SERIAL VERBS IN WA'IKHANA (EAST TUKANO): A CONSTRUCTION GRAMMAR APPROACH

VERBOS SERIAIS EM WA'IKHANA (TUCANO ORIENTAL): UMA ABORDAGEM CONSTRUCIONISTA

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Abstract: This article presents an analysis of serial verb constructions in Wa'ikhana, an East Tukanoan language, from a usage-based constructionist perspective. Four kinds of serializations are identified and described. One of them – a serialization with the verb *duku* 'stand' – is analyzed in more detail, since not only does this construction have a more grammaticalized meaning, but also it has one instance *yauduku* (*yau* 'talk/tell' + *duku* 'stand') that has already become a new node in the *constructicon*, i.e., that constitutes a new lexical construction.

Keywords: Serial verbs; Usage-Based Construction Grammar; Wa'ikhana; East Tukanoan languages.

Resumo: Neste artigo, apresentamos uma análise dos verbos seriais em Wa'ikhana, uma língua da família Tukano Oriental, sob a ótica da Gramática de Construções Baseada no Uso. Quatro tipos de construções seriais são identificados e descritos. Uma delas, a serialização com o verbo *duku* 'ficar em pé', é analisada com mais detalhes, uma vez que tal construção tem um significado mais gramatical e uma de suas instâncias *yauduku* (*yau* 'falar' + *duku* 'ficar em pé') já se tornou um novo nó no *constructicon*, ou seja, é uma nova construção lexical.

Palavras-chave: Verbos seriais; Gramática de Construções Baseada no Uso; Wa'ikhana; Línguas Tukano oriental.

Introduction

This article presents a usage-based constructionist analysis (Croft, 2001; Goldberg, 2006; Bybee, 2010; Diessel, 2019) of serial verbs in Wa'ikhana (also referred to as Piratapuyo), an East Tukanoan language spoken in the northwestern Amazon region. Several kinds of

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serializations identified in this language are presented, and one specific case – serializations with the position verb *duku* 'stand' – is analyzed in more detail.

Serial verbs are typically defined as a sequence of verbs that function together as a single predicate (Aikhenvald, 2018, p. 1). This type of serialization is highly prevalent in East Tukanoan languages (Stenzel, 2007, p. 275). In Wa'ikhana, certain serial verb constructions initially described by Stenzel (2007) are re-examined here from a constructionist perspective. Additionally, we identify other types of serial verbs in the language, including the complex event serial verb construction.

Serializations in Wa'ikhana are formed by two or more roots that follow one another and receive the verbal morphology at the end of the sequence, as shown by (1) and (2). The whole serialization forms a single phonological word.

In (1), the two roots, *toho* 'get.home' and *wa'a* 'go', are followed by the evidential -*aya*. The whole serialization means that the subject went and got home as a single event. In (2), the root *yoha* 'go.up.river' is followed by *duku* 'stand' and also an evidential at the end of the word. The verb *duku* 'stand' in this position has an aspectual durative meaning; therefore, the whole construction means that the subject went upriver for an extended amount of time.

(1) *tohoawa'ya naha tikina naha*[4]

***tohó-wa'a**-aya* *~daha* *tí-~kʉ́da* *~daha*

get.home-go-PRES:INTER EMPH ANPH-PL EMPH

'They went back home.'

(2) *seedo, tido yohadʉkʉaye, te topʉ ewʉpa mali nino bʉ'igã*

saá-yeé-dó *tí-dó* ***yohá-duku**-aye*

so-do-SG ANPH-SG go.up.river-stand-REP:DIST

teé *tó-pʉ́* *ewʉpá*

until ANPH/DEF-LOC Community.of.Tauá

~badí *~dií-do* *bʉ'í-~ga*

[4] Data are presented in four lines: 1. Orthographic form; 2. Underlying morphological form with segmentation and some phonological information: inherently nasal morphemes are preceded by ~; high tone is marked by the acute accent mark and low tone is unmarked; 3. Gloss line; 4. Translations in English.

1.INC COP-SG do.ahead-DIM

'So, he went head of me, all the way to Tauá.'

It will be argued that Wa'ikhana has four serial verb constructions: [VERB-MOTION.VERB-MORPHEMES], which conveys that the subject referent undergoes some kind of change, regarding either physical location or property; [ACTION.VERB-ACTION.VERB-MORPHEMES], expressing a cause-effect relation; [ACTION.VERB-ACTION.VERB-MORPHEMES][5], which describes a complex event; and [VERB-*duku*-MORPHEMES], indicating durative aspect. Serializations with *duku* 'stand' are given special attention, not only because this is the least schematic pattern, but mainly because in this structure, the verb *duku* seems to have lost its lexical meaning. Additionally, we have found that one specific serialization with *duku* – namely, *yau* 'talk/tell' + *duku* 'stand' – is on its way to becoming a new lexical construction, i.e., a new word (*yauduku* 'converse').

Wa'ikhana, an endangered indigenous language, lacks a complete reference grammar despite documentation efforts. Key studies include Stenzel and Demolin (2013) on laryngealization, Balykova (2019) on property expressions, Picanço (2019) on phonology, and Cezario (2020a) on evidentials. Serialization is minimally explored, with Stenzel (2007) examining serial verb constructions in Wa'ikhana and Kotiria, and Cezario (2020a) analyzing motion verb serialization. Further research is needed to fully understand the language.

The present article expands on and advances these previous analyses in at least two ways. On the one hand, it considers a broader range of Wa'ikhana serial verb patterns. On the other, it proposes a unified account of these patterns in terms of a (usage-based) network of interconnected constructions. As a result, its intended contribution is both descriptive, in that it seeks to add to the body of knowledge about Wa'ikhana grammar, and theoretical, in that the phenomenon of serialization in Wa'ikhana is used as a testing ground for the basic tenets of Usage-based Construction Grammar.

This paper is organized in six parts. Section 1 provides and overview of the Wa'ikhana people and language. Methodology is described in section 2 and section 3 presents our analysis of serial verb constructions in Wa'ikhana. Section 4 summarizes our main findings and conclusions.

[5] The cause-effect construction and the complex event one are homonyms because they have the same form but different meanings.

1. About Wa'ikhana

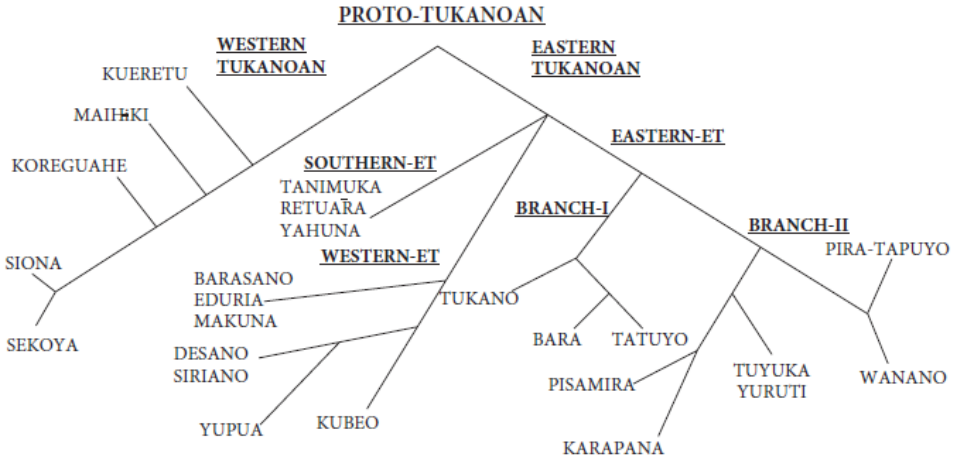
The Wa'ikhana people, also known as Piratapuyo, are a binational group, with approximately 75% of the ethnic population (1,325 individuals) residing in Brazil's Upper Rio Negro region, and the remaining 25% (about 400 individuals[6]) living in the Colombian Department of Vaupé. The Wa'ikhana identify the territory that covers part of the middle Papurí river and its tributaries, including the Makú Paraná as their original territory. In the last three decades, there has been intense migration of Wa'ikhana families from their traditional villages to places such as Iauaretê, villages on the Vaupés River, and the cities of São Gabriel da Cachoeira and Santa Isabel (both outside the Alto Rio Negro Indigenous Lands).

