera).'

'(The anteater was climbing up the tree) looking for ants <u>while going</u>, eating them on the way (<u>lit. while going</u>) (the ant eater said) "I'm looking for my precious peppers <u>on the way (lit. while going)</u>" he said.' Txt 061: 743–744

(19) | *a(k)=**biriá*** | *ha-to* | *ɨpáisa* | *hawɨ̃* |
| --- | --- | --- | --- |
| do=DO&COME:TR | 3-GEN:PL | uncle | 3SG:GEN |
| *kuenta* | *kopi=bɨriá* | *toa* | |
| account | pay=**DO&COME:TR** | DEM2 | |
| *wai* | *a(k)=**biriá*** | *tsi* | *haʔarí* |
| farm_plot | do=**DO&COME:TR** | LNK | again |
| ***ho**=tɨkɨ(n)=ki* | *no-a* | *nɨa=́no* | |
| **come**=AGAIN=DEC:NONP | 1PL-EPEN | here=SPAT | |

'Después de hacer pagar la cuenta de su tio después de hacer chaco otra vez vamos a regresar aquí.'

'We do it (harvesting the farm plot in Alegre) and come here, paying the debt (account) of their uncle, and harvesting that farm plot (the one in Siete Almendros).'

(lit. we will do it (harvest the farm plot in Alegre) and then we <u>will come</u>, and we will pay their uncle's account and we <u>will come,</u> and we do that farm plot (the one in Siete Almendros) we <u>will come</u>, and we will come here again.).' Txt 101: 108–110

Unmarked use of lexical motion verbs does not involve redundant repetition in this fashion.

3.4 Other meanings of AM morphemes

AM morphemes cannot combine with deictic motion verb roots such as those discussed above. However, AM morphemes do combine with motion-manner and motion-path verbs. When an AM morpheme combines with a certain motion verbs, the motion event expressed by the AM morpheme is redundant; other aspects of the semantics of AM morphemes are not.

For instance, in (20) the function of the concurrent ventive AM =*honá~=bìná* is to add an orientation.

(20) *no-kì=rí*   *ʃiʃo=**honá**=ki*   *no-a*
       1PL-EPEN=AUG   stroll_by=**COMING:ITR**=DEC:NONP   1PL-EPEN
       'Estamos llegando a pasear.'
       'We are arriving (onto you) as we go along / stroll.' (lit. we are strolling
       while coming).' TXT 004:018

In certain contexts the function of AM morphemes appears to be purely aspectual, even when they do not combine with a motion verb. For instance, the concurrent andative in (21) expresses durative semantics rather than incipience per se and no motion.

(21) *hakirikî*   *oʃo=**kaná**=ʔi*   *tsi*
       after_that   become_thin=**GOING:ITR**=CONCUR:S   LNK
       riso=ki   *ínaka*
       die=DEC:NONP   dog
       'Cuando el perro come, después, él está flaqueciendo poco a poco/de ida
       y el perro muere.'
       '(After the dog eats the contaminated meat), the dog becomes progressively
       thinner and dies. TXT 114:018–019

The prior motion AM =*ta(n)* very frequently expresses quick succession between events. This is illustrated in (22) below. It is rare that this morpheme expresses motion semantics.

(22) *matoʂ=yo=ta(n)=ʂó*   *tsi*   *a(k)=aí*   *i*   *kópa*
       dice=CMPL=**GO&DO**=PRIOR:A   LNK   do=INTER:NONP:2SG   say   Copa
       =kì   *a(k)=kí=a*
       =DEC:P   do=DEC:NONP:1SG
       'Después de picar, hemos jalado agua.'
       'After finishing dicing all of it (the yuca) Copa said "are you going to do
       it?". (I replied) "Yes, I will."' Txt 093:026

In fact, most of the AM morphemes have occasional aspectual functions (see Table 1 for an overview). The rest of this paper is concerned with the non-motional interpretations of AM markers and what they mean for the typology of AM.

4 The boundaries of AM

The function of AM morphemes not only bleeds into other functional domains, but the non-motion semantics of AM morphemes seems to be the more important function in certain contexts. In this section we engage with the definition and/ or the diagnostic criteria that distinguish AM morphemes from other functional categories. I take up the distinction between AM and aspect and then the distinction between AM and directionals.

