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HEAD-MODIFIER RELATIONS IN VERB-VERB COMPOUNDS: A PRELIMINARY TYPOLOGY

1. Introduction

I present a preliminary typological study of the ordering of Heads and Modifiers in verb-verb compound constructions (VCCs further) and the grammaticalization processes in these constructions. Before my definition of 'compound' is stated (Section 1.2), let me informally consider VCCs as 'single-word' serial verb constructions.

1.1. SVCs vs VCCs?

(i) Serial verb construction (SVC) according to Aikhenvald & Dixon (2006: 1)

'*Serial verb construction is a sequence of verbs which act together as a single predicate, without any marker of coordination, subordination or syntactic dependency of any other sort.*'

(ii) Comparative concept by Haspelmath (2016)

'*A serial verb construction is a monoclausal construction consisting of multiple independent verbs with no elements linking them and with no predicate-argument relation between the verbs.*'

(1) Yoruba, Atlantic-Congo (Africa)

> olú **lé** ọmọ náà **wá** ilé
> Olu **drove** child the **come** home
> 'Olu drove the child home'. (Bamgbose 1974: 21)

(2) Eastern Kayah, Sino-Tibetan family

> ʔa **dɛ** **thɛ** dɤ́ plò kū dɤ́ phrɛ̀ khu
> 3 **put** **go.up** at:U box in at:U shelf on
> 'They put it (up) in a box on a shelf'. (Solnit 1997: 73)

(3) Saliba, Austronesian (Multinesia)

> ye-**tu**-**dobi**-ei-∅
> 3SG-**throw**-**go.down**-APP-3SG.O
> 'He threw it down'. (Margetts 1999: 126)

SVCs and VCCs (state of the art):

> ➢ Functional similarity of SVCs and VCCs was highlighted by Foley & Olson (1986) and Aikhenvald (2006)
> ➢ VCCs – one of the SVC subtypes
> ➢ Temporally-iconic order of elements in some SVCs/VCCs (see Durie 1997)

➢ Head-Modifier asymmetry in morphosyntax and evolution (see Aikhenvald 2006)
➢ Main focus of previous studies: single-clausehood and single-eventhood of SVCs
➢ No cross-linguistic studies of VCCs; distinct morphosyntactic/semantic types of SVCs are rarely studied separately (see (Shluinsky 2017) for such an intragenetic typological study)

1.2. My definition of the VCC

Problems with the cross-linguistic study of VCCs:
➢ Aikhenvald's (2006) prototype-based definition is too broad (see Enfield 2009)
➢ Haspelmath's (2016) comparative concept is too restrictive for my purposes (see Section 2.1 of my thesis)
➢ The definition of 'wordhood' is problematic

I modify Haspelmath's (2016) comparative concept (ii) in the following way (iii):

(iii) Comparative concept of the VCC

A verb-verb compound construction is a construction consisting of multiple independent verbs[1]. These verbs can be separated only by non-word-class-changing derivational elements[2] which do not express any other syntactic functions.

According to this definition, 'one-word' SVCs which can be separated by inflection do not count as VCCs (see (4) from Tlachichilco Tepehua, Totonak). The contiguous constructions whose members can not function as independent verbs does not count as VCCs, too (see the discussion of 'SVCs' in Kalam, Trans-New Guinea in (Pawley 2006: 93-95)).

(4) The Level II SVC, Tlachichilco Tepehua

    *miłpa:-**h**-lak-tawla-ni-y*

    sing-EPHEN-3PL.OBJ-sit.down-DAT-IMPFV

    'X sits by them (his younger siblings) singing'. (Watters 1988: 91)

I use Croft's (2001: 257) definition of profile equivalent to identify Head and Modifier components of the VCC[3] (iv).

(vii) In a combination X + Y, X is the *profile equivalent* if X profiles/describes a kind of thing profiled/described by X + Y.

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[1] I make Haspelmath's (2016) requirements for a verb in the SVC to be counted as independent less strict (see Section 2.1.3 of my thesis).

[2] I follow Bickel & Nichols (2007) and Bickel & Zúñiga (2017) in their definition of inflection.

[3] As Croft (2001) notes, some constructions may exhibit two or more profile equivalents. It is difficult to determine the Head and Modifier components in some VCCs of my sample. I discuss my attempts to overcome these problems in Sections 2.2.1-2.2.2. Nevertheless, I should acknowledge that at least some of my decisions about Head-Modifier status are ambiguous.

1.2.1. VCCs studied

I study three types of VCCs: the manner-of-motion VCC (v; 5), the directional VCC (vi; 6) and the mental process VCC (vii; 7).