The exact number of Wa'ikhana speakers is unknown, but the language is considered extremely endangered. Language shift and decline of intergenerational transfer of the language to the younger generations are observed issues in the region (Stenzel, 2005; Stenzel; Williams, 2021).

Wa'ikhana belongs to the East Tukano (ET) branch of the Tukano family, which encompasses sixteen spoken languages, such as Barasana, Desano, Kotiria, Kubeo, Tukano and Tuyuka (Stenzel, 2013, p. 3-4). ET languages share many phonological, morphological and syntactic features (Barnes, 1999, 2006; Stenzel; Gomez-Imbert, 2018). Figure 1 presents the Tukanoan family tree, with Wa'ikhana (Pira-tapuyo) and Kotiria (Wanano) forming a subbranch of Eastern Tukanoan.

Figure 1 – The Tukanoan Language Family.

[6] Information retrieved from the online platform *Povos Indígenas no Brasil,* available at: https://pib.socioambiental.org/pt/Povo:Pira-tapuya.



Source: Chacon, 2014, p. 282.

Wa'ikhana's most distinctive phonological features, which are shared with ET languages, are suprasegmental nasalization, glottalization, and tone (Stenzel, 2013; Stenzel; Demolin, 2013). In ET languages, nasalization is associated at the morpheme level; thus, the segmental level presents no phonemic contrast between oral and nasal segments such as /b/ and /m/ (Gomez-Imbert, 2013, p. 4). In ET languages, the contrast is between oral and nasal morphemes, for instance, /basa/ [bahsa] 'dance' and /~basa/ [mãhsã] 'people'. As these examples show, the whole lexical morpheme is either oral or nasal. This process applies not only to lexical morphemes but also to grammatical markers, such as *-gɯ* [gɨ][7] '1/2SGM' (which functions as both a nominal inflexional morpheme and a nominalizer) and *-~gɯ* [ŋɨ̃] 'SWRF': both suffixes have the same phonological segments, the only difference being that the former is entirely oral while the latter is inherently nasal.

In this article, nasal morphemes are identified in the morpheme line of interlinear examples with ~ before the sequence of (oral) phonemes that compose that morpheme. For instance, the root *namo* 'woman/wife' is represented as *~dabo*. Some morphemes in ET languages might have either nasal or oral realizations depending on the nasalization of the previous morpheme. For example, the singular suffix *-do* becomes [nõ] when affixed to a nasal root, such as *~dabo*. Therefore, while the word realization is [nãmõnõ], the underlying representation in the morpheme line is *~dabo-do*.

Tone in Wa'ikhana, as in other ET languages, is also a suprasegmental feature. Picanço's (2019, p. 122-123), analysis of Wa'ikhana phonology describes a distinction of high

[7] The grapheme *ɯ* corresponds to the phoneme /ɨ/, the wa'ikhana speakers decided to use *ɯ* in the orthography.

(H) and low (L) tones and four tonal melodies (H, HL, LH, LHL) that associate with roots. Stenzel (2013, p. 49) identifies the same tonal melodies in Kotiria – she argues that each phonological word permits only one rise to H tone and that the final tone of an initial root spreads through the right margin of the word. Picanço (2019, p. 123) observes that tones associate to mora and are distinctive. In a root without any kind of suffix, LH and LHL tonal patterns are identical. One can only identify the difference when a morpheme is affixed to the right margin, thus if the suffix receives a L tone instead of a H, it means the root has an underlying LHL melody.

Tone features are key to the present analysis, since the tonal melody is crucial to identify a phonological word. Because serial verbs in Wa'ikhana – the object of this article – consist in one single phonological word, any analysis of serial verbs constructions requires the description the behavior of the tonal melody in the construction at stake.

In ET languages, finite verbs are composed of two obligatory elements: a lexical root and a clause modality suffix[8] (Stenzel; Gomez-Imbert, 2018, p. 361). Table 1 shows the basic template for finite verbs in Wa'ikhana (the elements in bold are obligatory). Non-finite verbs have a similar structure; however, they do not receive the clause modality suffix. Rather, the final morpheme slot in non-finite verbs is either occupied by a nominalizer or there is no verbal morphology at all. Examples (3) and (4) show a finite and non-finite verb, respectively. In (3), *wa'a* 'go' receives the reported evidential *-aye* and in (4), the root *da'da* is nominalized by *-gu̵*, suffix indexing a singular masculine referent.

Table 1 – The basic Wa'ikhana template for finite verbs

	(1)	(2)	(3)	4
ROOT(s)	negation	aspect modality	person/gender	**clause modality**

Source: Cezario, 2020a, p. 76.

(3) *tikina naha wa'aye naha*

tí-~ku̵dá *~daha* ***wa'á-aye*** *~daha*

ANPH-PL EMPH go-REP:DIST EMPH

'They went (it's told).'

[8] In this paradigm, there are different kinds of suffixes that correspond to basic clause types. For example, interrogative suffixes mark questions, *irrealis* markers and evidentials occur in declarative-type statements, and imperatives and hortatives are among the markers that occur in directive clauses.

(4) *mʉ'ʉ ñamikare dadadʉ a'taboaya*

~bʉ'ʉ́	*~yabiká-de*	***da'dá-gʉ***	*a'tá-bo-aya*
2SG	ontem-OBJ	trabalhar-1/2SGM	vir-DUB-PRES:SUP

'You could have come to work yesterday.'

The first slot of the table shows us that a verbal word may have more than one root – thereby constituting in a serial verb construction. Serial verbs are defined as a sequence of more than one verb that act together as a single predicate (Aikhenvald, 2018, p. 1). Stenzel (2007, p. 275), in her analysis of serializations in Wa'ikhana and Kotiria, argues that serial verbs are very productive and recognized in ET languages. In the next Wa'ikhana examples, we observe that a sequence of roots receives one single verbal morpheme at the end.

(5) *tido yuhkʉsagã kuñaduhkuaye tima pito*

tí-dó	*yukʉ́sá-~ga*	***~kudá-duku-aye***	*tí-~báá*	*pitó*
ANPH-SG	canoa-DIM	be.on.the.ground-stand-REP:DIST	ANPH-small.river	riverside

'His little canoe was lying on the riverside.'