Wilkins (1991: 211–212) put forth important arguments for treating AM as a category distinct from aspect. Wilkins (1991: 211) states that "AM forms contain none of the information that would typically be considered aspectual." This is not obviously true (in Chácobo and generally) as it depends on how aspectual content is defined and which aspectual categories are considered (see Guillaume 2013: 134, 2017: 244, 228; Rose 2015: 125–126 for additional comments). Specifically, the timing relations encoded by AM markers impose temporal boundaries on the main event in a fashion similar to some aspectual markers. Prior motion will tend to implicitly impose a clear initiation on the main event. Subsequent motion will do the same for the termination of the main event. In other words, subsequent motion AMs impose completive semantics on the main event and concurrent motion imposes atelic-durative meaning. This is illustrated in (23) and (24). The verb roots *oṣa* 'sleep' and *raka* 'lie down, live' are stative predicates. But in combination with subsequent AM markers, they are obligatorily construed as achievements (events with inherent end points).

(23)   *nia=rá*   *wɨstí*   *oṣa=**kaya***   *há*
      here=AUTH   one   sleep=**DO&GO:ITR:SG**   3
      bo=tɨki(n)=ká(n)=ʔ=itá=kɨ
      go=AGAIN=PL=EPEN=RECP=DEC:P
      'Por cierto, uno durmió y se fue otra vez.'
      'Here (for certain) one (of the traveling men) slept and then went again.'
      Txt 117:061

(24)   *raka=**kiriá***   *tsi*   *pɨ̂*   *tóa*   *há*
      lie_down=**DO&COME:ITR:SG**   LNK   ANX   DEM2   3
      ho=tɨkî(n)=kɨ
      come=AGAIN=DEC:P
      'Él vivía allí y otra vez él llegó.'
      'He lived there (in Nucleo, where the rubber center was), and then came (home).' Txt 043:024

There is a class of aspectual markers in Chácobo that are durative and atelic (see Smith 1997: 19; Givón 2001: 287 for definitions of these concepts); =*paó* 'durative, habitual'; =*baʔiná* 'during the day'; =*ʃiná* 'during the night' (see Tallman 2018: Chapter 11 for a description of aspectual morphemes in Chácobo). Atelic-durative aspectual morphemes and subsequent AM morphemes cannot co-occur in the same verb complex. I have no examples showing such combinations in naturalistic speech and speakers reject the co-occurrence of these morphemes in elicitation, as illustrated in (25) and (26).

(25) a. *tsaʔo=kayá=baʔiná=kɨ*
          sit=DO&GO:ITR=ALL/EACH_DAY=DEC:P

      b. *tsaʔo=baʔiná=kayá=kɨ*
          sit=ALL_DAY=DO&GO:ITR=DEC:P
          'S/he sat down during the day and then went.' ELIC

(26) a. *tsaya=baʔiná=bayá=kɨ*
          see=ALL_DAY=DO&GO:TR=DEC:P

      b. *tsaya=bayá=baʔiná=kɨ*
          see=ALL_DAY=DO&GO:TR=DEC:P
          'S/he saw him/her/them during the day and then went.' Elic

In contrast, speakers accept the combination of the atelic-durative aspectual morphemes with concurrent AM markers, which express durative meanings, as in (27) below from elicitation. (Note that examples that combine aspectual markers with AM markers are rare in naturalistic speech.)

(27) *tsaʔó tsaʔó =**kana=baʔiná**=kɨ*
      sit   sit   =**GOING:ITR=ALL_DAY**=DEC:P
      'S/he was sitting while going all day.'

(28) *naa*   *nɨama*   *ma*   *wɨsiwɨsi*
      DEM1   far_away   2PL   each
      ma   *ko=ʔiní*   *tʃaʔita* *tiani=yá*
      2PL   wander=INTER:NONP   grandfa   Tëani=COM
      mi-ʔ-ípa   *yamábo=yá*   *ma*   *raká*
      2-EPEN-father deceased=COM   2PL   lie_down/live
      raká   =**hona=pao**=ní=na*
      lie_down/live =**COMING:ITR=DUR**=REMP=EPEN

'¿Este que ustedes andaban lejos con Taita Rabi y con tu papa finado que andaban ustedes que ustedes venían viviendo viviendo?'
'This one (how about the story) each one of you wandering with your deceased grandfather Tëani, you used to come living (resting and/or setting up settlements)?' Txt 1867: 343