(v) The manner-of-motion VCC

The manner-of-motion VCC is a VCC in which one component (Head) *indicates a Motion event, while another component* (Modifier) *describes the Manner in which the Motion is performed.*

(5) The manner-of-motion VCC; Hup (Nadahup, South America)
    tɨh   j'ək-kədhám-a̋h
    3SG   jump-pass.go-DYNM
    'He jumped quickly forward'. (Epps 2008: 411)

(vi) The directional VCC

The directional VCC is a VCC in which one component (Head) *indicates an Event, while another component* (Modifier) *indicates the Direction in which this Event is performed.*

(6) The directional VCC; =ǀHoan (Kxa, Africa)
    ma   ǀhö'õ 'a   ǁhù ǀ'o jö kì   kx'ù na
    1SG   NEG PROG pour put.in water LK   pot   in
    'I am not pouring water into the pot'. (Collins & Gruber 2014: 168)

(vii) The mental process VCC

The mental process VCC is a VCC in which the verbs of knowledge, learning or desire are combined with their complement verbs.

(7) The mental process VCC, Chimalapa Zoque (Mixe-Zoquean, North America)
    pwes ʔaber   hunaŋ bi   kopak si   yoš-muš-pa
    well let's.see   how DEF head if   work-know-INC
    'Well, let's see how he thinks, if he knows how to work'. (Johnson 2000: 311)

1.2.2. Aims & Methodology

According to Aikhenvald (2006), the order of components in semantically-headed constructions is language- and construction-specific. I investigate the potential correlations between the order of components and the following features (viii).

(viii) Features which possibly correlate with the component order in VCCs
- ➢ The dominant order of verb and object
- ➢ The order of Head and Modifier in other verb-headed compounds (called 'incorporation' further), e.g. noun incorporation constructions
- ➢ The order of clauses in other corresponding analytical constructions

I use Dryer's (2013) principles of determining dominant order of object and verb.

The language-independent notion of 'incorporation' is problematic (see Haspelmath 2012). I elaborate Caballero et al's (2008) definition of noun incorporation (NI) to make the cross-linguistic comparison possible (ix).

(ix) My definition of NI (see the discussion in Section 2.2.3.2 of my thesis)

NI is an OPTIONAL construction which is used to express a particular semantic relation between the predicate and one of its participants. NI construction combines the verb (which expresses the predicate) and the nominal element (which expresses the participant) in a single NI construct. Only derivational elements can separate the IN from the verb. No inflectional elements pertaining to the nominal component or its modifiers can occur inside the verbal construct.

Aikhenvald (2006) claims that SVCs can be subdivided into two types: *symmetrical* and *asymmetrical*. The VCCs I study are asymmetrical according to Aikhenvald (semantically-headed and with a 'closed slot').

➢ Aikhenvald (2006) supposes that asymmetrical SVCs tend to further grammaticalize.
➢ Bisang (2009) argues that the SVCs are not specific with respect to grammaticalization and 'asymmetric' status does not trigger grammaticalization

I decompose Aikhenvald's (2006) notion of 'closed' class into the notions of restrictedness (idiosyncratic lexical restrictions) and limitedness (semantic restrictions) to test these claims (see Section 3).

1.2.3. Sample

I use a small but genetically and areally balanced (see Hammarström & Donohue 2014) sample of 12 languages (cf. 14 languages in (Aikhenvald & Dixon 2006)). My sample is presented in Table 1.

Table 1. My sample

Language	Family	Macroarea
Hup	Nadahup	South America
Mapudungun	Araucanian	South America
Ese Ejja	Takanan	South America
Tlachichilco Tepehua	Totonac	North America
Kiowa	Kiowa-Tanoan	North America
Chimalapa Zoque	Mixe-Zoque	North America
Eastern Kayah	Sino-Tibetan	Eurasia
Chukchi	Chukotko-Kamchatkan	Eurasia
Saliba	Austronesian	Multinesia
Imonda	Border	Multinesia
Bininj Kun-Wok	Gunwinyguan	Australia
=|Hoan	Kxa	Africa

2. Order of components

2.1. The Mental Process VCC

(8)   *kim-rüngkü-i*
       know/learn-jump-IND
       'He knows how to jump'. (Zúñiga 2017: 706)

The mental process VCCs (8) are present in 5 languages of my sample (2 OV and 3 VO lgs, Table 2).