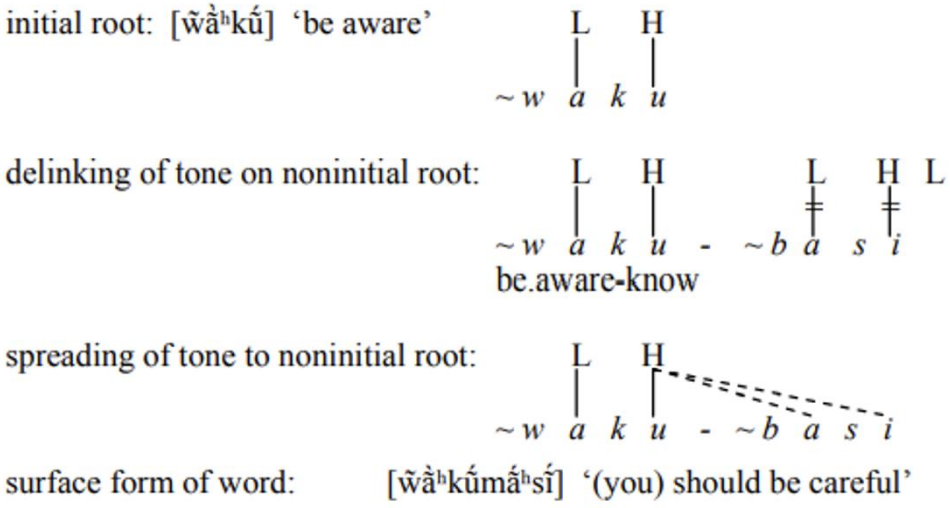
(6) *Vinte cinco andar ihidopʉ princesa i'ñadihioaye*

*Vinte cinco andar*P	*ihí-do-pʉ*	*princesa*P	***~i'yá-dihi****-aye*
twenty fifth floor	COP-NMLZ-LOC	princess	see/look-go.down-REP:DIST

'On the twenty fifth floor, the princess looked down.'

Each serial verb forms one phonological word, as mentioned above. Previous analyses of other ET languages, such as Tukano (Ramirez, 1997), Tariana and Barasana (Gomez-Imbert, 2007) and Kotiria (Stenzel, 2013) have shown that the tonal melody in a serialization is determined by the first root, also known as the nuclear root. The tone of the last mora of the nuclear root spreads to the remainder of the serialization. The tonal melodies of non-nuclear roots are delinked, allowing the final tone of the nuclear root to spread rightward. Figure 2 exemplifies this process in Kotiria.

Figure 2 – Tonal melody and serial verbs in Kotiria, an ET language.



Source: Stenzel, 2013, p. 54.

To the best of our knowledge, a full analysis of the tonal behavior of Wa'ikhana serial verbs has never been proposed. This paper thus fills an important gap. We will argue in section 3 that such an analysis is crucial to the main goal of this article, since it provides the means to distinguish between serial verb constructions and other types of multi-verb constructions (such as auxiliary verb constructions) in Wa'ikhana.

2. Methodology

In line with the framework of Usage-Based Construction Grammar[9], this study draws on naturally occurring usage data. More specifically, our database includes five narratives from the *Wa'ikhana Linguistic and Cultural Archive* (ELAR[10]) and one collected by one of the authors during a fieldwork trip to the city of São Gabriel da Cachoeira in January and February 2020.[11]

Among the narratives from the Wa'ikhana archive, two are personal stories (*Caranã*, narrated by Pedro Góes, and *Grito do Macaco* ("Monkey's cry"), narrated by Tomás Nogueira); two are traditional stories (one of them involving a Curupira[12] and the other belonging to the

[9] Usage-Based Construction Grammar views grammar as a network of constructions shaped by linguistic experience. It is proposed that rather than following fixed rules, grammar emerges from usage, with frequently encountered patterns becoming more entrenched and autonomous over time.

[10] The *Endangered Languages Archive* is available at: https://www.elararchive.org/dk0138, acessed on August 18th 2021.

[11] Funding for this three-week fieldwork trip came from CNPq, the Museu do Índio in partnership with FUNAI and UNESCO, and the National Science Foundation, Grant no. BCS-1664348, PI Kristine Stenzel.

[12] Enchanted being presented in many traditional indigenous stories.

genre of "origin" stories); and the last one, *História da Canoa* ("Canoe story"), is a fictional story based on a set of images depicting the process of building a canoe.

Finally, the sixth narrative, *Indo buscar açaí* ("Going to pick açaí"), was elicited using a series of pictures entitled *Procurando caraná* ("Looking for caraná") and developed by Obert (2019). The pictures show an indigenous couple who go into the forest to look for caraná (or açaí, depending on the interpretation). Obert (2019) used this stimulus to elicit data containing spatial descriptions in the Dâw language. Thus, the images depict the two characters from different angles, moving along different paths and performing a number of actions, such as diving, boarding a canoe, and walking over a tree trunk. Because Wa'ikhana serializations often describe the same kinds of motion depicted in Obert's material, we decided to use this story as a tool for data collection.

The *açai* picture-story was presented to three Wa'ikhana speakers (Marcelino Cordeiro, Pedro Góes, and Wilson Rueda), who were given some time to observe the images and then asked to narrate a story based on them. In this article, we draw examples only from the narrative as told by Marcelino Cordeiro. Although the narratives were elicited through the use of stimuli, they remain very close to natural speech, as the speakers were free to tell the story in their own words.

The narratives collected in 2020 were transcribed and translated by Edgar Cardoso, a Wa'ikhana speaker who is part of the documentation team, using the software ELAN. The transcriptions and translations of the narratives from the ELAR archive were also updated to ELAN format.

Once the narratives were in ELAN, we checked the transcriptions and translations during fieldwork sessions with Wa'ikhana informants. Mistakes such as missing words and misinterpretations were corrected; vocabulary and grammar were analyzed with the help of language informants.

Interlinear analysis and glossing were done using the software FieldWorks Language Explorer (FleX). We then identified and categorized the serial verb constructions in the glossed narratives, following Stenzel's (2007) pioneering work on serializations in Wa'ikhana and Kotiria as well as typological studies, such as Durie (1997) and Aikhenvald (2018).

As mentioned before, we adopt a usage-based framework. In a nutshell, this means that linguistic structures are observed through the lens of language use, cognitive processing, and language change (Bybee, 2010, p. 1-2). Of course, given the current situation of Wa'ikhana language – an endangered language with limited documentation and description – we cannot

rely on large *corpora*, frequency data, or diachronic data. Nevertheless, the analysis presented in section 3 both relies on naturally occurring data and draws from the theoretical and analytical foundations of usage-based linguistics.

3. Analysis: Serial Verbs as Constructions

As outlined in section 1, Wa'ikhana has different kinds of serializations. Some of these are described by Stenzel (2007) in typological perspective, while others involving motion verbs are analyzed in a constructionist perspective by Cezario (2020b). This article advances previous analyses, not only presenting additional kinds of serializations in the language, but also contributing descriptive details and showing the connections between constructions in the constructional network.

The phenomenon we describe here as serial verb constructions must not be misinterpreted as auxiliary verb constructions (AVC). While it is true that Wa'ikhana does have auxiliary verb constructions and that certain verbs occur in both patterns, it is important to keep these two constructions apart. Two features are particularly useful to clearly distinguish them. First, whereas an AVC contains a nominalized main verb and a finite motion verb, e.g. (7)-(8), in a serial verb construction, roots are contiguous, forming a single verbal stem that receives a single set of inflectional morphemes at the right margin. Also, an AVC has two distinct phonological words, whereas a serialization forms a single phonological word.

Regarding the function of an AVC with a motion verb, such constructions usually depict a "purposive" event in which the subject moves with the intention of performing the action described by the main verb. In (7), "going" indicates the speaker's intent to gather açaí. The verb *~dee* 'get' is nominalized by *-~da*, a suffix indexing a plural referent and is followed by *wa'a* 'go' with a finite *irrealis* marker.