The incompatibility of the atelic-durative markers with the subsequent AM markers, and the compatibility of the atelic-durative markers with concurrent AM markers suggest that the Chácobo AM morphemes encode aspectual semantics (even if most aspectual markers are non-motional). Rather than defining AM as *not* involving aspect, one could define it positively as necessarily expressing motion.[8] Other linguists (Guillaume (2006, 2016); Rose (2015)) take this approach in distinguishing AM markers from directionals. Directionals only encode orientation, whereas AM markers encode motion and optionally orientation (Guillaume 2016: 92). This definition has the advantage of dealing with AM markers that have occasional non-motional functions such as those in (20), (21) and (22). A potential problem with this definition is that it may cast too wide a net, potentially obscuring typological variation and/or typological generalizations. For some morphemes, motion semantics might be nearly obligatorily, whereas for others motion semantics only emerges in specific contexts (see Belkadi 2015, this volume, and Dryer this volume chapter 4) for data that support this observation). Given that AM markers can encode non-motional semantics without encoding motion in certain contexts (see Belkadi this volume; Hernández-Green & Palancar this volume; Otero this volume; Voisin this volume), the motional semantics of a given morpheme could be conceptualized as a matter of degree.

Previous literature on AM made an important contribution by arguing that AM should be regarded as a functional domain in its own right, alongside aspect,

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8 Prior to Koch (1984) and Wilkins (1991), associated motion in Australian languages was described as a type of aspect. Note also that in defense of the idea that AM markers are not aspectual markers, Wilkins (1991: 221) states that in Mparntwe Arrernte "the motion event referred to by an associated motion form is never constrained (by meaning or form) to being specifically continuous, punctual or iterative". I do not understand why this fact is relevant to the issue of the status of AM markers as distinct from aspect. Aspectual markers modify the temporal constituency of main event, and if AM markers do the same thing, they could be categorized as a type of aspect marker that also encodes motion, as is done by Talmy (2000: 122–123) under the label of "secondary aspect". Understanding AM markers as a subtype of aspect marker would not make them less interesting any more than considering relative tense relations or perfect markers as subtypes of aspect does (e.g. Klein 1992, 1994). Whether the AM markers in Mparntwe Arrernte are aspectual markers will depend on how aspect is understood and defined as much as it relates to the facts in Mparntwe Arrernte.

tense, mood and direction (Koch 1984; Wilkins 1991; Guillaume 2006, 2016; Rose 2015), in the same way that some authors (e.g. Aikhenvald 2004; Michael 2008) have claimed that evidentiality should be regarded as its own domain, contrary to earlier views that considered it as a type of modality. However, that AM is a distinct functional domain does not need to imply complete orthogonality with respect to other domains. We might posit that morphemes display different degrees of fuzzy category membership in the domain of AM. I suggest that corpus data from Chácobo support this idea.

5 Non-motional functions of AM morphemes

Guillaume's (2016: 92) definition of AM as a "comparative concept" is stated below.

> An AM marker is a grammatical morpheme that is associated with the verb that has among its possible functions the coding of translational motion.

One potential problem with this definition is that it does not distinguish between cases where the expression of motion is saliently present in many or most contexts and those where the expression of motion is marginal. Other definitions in the literature are also problematic in this regard. For instance, Rose states: "AM markers express motion on all kinds of verb stems except, on the whole, on motion verbs themselves, and 'motion' constitutes the core of their semantics" (2015: 210; see Guillaume and Koch this volume for a similar statement). In this section I will provide a summary of the statistical distribution of non-motional readings across prior, concurrent and subsequent AM markers. I suggest that the statistical distributions reveal that Rose's definition of AM markers is too vague. Specifically, it is not clear what "on the whole" means and how to determine precisely when motion is in the "core semantics" or not. The problem with Guillaume's (2016) comparative concept is that the strength of the implicational scales he proposes could vary depending on how membership in the AM category is assessed.

I counted AM markers in texts. Coding for their timing properties and the frequency of morphemes in the resulting database are displayed in Table 2. I went through the texts in consecutive order as they are listed in Tallman (2018: 48–53). In this study I did not code counterdirectional and distributive AM markers since they are too infrequent in my corpus to provide reliable results.

Table 2: Counts of prior, concurrent and subsequent AM markers.