Table 2. The order in mental process VCCs

	H-M order	**OV / VO**	**Inc**	**Complement**
Hup	M-H	OV	NV	C-H?
Kiowa	M-H	OV	NV	no data
Mapudungun	H-M	VO	VN	H-C
Chimalapa Zoque	**M-H**	VO	NV; AdvV	C-H?
Eastern Kayah	H-M	VO	VN	H-C

  ➢ There is a correlation between the Head-Modifier order in VCCs and the order of verb and object
  ➢ The only 'disharmonic' case is Chimalapa Zoque (indicated in bold)
  ➢ In all lgs the order in mental process VCCs is harmonic with the order of Heads and Modifiers in incorporation constructions

Probably, the 'disharmony' in Chimalapa Zoque can be attributed to the word order shift which happened in this language under the influence of Mesoamerican linguistic area (Campbell et al : 1986: 54).

Explanation: The order of components in the mental process VCC reflects the order of head and complement clauses in the language at the time this VCC arose[4].

2.2. Directional and Manner-of-Motion VCCs

(9) **Directional** VCC, Saliba (Austronesian)

       ye-tu-dobi-ei-Ø
       3SG-throw-go.down-APP-3SG.O
       'He threw it down'. (Margetts 1999: 126)

(10) **Manner-of-Motion** VCC, Chukchi (Chukotko-Kamchatkan)

       Ø-ałeqat-ajmawə-nŋo-ɣʔ-e   *weem-surmə-k*
       2/3.S/A-swim-approach-INCH-TH-2/3SG.S   river-SIDE-LOC
       'He approached the bank of the river (by swimming)'. [el]

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[4] See similar considerations for nominal compounds in (Comrie 1980: 85) and in (Gaeta 2008: 122).

➢ The order of components in directional and manner-of-motion VCCs exhibits little correlation with the order of syntactic constituents and stems in incorporation constructions (see Tables 3; 4).

➢ The Motion verb (Path/Deictic verb according to Talmy (2000)) tends to occupy the final position

Table 3. Order in **manner-of-motion** VCCs

	VCC	**OV / VO**	**Inc**
Hup	M-H	OV	N-V
Ese Ejja	M-H	OV	N-V
Chukchi	M-H	OV	N-V; Adv-V
Saliba	M-H	OV	N-V; V-N
Imonda	M-H	OV	-
Bininj Kun-Wok	M-H	OV	N-V; Adv-V
Tlachichilco Tepehua	**M-H**	VO	Adv-V
Eastern Kayah	**M-H**	VO	V-N
ǀ=Hoan	**M-H**	VO	-

Table 4. Directional VCCs

	H-M order	**OV / VO**	**Inc**
Hup	M-H	OV	NV
Bininj Kun-Wok	M-H	OV	NV; AdvV
Ese Ejja	**H-M**	OV	NV
Saliba	**H-M**	OV	NV; VN
Imonda	**H-M**	OV	-
Mapudungun	H-M	VO	VN
Chimalapa Zoque	H-M	VO	NV; AdvV
Eastern Kayah	H-M	VO	VN
ǀ=Hoan	H-M	VO	-

Question: Why the Path/Deictic verb (Motion verb (Head) in manner-of-motion VCCs and Directional verb (Modifier) in directional VCCs) tend to follow the 'non-Path' verb in both constructions[5]?

Possible explanation: Both VCCs originate as iconically-ordered multi-verb construction with Cause-Result interpretation[6].

➢ The semantic similarity between manner-of-motion (11a), directional (11b) and cause-result (11c) VCCs was acknowledged by Margetts (1999: 117) for Saliba (see Margetts 1999: 117) and Solnit (2006: 150) for Eastern Kayah.

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[5] This tendency is rather strong if one considers not only VCCs, but less close-knit constructions (SVCs). I present some examples in Section 3.1.2 of my thesis.

[6] More research is needed to prove this hypothesis (see the discussion in Section 3.1.2.2 of my thesis).

> ➢ Cause-Result sequences are known for their iconic component order (see Durie 1997)

(11) Saliba

    a.   *ye-sobu-lage*
              3SG-dance-arrive
              'He came dancing'. (Margetts 1999: 119)

    b.   *ye-tu-dobi-ei-Ø*
              3SG-throw-go.down-APP-3SG.O
              'He threw it down'. (Margetts 1999: 126)

    c.   *ye-sikwa-he-beku-Ø*
              3SG-poke/hit-CAUS-fall-3SG.O
              'He poked it to make it fall'. (Margetts 1999: 118)

> ➢ This hypothetical pathway corresponds to Givon's (2009) *clause-chaining* development of complex predicates

3. Grammaticalization

3.1. Preliminary discussion

> ➢ Aikhenvald (2006) identifies two broad types of SVCs: symmetrical and asymmetrical.
> ➢ The tendency of the verbs from the closed slot of SVCs to grammaticalize is considered as one of the distinguishing properties of asymmetrical SVCs (see Aikhenvald 2006: 35-36).