(7) *mali wihpĩne nena wa'ɯna*

~balí	*~wipí-de*	***~deé-~da***	***wa'á-ɯ-~da***
1PL.INC	açaí-OBJ	get-PL	go-1/2-IRR

'We will go to get açaí.'

Example (8) is fundamentally identical, although the motion verb involved is *esa* 'arrive'. This sentence describes another purposive situation, in which the subject referent arrives at a certain place to fish. The verb *yo'ye* 'fish' is nominalized by *-gɯ*, indexing a

masculine singular referent, and the verb *esa* ‘arrive’ receives finite morphology including the frustrative *-me* (because the fishing efforts were unsuccessful) and the visual evidential *-ʉ*.

(8) *mia bo'lekiado kanʉ, yʉ'ʉ yo'yei ehsami*

~biá	*bo'lékedo*	*~kadʉ́*	*yʉ'ʉ́*	***yo'yé-gʉ***	***esá-~be-ʉ***
today	early.morning	yesterday	1SG	to.fish-1/2SGM	arrive-FRUS-VIS.PFV.1

‘Today in the morning, yesterday, I arrived (there) to fish (unsuccessfully).’

Example (9) presents two instances of serializations – *bodá-ke’sá* ‘fall-be.still’ and *yeé-~dʉdʉ-a'ta* ‘do-follow-come’, that contrast with the AVCs in (7) and (8), not only because of differences in meaning, but also because of distinctions in form. In auxiliary verb constructions, as seen before, one verb receives nominalizing suffixes and the other receives verbal morphology, while in serial verb constructions, roots follow one another and receive only one set of verbal morphemes. Therefore, looking at the morphological level, it can be argued that auxiliary verb constructions contain two grammatical words, whereas serial verb constructions contain only one.

(9) *bo'dake'sa mʉhʉ yenʉnʉtaye namonope*

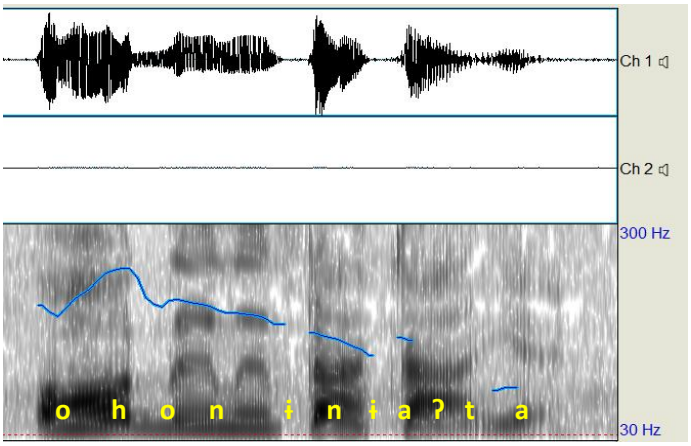
bodá-ké’sá	*~bʉhʉ*	***yeé-~dʉdʉ-a'ta****-aye*	*~dabó-do-pe*
fall-be.still	go.up	do-follow-come-REP	wife-SG-CONTR

‘The wife, going up and falling down, followed (the husband).’

Importantly, the tonal melody also exhibits distinct behavior in each construction. In serializations, the first root commands the tonal melody. As a result, the final tone of this root spreads over the following root (or roots), forming one single phonological word. Figure 3 shows the spectrogram of a three-root serialization, where the first root *ohó* ‘dive’ has a LHL (low-high-low) tonal melody; thus, the final L tone spreads throughout the rest of the serialization.

Figure 3 – Spectrogram of the serialization *ohonʉnʉa’takaye*[13]

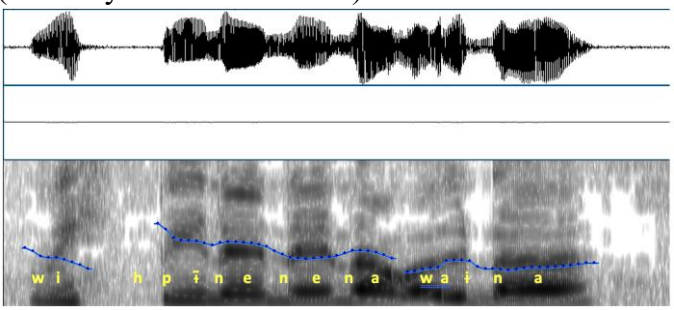
[13] *ohonʉnʉa’takaye*
ohó-~dʉdʉ-a’ta-ka’a-aye
dive-follow-come-DUR-EVID
‘(She) dove following and coming (towards her husband).’



Source: author's own work.

Constructions with auxiliary verbs, on the other hand, are formed by two phonological words, hence, each word has an independent tonal melody. Figure 4 presents the spectrogram of the sentence *wihpĩne nena wa'ɯna* from (7). Notice that both *nena* and *wa'ɯna* have LHL tonal melodies, but they are completely independent. The tone of one word does not spread to the other, evidence that they are two different phonological words.

Figure 4 – Spectrogram of wihpĩne nena wa'ɯna (auxiliary verb construction)



Source: author's own work.

In this article, we argue that five serialization constructions can be claimed to exist in Wa'ikhana[14]: (i) the sequential sub-events construction, whereby two successive events are construed as one single, higher-order situation; (ii) the movement construction, that designates a motion scene simultaneous to another event; (iii) the change of state construction, that designates a change of state underwent by the subject referent; (iv) the durative state

[14] Counting constructions might be somewhat tricky, since the exact number of constructions depends on the level of the hierarchical network one takes into consideration. In fact, as we'll see, our five constructions can be clustered together in specific ways. This point will be clarified below.

construction, which conveys durative aspect regarding a certain state; and (v) the durative event construction, which conveys durative aspect regarding a certain event.[15] Examples of these constructions are provided below:

(10) *tikiro Dui iñabohkaye*

tí-kí-dó	*Dui*	***~iyá-boka**-aye*
ANPH-MASC-SG	Luís	see/look-find-REP:DIST

'He, Luís, sighted (an animal).'

(11) *Bolado tidole neesano niaya*

bolado	*tí-dó-dé*	*~deé-esa-do*	*~díi-aya*
Curupira	ANPH-SG-OBJ	get-arrive-SG	PROG-ASSUM

'The Curupira was taking him (the old man) away.'

(12) *seedo dihia, tʉ'osuʉgʉ* (Cezario, 2019, p. 412)

saá-yéé-dó	*dihí-í-á*	***tʉ'ó-súá-gú***
be.thus-do-SG	go.down-VIS.PFV.1-ENPH	listen-go.into.the.woods-1/2SGM

'So ('slowly', according to the informant), I got down, going into the forest (toward the sound from the monkey),'

(13) *tikido pʉ̃'awa'ari ihidi*

tí-kí-dó	***~pʉ'á-wa'á-di***	*ihi-di*
ANPH-MASC-SG	be.thin-go-NMLZ	COP-VIS.PFV.2/3

'He lost weight. (Lit: He became thin).'

(14) *tido yuhkʉsagã kuñaduhkuaye tima pito*

ti-do	*yukʉsa-~ga*	***~kuda-duku**-aye*
ANPH-SG	canoe-DIM	be.on.the.ground-stand-REP:DIST

ti-~baa	*pito*
ANPH-CLF:small.river	boca.de.igarapé

[15] This overall organization differs in some important aspects, according to Stenzel (2007) and Cezario (2019).

‘His little canoe was lying at the riverside.’