Timing	Orientation	Allomorphy		# of morhs in text	Total
PRIOR			=tán	149	149
CONCURRENT	ANDATIVE	INTRANSITIVE	=kaná	27	226
		TRANSITIVE	=boná	96	
	VENTIVE	INTRANSITIVE	=honá	57	
		TRANSITIVE	=biná	46	
SUBSEQUENT	ITIVE	INTRANSITIVE	=kayá	38	227
		TRANSITIVE	=bayá	79	
	VENTIVE	INTRANSITIVE	=kiriá	45	
		TRANSITIVE	=biriá	65	

The most straightforward way to code how often a given AM marker expresses motion is to count cases throughout texts where a motion event is expressed in a clause that contains an AM. The variable of motion expression can actually be divided into three values which are described below.

- **Yes:** The AM marker is clearly expressing translational motion as can be seen from the context and/or the translation provided by a linguistic consultant.
- **No:** The AM marker is not expressing translational motion. It could be expressing orientation, aspect, or some other category, but no translational motion is involved in the sentence that the AM marker occurs in.
- **Unclear:** It is not clear whether the AM marker expresses translational motion because translational motion is simultaneously expressed somewhere else, either when the AM marker combines with a motion verb or elsewhere in the same clause in cases of co-indexation/echo (see above). The motion semantics of the AM marker appears be redundant and, thus, it is unclear what semantic contribution it is making.

Cases where an AM marker is coded "Yes" with respect to the expression of motion are provided in (5), (6) and (7) above (Section 3). In each of these cases the context and the consultant's translations made clear that translational motion is involved and there are no other elements in the sentence that could also be expressing translational motion.

An example where an AM is coded as "No" for expressing translational motion is provided in (29). The AM marker =kaná~=boná is expressing the enlarging of a perforation in a person's ear lobe, not the translational motion of the ear

or the person (see (21) above for another example of an AM marker that is coded "No" with respect to the expression of motion).

(29) *hiwi*   *bara* *raa=kan=(ʔ)á=ka*   *habi*
      stick   clean send=PL=NMLZ:P=REL   surely
      *raa=**bona**=kí*   *tsi*   *ani=**kana**=kí*   *tsi*
      send=**GOING:TR**=CONCUR:A LNK grow=**GOING:ITR**=CONCUR:A LNK
      tóka   *tsi*   *ha*
      do_so   LNK   3
      i=ka(n)=pao=ní=kɨ
      be=PL=HAB=REMP=DEC:P
      'Cuando le ponen una barita de palo debe meter despacio y mientras que ancheaba despacio así eran ellos antes.'
      'When they put the little stick (in their ear), as they continued to put it in, it continued to widen, that's how they did it before.' Txt 115: 154

Cases where an AM marker would be coded as "Unclear" with respect to the expression of motion are provided in (11) above for the concurrent and (30) below for the subsequent (see also 21 and 22). In the example in (30) below the subsequent AM marker occurs with/on a verb that stands in an asyndetic coordinate relation with the lexical motion verb *ka* 'go'.

(30) *pi=**bayá***   *tsi*   *no*   ***ka**=tɨkɨ(n)=ní=kɨ*   *bakiʃmarí*
      eat=**DO&GO:TR** LNK   1PL   **go**=AGAIN=REMP=DEC:P morning
      'Después de comer fuimos otra vez temprano.'
      'We ate and then went in the morning.' Txt 011:020

In this case one can either say that =*bayá* does not express motion or that it co-expresses it with the motion verb. Assuming that the lexical motion verb expresses motion in such cases, the semantic contribution of the AM marker is unclear. Similarly, in (18) one can either say that =*honá* does not express translational motion or that it expresses it redundantly, marking only orientation. I coded such cases as "Unclear" because, while one cannot rule out the idea that the AM marker expresses motion, it is difficult to tell from context because of the presence of another element encoding motion.

Table 3 and Figure 2 summarize the variable of motion expression across the AM markers grouped according to their timing relations.

Table 3: Motion expression across prior, concurrent and
subsequent AM markers (counts and percentages).

	Prior	Concurrent	Subsequent	Total
No	86 (57%)	14 (6%)	0	100 (16%)
Unclear	24 (16%)	53 (24%)	139 (61%)	216 (35%)
Yes	39 (27%)	161 (70%)	88 (39%)	288 (48%)
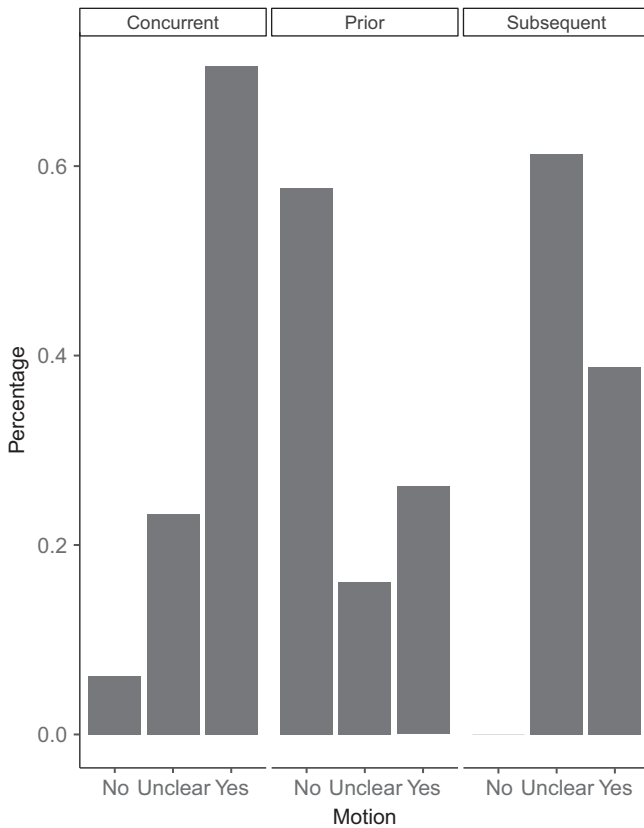
Figure 2: Motion expression across prior, concurrent and subsequent AM markers (percentages).

The data reveal stark asymmetries between AM markers in terms of how often they express and/or clearly express translational motion. Below I provide a discussion of each of the AM categories with reference to the non-motional functions of each morpheme. A final discussion provides an overview.

5.1 Concurrent

70% of the cases of concurrent AM markers clearly express motion; 70% of the time concurrent markers combine with non-motional lexical verbs and motion is expressed. 24% of the time it is unclear whether the AM expresses a motion event, because it combines with a lexical motion-manner or motion-path verbs such as *haba* 'run', *waʃa* 'row'; *tia* 'go in circle, surround'; *nini* 'trot'; *ʃobiri* 'spin around'; *pakɨ* 'fall', *bɨbo* 'overcome (with movement), interrupt', *ʃiʃo* 'stroll'. When the AM marker combines with a motion verb it can be seen as contributing either towards/ventive-orientation or continuative aspect.

(Ventive) Orientation: When AM markers combine with motion+manner verbs, orientation can be seen as their primary contribution to the semantics of the resulting verb complex. An example is provided in (18) above, where the ventive concurrent AM marker combines with the manner+motion verb *ʃiʃo* 'pass by'. Overall ventives combine with manner+motion verbs more frequently than andatives/itives do. 17% (21/123) of concurrent andatives combine with manner+motion verbs, compared to 31% (33/103) of concurrent ventives. This makes sense if one of the primary functions of AM markers in combination with motion verbs is orientation. Recall from Section 3 that andatives do not seem to encode orientation explicitly, whereas ventives do. Thus, it is less likely that combination with an andative AM marker contributes path semantics to a manner+motion verb, whereas combination with the ventive does.

Continuative aspect: 6% of concurrent AM markers contribute no motional semantics at all. In such cases the semantic contribution appears to be continuative. Examples are provided in (19) *oʃo=kaná* 'continue thinning out' and (23) *ani=kaná* 'continue widening' and *raa=boná* 'continue to put/send'. All examples of concurrent AM markers contributing only aspectual semantics come from andatives. Concurrent ventives contribute either motion and orientation or just orientation, but never continuative aspect. Thus, there seems to be some complementarity in the non-motional functions of concurrent AMs. To a large extent, andatives contribute continuative aspect and ventives contribute orientation.

5.2 Subsequent

Most subsequent AMs (61%) occur in constructions where it is unclear whether it can be said that they contribute motional semantics. Typically this involves asyndetic coordinate structures where the subsequent AM modifies the first verb and the second verb is a lexical verb as in the schema in (25).

(31) [(NP$_O$) VERB$_1$-AM] [(NP$_O$) NP$_{A/S}$ VERB$_2$] CLAUSE-TYPE

When VERB$_2$ is a lexical motion verb, the construction is coded as unclear. An example of such a construction with the itive morpheme is provided in (30) above and an example with the ventive is provided in (32).