(15) *ti tɯkɯnogã pa'sadɯkɯaye bɯkɯdo*

tí	*tɯkɯ́-do-~ga*	***pa'sá-duku**-aye*	*bɯkɯ́-dó*
ANPH-SG	cove-SG-DIM	float-stand-REP	be.old-SG(NMLZ)

‘In this cove, an old man floated.’

Sentences (10) and (11) are examples of the sequential sub-event constructions, since they designate a situation made up by component events that occur in a successive fashion (i.e., looking at a certain direction precedes finding the animal, and getting the old man precedes arriving at a certain place). Notice that while (10) denotes a causal relation (Luís managed to find / spot the animal as a result of looking in a certain direction), the same does not hold for (11) (arriving at a given place is not the result of getting the old man). Therefore, the sequential sub-events construction is not argued to encode cause-effect semantics: all that is needed is that two sub-events occur in a successive fashion. Moreover, notice that the relative position of the verbal slots iconically reflects the order of the events in the world, so that the first verb denotes the first sub-event while the second verb denotes the second sub-event. The form of this constructional template can be represented as follows: [EVENT.VERB-EVENT.VERB-MORPHEMES].

Example (12) illustrates the movement construction. This construction differs from the previous one in two important respects: first, it involves simultaneous (as opposed to successive) events; second, one of the designated events is necessarily a motion event. In (12), the motion event of going into the woods is construed as simultaneous to a listening event. Notice that, in the movement construction template, the constructional slot for the movement verb is always the second slot. Hence the form of the construction can be summarized as follows: [EVENT.VERB-MOTION.VERB-MORPHEMES].

Example (13) illustrates the change of state construction, which designates a situation whereby the subject referent starts being in a different state. In (13), the subject referent starts being in the state of *thin*. Differently from the two previous constructions, the change of state construction only welcomes stative (as opposed to dynamic) verbs in its first slot (in (13), the verb at stake is *pɯ’á* ‘be thin’). Another important difference is that the change of state construction is partially filled: its second slot is obligatorily occupied by the item *wa’a* ‘go’,

which is here entirely deprived from its "lexical" meaning. Hence the general form of the construction can be represented as follows: [STATIVE.VERB-*wa'a*-MORPHEMES].

Lastly, (14) and (15) illustrate the durative constructions. Similarly to the change of state construction, the durative constructions are partially filled, since their second slot must be occupied by the item *duku* 'stand'. Another important similarity is that, when instantiating the second slot of the durative constructions, *duku* does not convey its "lexical" positional meaning; instead, it functions as an aspectual marker. However, it should pointed out that the stative durative construction and the eventive durative construction differ with regard to the set of items that can be inserted in their second slot: while the former specifically requires stative verbs (such as ~kuda 'be on the groud' in (14), the latter only welcomes dynamic verbs (such as *pa'sá* 'float' in (15)).

Admittedly, it is quite straightforward – and probably desirable – to organize these five constructions in two larger groups: one for complex events serial verb constructions, encompassing types (i) and (ii), and the other for aspectual serial verb constructions, encompassing types (iii), (iv) and (v). Such an analysis, however, produces an undesirable implication: it forces us to embrace either a homonymy account (according to which the form VERB 1 + VERB 2 would correspond to two entirely unrelated constructions) or a formalist account (according to which the five serial verb constructions would be taxonomically linked to a more general *defective* construction, i.e., a construction without meaning[16]). As can be seen, both solutions run counter the spirit of a usage-based, functionally-oriented construction grammar, since they invest on purely formal generalizations and contradict the functional intuition that similar forms tend to have similar meanings (see for instance Goldberg's (1995) Principle of Maximized Motivation).

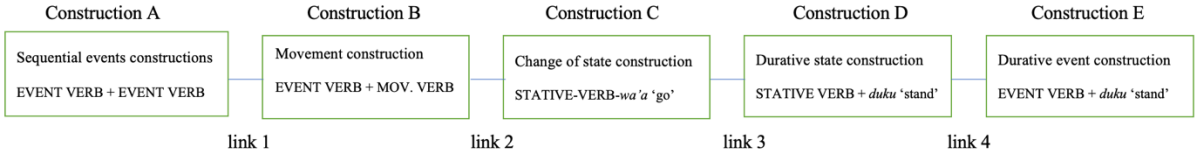
In face of that, this article advances a different approach, which is fundamentally built upon the notion of family-resemblance structure. The overall idea is that, while no single semantic feature can be attributed to every serial verb construction, the constructions at stake can be shown to display local, one to one affinities. More specially, we argue that (i) the sequential events construction and the movement construction are related by a constructional link representing the fact that both designate a complex event (i.e., a higher-order event made up of individual sub-events); (ii) the movement and the change of state constructions are related

[16] Defective constructions are recognized in some variants of construction grammar, including Sign-Based Cosntruction Grammar (Fillmore et al., 2012) and Paralell Architecture (Jackendoff, 2013).

by a constructional link representing the fact that both designated some kind of change (regarding either location or state)[17]; (iii) the change of state construction and the durative state construction are related by a constructional link representing the fact that they contribute with *opposed* aspectual nuances to a given designated state; and (iv) the durative state construction and the durative event construction are related by a constructional link representing the fact that both convey durative aspect. As a result, we end up with a family of five inter-connected serial verb constructions, despite the fact no single feature holds for all of them.

This analysis implies that the "missing link" of our first tentative categorization is the opposition relation between the change of state construction and the durative state construction. This in fact is what connects the two more straightforward categories (i.e., the "complex events category" and the "aspectual category"), therefore joining the two halves of the constructional family together. The overall picture can be represented as follows.

Figure 5 – Family-resemblance links of five inter-connected serial verb constructions

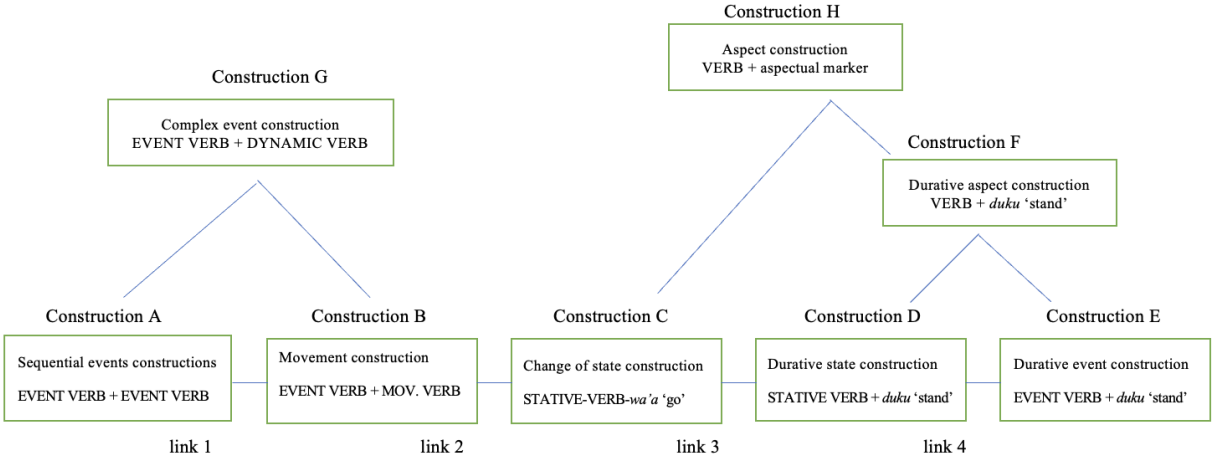


Source: author's own work.