(32) *mai=*   *no*   *ho=ʔá=ka*   *[oşa=kiriá]*
     ground=SPAT   1PL   come=NMLZ:P=REL   [sleep=**DO&COME:ITR:SG**]
     tsi   *[nobá*   *şobo=kí*   *no*
     LNK   [1PL:GEN   house=DAT   1PL
     ***kaʔi]**=ní=ki*
     arrive_here]=REMP=DEC:P
     'Cuando venimos a pie, en el medio dormimos y de allí llegamos a casa a pie.'
     'When we had been coming on the ground, we slept (before leaving) and then came at our house.' Txt 102:035–036

57% of instances of AM markers of all types occur in such constructions. In the examples in (23) and (24) the second verb is a deictic motion verb. The second verb can also be a motion+manner verb as in (33).

(33) *[rooş*   *a(k)=**bayá**]*   *tsi*   *kiá*   *[hawî*
     [IDEO_shove_inside   do=**DO&GO:TR/PL**]   LNK   REP   [3S:GEN
     raís   ***haba]**=ní=ki]*
     in_law   **run]**=REMP=DEC:P]
     'Cuando lo mitió (en su ano), su suegro se escapó.'
     'After he (the in-law) shoved it (up the other in-law's anus) (before going), he (the in-law) went running away (lit. he went and ran away).' Txt 084:079

11% (25 examples) of asyndetic coordinate constructions with AM markers contain non-motion verbs as the second verb root as in (34). In the rest of asyndetic coordinate constructions the second verb is a motion verb (89%).

(34) *[bi=**bayá**]*   *tsi*   *kiá*   *[yoşa=yá*
     [receive=**DO&GO:TR**]   LNK   REP   [woman=COM
     rakipi-na]=ní=ki
     lie_with-INTRC2]=REMP=DEC:P
     'Después de recibirla y llevarla, se acostó con la mujer.'
     'After he (Isha) met her (lit. received her), he went (with her) and lay with the woman.' Txt 008:016

There are no cases where subsequent AM markers clearly do not express motion. That is, AM subsequent markers either express motion or co-index a motion event with a lexical motion verb in the same clause. In the latter case the subsequent AM marker contributes completive semantics to the main verb it is attached to.

Completive aspect: As noted in Section 3, an important function of subsequent AM markers is that they encode completion of the event of the verb root with which they combine. Furthermore, subsequent AM markers display aspectual constraints such that they cannot co-occur with certain imperfective modifications. The importance of the aspectual function compared to translational motion can be seen from the fact that subsequent AM markers clearly express motion only 39% of the time.

Orientation: In cases where the subsequent AM marker co-occurs with a motion+manner verb root as in (31) that does not encode orientation such as in (32), orientation is a plausible semantic contribution. The cases where it clearly has this function are relatively few, however. For subsequent andative AM markers in asyndetic coordinate constructions where the second verb is a motion verb, only 25% (11 of 44) of the motion verbs are manner+motion rather than deictic. For subsequent ventive AM markers the proportion is 35% (39 out of 60). Thus, while orientation could be an important function of subsequent AM markers, the prevalence of cases where an AM marker redundantly occurs with a deictic motion verb that expresses the same orientation as in (30) and (32) suggests that this is not its most important non-motional function. The primary non-motional function of subsequent AM markers, therefore, appears to be the expression of completive semantics on the first verb.

5.3 Prior

As can be seen from Table 3 and Figure 2 above, the prior AM marker =*tá(n)* only clearly expresses motion 27% of the time. While this would classify it as an AM marker according to Guillaume's (2016) typology, it is clearly *less* dedicated to the expression of translational motion than the other AM markers of this study. Below I provide a brief overview of some of its other functions. I also point out that motional versus non-motional readings are not distributed evenly across all constructions where =*tá(n)* occurs.

Non-motional interpretations of =*tá(n)* are 'quick succession' or 'for a short period'. The quick succession interpretation typically arises when =*tá(n)* occurs in same and different subject clauses as in (35) and (36); see another example in (20).

(35) *hatsi   kiá   ha   mįʂ-a-**ta(n)**=ʂó   tsi   kia*
      then   REP   3   grab-TR-**GO&DO**=PRIOR:A   LNK   REP
      há   a(k)=ní=kɨ
      3   do=REMP=DEC:P
      'Entonces el momento que él lo arrancó, lo hizo.'
      'Then as soon as he grabbed it (the branch) he hit (did) him (the caiman)'
      Txt 061: 287

(36) *ma-pɨk-a   ha-ʔ-á   tsi   kiá*
      head-open-TR   3-EPEN-SPAT   LNK   REP
      *yoʂa   háʔi=bo   atʃ-a=**ta(n)**=kɨ̂*
      woman   girl=PL   grab-TR=**GO&DO**=PRIOR:D{A,S}
      rɨ-tóo   há   wa=ʔái=na
      nose-hit   3   TR=NMLZ:IPV=EPEN
      'Abrieron y allí están las muchachas, y el momento que la cogió lo golpeó
      en la nariz.'
      'They opened it (the door), and there were the young (Maina) women, the
      moment that he (one of the Chácobo men) grabbed her (one of the Maina
      women he wanted to take home), she (the Maina woman) pegged him (the
      Chácobo man) on the nose. Txt 007: 275–276

The other reading expresses that the event of the main verb took a short period
to complete. For the sentence in (37) speakers provide two translations. One is a
motion reading and the other is a short period of time reading. The former reading
is fairly rare and/or hard to discern from texts and is better attested in elicitation
than in naturalistic speech (as in (7)).

(37) *habi   tóa   ʂaba   hiko=**tá(n)**=ki*
      surely DEM2   savannah enter=**SHORTLY/GO&DO**=DEC:NONP
      pɨ̂   hóno
      ANX   collared_peccary
      'De allí en la entrada de la pampa el taitetu entró después de un rato / entró
      después de viajar.'
      'And for sure, in that savannah, a collared peccary entered shortly / a
      collared peccary travelled and entered the savannah.' Txt 092: 194–195

The short period to completion reading seems to always be present in Chácobo even
where prior motion is expressed. The short period reading could have naturally
extended into quick succession as in (36) and (32). The most common case for

prior motion to be expressed is in imperative and intentional constructions. An example is provided in (38) below.

(38) *nìá=ṣo ì-a   mana=wĩ̀   ì   boì   a(k)=**tá(n)**=no*
      here =A   1SG-ACC wait=IMPER 1SG yatorana do=**GO&DO**=INTENT
      '(Después de acostarse con su mujer se levantó) "Esperama aquí, voy a matar una yatorana (dijo el hombre adentro de la casa en el pueblo)"'
      '(After sleeping with his wife and getting up from bed) "Wait for me here. I intend to go (to the river) and catch (lit. do) yatorana (type of fish)." (the man said from in the house inside the village).' Txt 008:024

An overview of the distribution of motion expression across the five constructions where the prior motion AM is found is provided in Table 4.

Table 4: Expression of motion by the prior motion AM across five constructions.[9]

	No	Unclear	Yes
Same/different subject *=ʔi, =kí,=ʔáṣ, =ṣó, =pama*	75	15	8
Declarative *=kì, =ki*	1	2	4
Nominalization *=ʔai, =ʔá*	3	0	1
Intention *=no*	2	6	17
Imperative *=wĩ̀*	0	1	5

The domain of prior motion is less developed and least integrated into the system of AM markers in Chácobo for a few reasons. First, there is no distinction between andative and ventive prior motion; the morpheme *=tá(n)* always seems to express

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9 A reviewer suggests that there are multiple different morphemes with the form *=tá(n)* even if they occur (or seem to occur?) in the same position in the verb complex. To the extent that this suggestion is about speaker knowledge (do Chácobo speakers store different versions of *=tá(n)* in their mind?), I simply do not have the data to answer it. If it concerns synchronic analysis, the problem here has more to do with the definition of a morpheme than with the marker *=tá(n)*. It simply remains the case that there is no method for determining the correct morphemic analysis in ambiguous cases such as these (see Blevins 2016). I thus remain agnostic concerning whether there is one or more *=tá(n)* morphemes. If there are two morphemes, then the variation in meaning is reduced to a certain extent.

andative motion, but this issue requires future research. Second, the prior motion AM marker =*t(â)n* does not display transitivity harmony as the other AM markers do. Finally, the summary above suggests that the motion semantics of the prior AM marker are eroding, although the erosion has not spread evenly across constructions.[10]

5.4 Discussion

If the diagnostic for whether a morpheme is an AM marker is the simultaneous combination with a non-motion lexical verb and expression of motion (Rose 2015: 210), then the data from naturalistic speech in Chácobo reveal a language specific ranking of AM markers with respect to this diagnostic. The AM markers can be ranked from more to less dedicated as in (39).