Notice that among the four constructional links represented in figure 5, two immediately give rise to more general, abstract constructions: constructional link 1 implies the existence of a more general complex event constructional, whereas constructional link 4 implies the existence of a more general durative state construction. Moreover, the fact that serial verb constructions C, D and E share an aspectual feature can be captured by assuming that they are taxonomically related to a superordinate aspectual construction. This suggestion is further supported by the fact that other aspectual markers, which do not exist as independent verbs, can be shown to exist in Wa'ikhana. For example, *-eti* conveys imperfective aspect, while *-~ka'a* completive aspect. The resulting, more complete, network is shown in figure 6.

Figure 6 – Serial verbs constructions network

[17] Given the well documented STATES ARE LOCATIONS metaphor (Lakoff; Johnson, 1980; 1980), this construcional relation can be regarded, in Goldberg's (1995, ch. 3) typology, as a *metaphorical extension link*.



Source: author's own work.

As this figure shows, constructions C, D and E are (either directly or indirectly) linked to both serial verb constructions (constructions A and B) and aspectual constructions (constructions F and H, thus constituting a constructional family that projects upwards to a more general aspectual construction). This accounts for the apparent ambivalent nature of units such as *wa'a* and *duku*: the fact that constructions C, D and E are connected to non-aspectual serial verb constructions (and possibly other argument structure constructions) includes these items in a "main verb paradigm", whereas their connections to other aspectual constructions accounts for their inclusion in a "aspectual marker paradigm". In other words, partially filled *wa'a* and *duku* constructions are simultaneously serial verb *and* aspectual constructions.

3.1 The VERB + *duku* serial verb construction

As previously mentioned, the verb *duku* 'to stand' can occur independently with this meaning, as seen in (15). Like all roots in Wa'ikhana, *duku* has its own tonal melody – LHL, which is shown in figure 7, representing part of the utterance in (15).

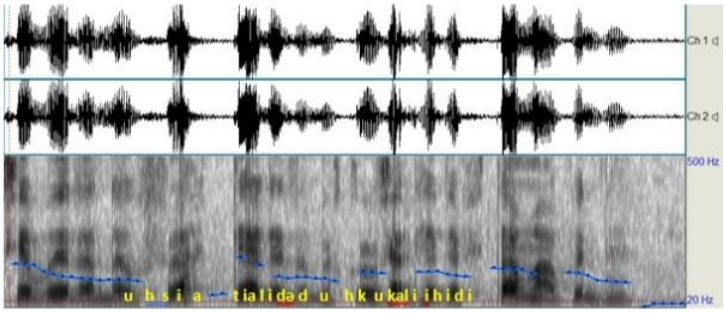
(15) *tido yʉ'ʉ phakʉba'ʉdo uhsuati'alido duhkuka'li ihidi phehtamaapʉnaha*

tí-dó	*yʉ'ʉ*	*pakʉ-ba'ʉ-do*	*usúá-tí-á-lí-dó*
ANPH-SG	1SG	father-younger.brother-SG	be.angry-ATTR-?-NMLZ-SG

***dukú**-ka'a-di*	*ihí-di*	*petá-maa-pʉ-~daha*
stand-DUR-NMLZ	COP-VIS.PFV.2/3	harbor-small.river-LOC-EMPH

'My uncle seemed to be standing very angrily at the harbor.'

Figure 7 – Spectrogram of *uhsuati'alido duhkuka'li ihidi*



Source: author's own work.

However, when *duku* occupies the second slot of a serial verb construction, it no longer means 'to stand'. Rather, it conveys grammatical information, coding the durative aspect of the first verb in the serialization. In (16), its use in the serialization with *~sayú* 'scream' implies the subject referent (the monkey) screamed for an extended period of time.

(16) *kaa ñe'eduag̃ũ sañuduhkumaamʉhʉli ihidi hʉ̃, cho!*

kaá	*~ye'é-dúá-~gʉ*	***~sayú-duku****-~baá-~bʉhʉ-di*
hawk	get-DES-SWRF	scream-stand-leave-AFFECT-NMLZ

ihí-di	*~hʉ*	*cho*
COP-VIS.PFV.2/3	INTJ:afirm	INTJ:wow!

'Since the hawk wanted to get it (the monkey), it seemed to be screaming, yes, wow!' (Cezario, 2019, p. 414)

3.1.1 The form and function of the verb + *duku* serialization

As argued before, in this serialization *duku* has lost its lexical meaning, once it does not express its original meaning – 'stand' – anymore. Further evidence that *duku* in the second slot of a serialization conveys a purely grammatical meaning is seen in (17). Here, the initial verb is a stative verb, *~kuda* 'be.on.the.ground', and the subject is an inanimate object, a canoe, something literally incapable of 'standing'. The serialization simply implies the canoe was lying stationary on the ground for a while.

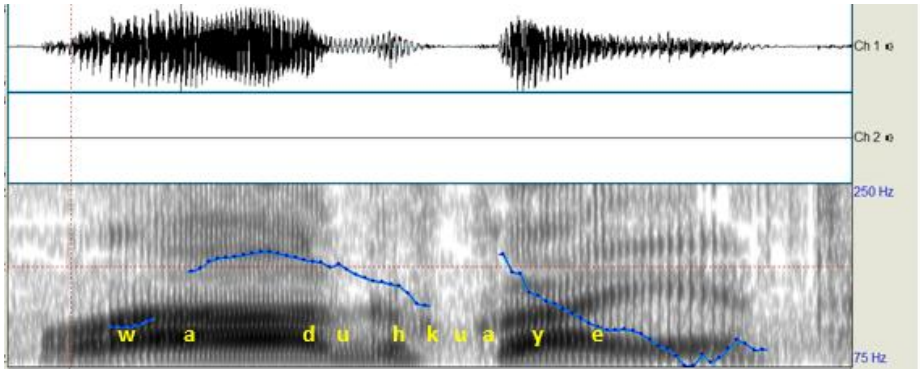
(17) *tido yuhkʉsagã kuñaduhkuaye tima pito*

ti-do *yukʉsa-~ga* ***~kuda-duku**-aye*
ANPH-SG canoe-DIM be.on.the.ground-stand-REP:DIST
ti-~baa *pito*
ANPH-CLF:small.river boca.de.igarapé
'His little canoe was lying at the riverside.'

As in other serializations, the formal pole of the *duku* construction specifies the process of tonal spread, as in most serial verbs. Thereby, the initial root determines tonal melody of the entire word. In (18) the LHL melody of *wa'a* will spread its final L tone continuing throughout the rest of the word, as shown in figure 8.

(18) *pʉado wa'aduhkuaye taha*
pʉá-do ***wa'á-duku**-aye* *tahá*
two-SG go-stand-REP:DIST EMPH
'The two of them kept going.'

Figure 8 – Spectrogram of *wa'aduhkuaye*



Source: author's own work.