(39) Ranking of AM timing categories according to the frequency of clear expression of motion (Percentage coded "Yes" from Table 3):
Concurrent (70%) > Subsequent (39%) > Prior (27%)

Assuming a discrete division between AM, aspect and directionals, the ranking reveals that it is not clear when a morpheme stops becoming an AM marker. Is 39% expression of motion enough to classify the subsequent AM in Chácobo as a dedicated AM marker? Is 27% expression of motion enough to classify the prior AM in Chácobo as a dedicated AM marker?

There are different ways of measuring the strength of motional semantics from natural speech. If expression of motion at the clause level regardless of whether there is a co-indexed lexical verb is understood as the diagnostic, the subsequent AM could be considered the most dedicated AM marker and a different ranking emerges.

(40) Ranking of AM timing categories according to the frequency with which they clearly express or possibly express motion. (Percentage coded "Yes" or "Unclear" from Table 3):
Subsequent (100%) > Concurrent (94%) > Prior (44%)

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10 It is probably the case that the erosion has not spread across all speakers. Whether there is dialectal variation with respect to the motion vs. non-motional expression of =tá(n) requires future research.

These data suggest that the current diagnostics for classifying morphemes as AM either result in ambiguous or fuzzy classification or obscure potentially important variation. It is unclear how to reconcile the gradient data in Chácobo with the statement that AM markers are those that express motion as their "core semantics" and combine with non-motional verbs "on the whole" (Rose 2015: 210). On the other hand, assuming that any morpheme that expresses motion in any context is a bona fide AM marker (Guillaume 2016), while practical, obscures the fact that some morphemes might be *more* dedicated to expressing motion than others, which may be important for constructing robust typological scales, and for understanding the diachronic trajectory of AM and its relationship to other functional categories.

6 Conclusions and future research

This paper has argued that Chácobo has a more complex system of grammaticalized AM than previously described. As has been described for many systems of AM, the AM markers in Chácobo encode more than just motion, but also express notions related to orientation and aspect. The importance of these non-motional functions can be understood as varying according to context, when the diagnostics for identifying AM markers are applied to natural speech. The corpus data of Chácobo reveal asymmetries with respect to the prevalence of motional vs. non-motional semantics across different AM markers in a way that would seem to undermine any attempt to keep AM distinct from other categories in a discrete fashion. Prior motion morphemes seem to be *less* dedicated to the expression of motion than concurrent and subsequent morphemes. Whether concurrent or subsequent AM markers are considered more or less dedicated depends on how the strength of motion is measured from the natural speech.

Future research might reveal that some statistically meaningful and testable concept of "core motion semantics" can be established based on data from naturalistic speech. Combining corpus data with a set of clear semantic tests that can be applied in elicitation (e.g. Waldie et al. 2009) to diagnose whether a morpheme encodes "core motion semantics" might also help. Furthermore, in this paper I have not systematically investigated the relationship between the lexical class of the main verb and the semantic contribution of the AM morpheme. Raw frequencies might obscure the possibility that non-motional meanings are distributed differently according to the semantic class of the main verb (see Otero this volume). Whatever new methodologies come to the fore, moving forward with the typology of AM will need to involve dealing with the gradience of motional

semantics that emerges from naturalistic speech in individual languages and relating it to the proposed typological scales such as that in Guillaume (2016).

Abbreviations

I use the following glossing conventions:

A	subject of transitive clause	HAB	habitual
ACC	accusative	IDEO	ideophone
AGAIN	again	IMAGIN	imaginative
ALL_DAY	all day	INTRC	interactional
ANT	anterior	INTER	interrogative
ANX	anxietive	INTENT	intentional
AUG	augmentative	IPV	imperfective
AUTH	authoritative	ITR	intransitive
CMPL	completive	NMLZ	nominalizer
CNTRDIR	counterdirectional	NONP	non-past
COM	comitative	P	past
CONCUR	concurrent dependent clause	P5	position 5 morpheme
DAT	dative	PL	plural
DEC	declarative	PRIOR	prior dependent clause
DEM1	proximal (speaker oriented) demonstrative	SG	singular
		SHORTLY	shortly
DEM2	distal (addressee oriented) demonstrative	SPAT	spatial
		SYMP	sypathetic
DISTR	distributive	TXT	data from naturalistic speech
ELIC	data from elicitation	RECP	recent past
EPEN	epenthetic formative	REL	relativizer
EXCLAM	exclamative	REMP	remote past
GEN	genitive	REP	reportative
GOING	going	TR	transitive

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