Durie (1997, p. 291) argues that grammaticalization (and lexicalization) is a common phenomenon in serial verb constructions; as a result, verbs involved in serializations often become grammatical morphemes, such as suffixes. In our analysis, we observe that the construction [VERB-*duku*-MORPH] might be in the process of becoming an aspectual morphological construction, where *duku* itself is a suffix. In Wa'ikhana, there are several verb suffixes with aspectual meaning, such as *-eti* 'IPFV', *-~ka'a* 'COMPL', and *-ka'a* 'DUR', that belong to a single paradigm and do not co-occur in the same word. In the data we analyzed, serializations with *duku* do not receive any of these suffixes, whereas serializations with other

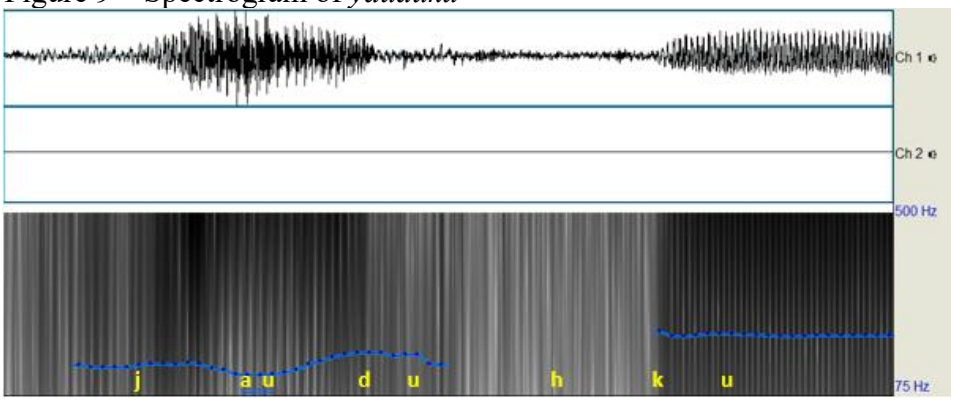
verbs do. Also, in example (15), where *duku* is the main root of the verbal word (rather than being an element of a serial verb construction), it can take the aspectual morpheme *–ka'a* 'DUR'. Taken together, these facts provide strong evidence that serializations with *duku* [VERB-*duku*-MORPH] are on their way to become an aspectual morphological construction, alongside other aspectual suffixes in the paradigm.

3.1.2. The *yauduku* (*yau* 'talk/tell' + *duku* 'stand') case

Our analysis identified a specific serialization involving *duku* 'stand' that diverges from the patterns described earlier. The serialization *yau* 'talk/tell' + *duku* differs both in form – the tonal melody does not behave as expected and in some cases, there is phonetic reduction – and semantics – *yauduku* is usually translated as 'to converse/to have a conversation' and not necessarily 'to talk/tell in a durative way' (i.e., a single person speaking for a long time).

Regarding the phonological form of *yauduku*, it should be noted that the root *yau*, when not serialized, has a LH tonal melody, as Picanço (2019, p. 98) has described it. Consequently, as the first root in the *yauduku* serialization, we would expect spread of its final H tone to the rest of the word, resulting in [jaúdúʰkú]*. However, in this particular case, the tonal melody behaves differently. Figure 9 shows that both moras in *yau* and the first mora of *duku* are realized with L tone and only the final mora receives H tone, resulting in[jauduʰkú].

Figure 9 – Spectrogram of *yauduku*



Source: author's own work.

The meaning of this instance is also slightly different from expected. Contrary to what we have seen in examples (7) and (8), in this serialization the verb *duku* does not simply bring an aspectual tone to the verb *yau*. Instead, the word *yauduku* itself seems to function as one single unit meaning 'to converse', as Wa'ikhana informants have affirmed during fieldwork

sessions. A second phonological modification we have observed are cases of *yauduku* reduced to *yaku* [jaʰkú].[18] The form *yaku* has two moras, characteristic of most roots in Wa'ikhana, and displays one of the LH(L) tonal patterns commonly found in the language –. Observe the following instances.

(19) "*mali sani* ***yahku*** *mali", nii*

~badí *~sadí* ***yau-dukú*** *~badí* *~dií*

1PL.INC like.this talk/tell-stand 1PL.INC say

'"We have talked like this", (he) said.'

(20) *"mali wihpĩne nena wa'ɯna", nii* ***yahku*** *wãkã yeaye*

~badí *~wipí-dé* *~deé-~da* *wa'á-gɯ-~da* *~dií*

1PL.INC açaí-OBJ get-PL go-1/2-PL say

yau-dukú *~wa'ká* *yeé-áyé*

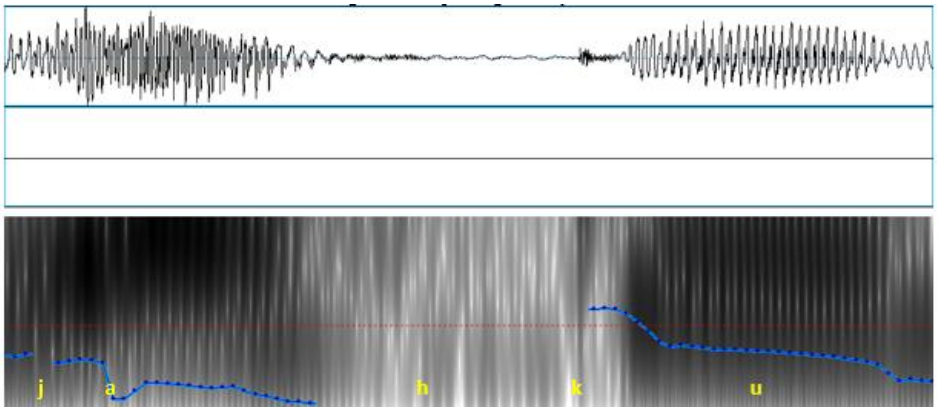
talk/tell-stand wake.up do-REP:DIST

'"We will get açaí" (he) said, conversing (with his wife).'

In the spectrogram in figure 10, it is possible to see that *yaku* has the LH(L) tonal melody. It is not possible to affirm if *yaku*'s tonal melody is LH or LH(L), since we have not found any case in which the form receives an additional morpheme (which is the environment where the final H or L tone would appear). Nonetheless, both melodies are possible and very common in Wa'ikhana.

Figure 10 – Spectrogram of *yaku*

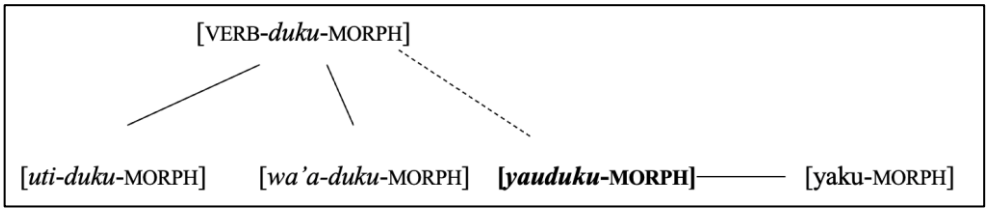
[18] During fieldwork sessions, whenever *yaku* occurred and we asked the informant about it, they said they meant *yauduku* but had spoken it 'too quickly'.



Source: author's own work.

These differences in the form and the meaning of *yauduku* (*yaku*) show that this serialization might be on its way to becoming a single root. In Construction Grammar terms, we may interpret these differences as evidence that the taxonomic link between *yauduku* and the more abstract construction [VERB-*duku*-MORPH] is getting weaker as *yauduku* becomes a new node in the network shown in Figure 11, i.e., a lexical construction, [*yaku*-MORPH] connected to *yauduku* by a weak horizontal link, since it is a variant of the same lexical construction.

Figure 11 – Taxonomic network, showing the links between the more abstract construction [VERB-*duku*-MORPH] and distinct related Instances. Since *yauduku* is a new node in the network (turning into a lexical construction), the link is weaker.



Source: author's own work.

Interestingly, we have been able to find one more verb that seems to be involved in a similar change: the verb *bu'asa* 'to arrive downhill' is very likely a reduction of the serialization of *bu'a* 'to go downhill' plus the motion verb *esa* 'to arrive'.

(21) *tikiro dehkop~~ɯ~~ tikiro maãdehkop~~ɯ~~ tikiro ihirohtoa tikiro namonope* ***bu'asá*** *yeaye*

tí-kí-dó	*dekó-p~~ɯ~~*	*tí-kí-dó*
ANPH-MASC-SG	middle-LOC	ANPH-MASC-SG
~maa-deko-p~~ɯ~~	*ti-ki-do*	

small.river-middle-LOC ANPH-MASC-SG

tí-kí-dó	*~dabó-do-pe*	***bu'a-esá***	*yeé-áyé*
ANPH-MASC-SG	woman-SG-CONTR	go.downhill-arrive	do-REP:DIST

'When he was in the middle of the river, she arrived downhill (riverside).'

(22) ***bua'sá*** *uhtiduhku*

bu'a-esá	*utí-dúkú*
go.downhill-arrive	cry-stand

'She arrived downhill and cried (for a while).'

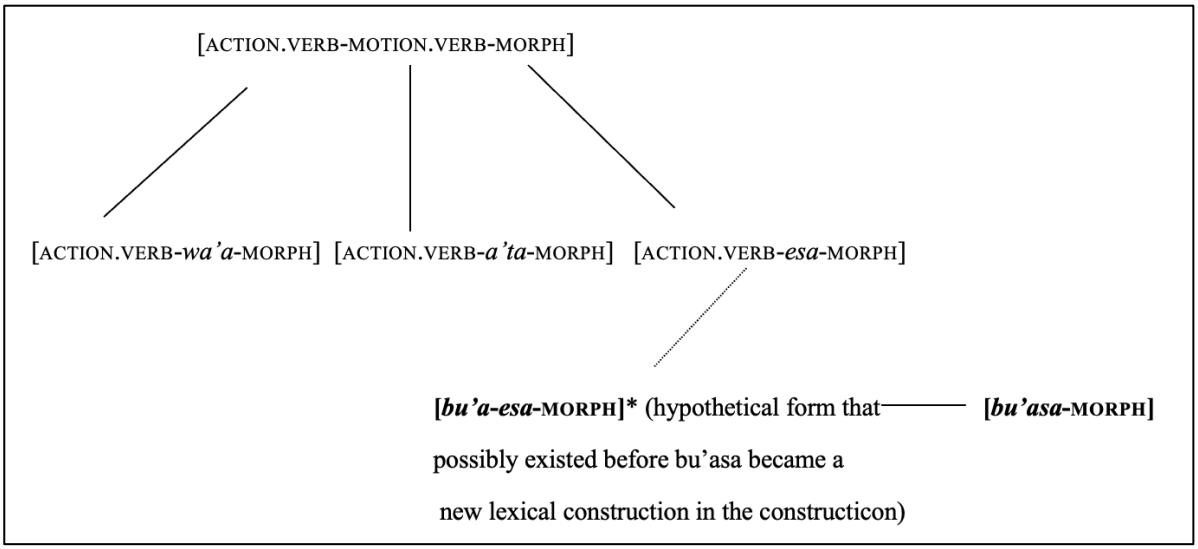
Unlike *yaku*, which is recognized by the Wa'ikhana speakers as a reduction of *yauduhku*, speakers do not perceive *bu'asa* as a short form of *bu'a* + *esa*. However, serializations with motion verbs in the second slot are common, as we have seen, and since the meaning and form of *bu'asa* resemble a combination of *bu'a* and *esa*, we speculate it has its origin in a serial verb structure.

The fact that there two reduced forms – *bu'asa* and *yaku* – both come from serializations, but one is still recognized as a reduction while the other is not, suggests that *bu'asa* has already become a completely independent node in the network, while *yaku* is still linked to its original construction. It is also important to emphasize that the unreduced form *yauduku* is still highly used, while *bu'aesa**[19] was not found in any data.

Figure 12 presents the probable relation between *bu'asa* and the motion verb construction. Unlike *yaku*, however, the links between *bu'asa* and the more abstract construction have already been lost. There is also hypothetical synchrony, where the form *bu'aesa** is linked to the motion verb construction and *bu'asa* is a variant connected by a horizontal link, while figure 13 shows the actual synchrony, where *bu'asa* is already a new independent node, now linked to the [verb-MORPH] construction.

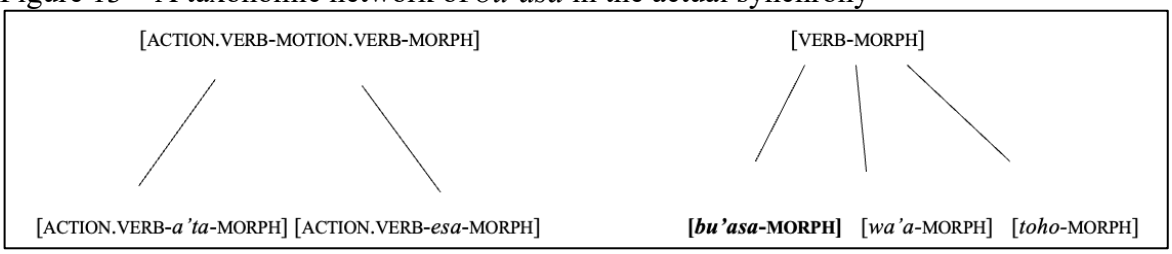
Figure 12 – A taxonomic network of the relation between *bu'asa* and the ACTION VERB + MOTION VERB construction, hypothetical synchrony

[19] Possible unreduced form for *bu'asa*.



Source: author's own work.

Figure 13 – A taxonomic network of *bu'asa* in the actual synchrony



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4 Final remarks

This article has presented a unified account of verb serialization in Wa'ikhana, a critically endangered Amazonian language. Five serial verb patterns have been identified, and their formal and semantic properties have been described. Drawing on the framework of Usage-Based Construction Grammar, we have argued that these five patterns are interconnected in a family-resemblance fashion, by which we mean that they display local, one-to-one affinities. In line with UBCG, we have assumed that these more general constructions are taxonomically related to less schematic, verb specific patterns. Furthermore, we have provided formal and semantic evidence that one of these patterns – namely, [*yauduku*-MORPH] – is on its way to becoming an independent symbolic unit.

While this analysis advances our understanding of serial verb constructions in Wa'ikhana, at least one question remains unanswered: are Wa'ikhana aspectual serializations in fact item-specific? Given what we know about constructional productivity (conceived as extensibility; cf. Barðdal (2008)), it would be expected that other motion verbs (in the case of the change of state construction) and other positional verbs (in the case of the durative

constructions) would be eligible as well. In fact, regarding the durative constructions, Stenzel (2007) has proposed that this is indeed the case – a finding that has not been replicated in our data. Moreover, assuming that other items do compete for the second position of the durative serialization, would it be possible to establish *duku* as the prototype of such a category? Further investigation is required in order to answer these questions.

Gloss

ANPH	Anaphoric	NMLZ	nominalizer
CLF	classifier	PFV	perfective
CONTR	constrastive	PL	plural
COP	copula	PRES	(evidential) presumed
DIST	distal	PROG	progressive
DUR	durative	PROX	proximal
EMPH	emphasis	REP	(evidential) reported
INS	instrumental	SG	singular
IPFV	imperfective	VIS	(evidential) visual
LOC	locative	NEG	negation
P	word in Portuguese		

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