(x) **Questions**

> ➢ Which properties of SVCs highlighted by Aikhenvald (2006) trigger grammaticalization?
> ➢ Do VCCs exhibit 'specific' grammaticalization pathways?

To answer these questions, I employ two features instead of Aikhenvald's (2006) 'closed class' notions.

Restrictedness: There are many idiosyncratic lexical restrictions on a slot

Limitedness: One slot comprises more semantically diverse verbs than the other slot

Table 5. Limitedness in the VCCs studied

VCC	Most limited slot
Manner-of-Motion VCC	Motion verb slot
Directional VCC	Directional verb slot
Mental process VCC	Mental process verb slot

Table 6. Terminology in Aikhenvald (2006) and in my study

My study	Aikhenvald (2006)
Limited slot	'closed class'
Restricted slot	
Modifer in directional VCCs	'minor' Directional verb
Head in mental process VCCs	'minor' verb in secondary concept SVCs/complement-taking SVCs?
Head in manner-of-motion VCCs	'minor' verb in directional SVCs/one of the symmetrical SVC components

3.2. What triggers grammaticalization?

- ➢ Motion slot in manner-of-motion VCCs and directional slot in directional VCCs are limited
- ➢ However, these constructions can be a subtype of a construction with both slots unlimited
- ➢ If Aikhenvald (2006) is right, the grammaticalization will occur only if the VCC in question is not a subtype of a VCC with unlimited slots
- ➢ However, such VCCs are grammaticalized in Hup, Tlachichilco Tepehua, Eastern Kayah and Saliba (see Tables 7; 8)

Table 7. Grammaticalization in manner-of-motion VCCs

Language	Gramm	Higher VCC?		Higher VCC		Restrictedness	
		Present?	Type	H_lim	M_lim	H	M
Hup	H?	+	SIM	-	-	-	
Tlachichilco Tepehua	H	+	SIM	-?	-?	-	
Bininj Kun-Wok	H	-				++	
Imonda	H?	-?				no ev	no ev
Kiowa	M?	-?				no ev	no ev
Eastern Kayah	-	+	C-R	-	-	-	-
Chukchi	-	-				-?	-
Saliba	-	+	C-R	-	-	++	+?
Hoan	-	-?				-?	-?

Table 8. Grammaticalization in directional VCCs

Language	Gramm	Higher VCC?		Higher VCC		Restrictedness	
		Present?	Type	H_lim	M_lim	H	M
Eastern Kayah	M	+	C-R	-	-	-	-
Saliba	M	+?	C-R	--	-	-	-
Mapudungun	M	-				-?	-?
=ǀHoan	M	-?				-	-
Hup	?	-?				+	+
Ese Ejja	-	?				?	?
Chimalapa Zoque	-	+?	C-R	no ev	no ev	+?	+?
Imonda	-	-?				-	-?
Bininj Kun-Wok	-	-				+	+

> Restrictedness does not trigger grammaticalization, too

3.2. Grammaticalization pathways

The majority of grammaticalization pathways observed in my study do not seem to be unique for VCCs (Tables 9 - 11): Such pathways are indicated in (Heine & Kuteva 2002; Maisak 2005).

Table 9. Grammaticalization of Manner-of-Motion VCCs

	Source	Gram
Hup	Return	REPETITIVE
Tlachichcilco Tepehua	Arrive	DIRECTION/LOCATION
Bininj Kun-Wok	return; go (in sister lgs)	BACK; ASS. MOTION (in sister lgs)
Imonda	come?, go?	PLURAL?
Kiowa	drive?	DRIVE (bound)?

Table 10. Grammaticalization of Directional VCCs

	Source	Gram
Mapudungun	come, arrive	LOCATION/DIRECTION
Eastern Kayah	path Vs	DIRECTION/ORIENTATION
Saliba	go back	REPETITIVE
=ǀHoan	put in	BENEFACTIVE

Table 11. Grammaticalization of Mental process VCCs

	Source	Gram
Hup	Want	IMMINENT FUTURE
Mapudungun	Can	CAN (bound)

Some peculiarities:

> ➢ Kiowa bound prefix DRIVE (12).

(12) *è-hó:-càn*
      [1PL]-drive-arrive/PF
      'We came by car'. (Watkins 1980: 232)

> ➢ Imonda plural markers (14) from 'come' and 'go' (13)

(13) Imonda (Border family, Multinesia), Manner-of-Motion VCC

>   *tetoad   paiha-i-pia-n*
>   bird   fly-LINK[7]-come-PST
>   'The bird came flying'. (Seiler 1985: 108)

(14) Imonda, verb marks plurality

>   *pafeia-l-m   liha-pia-n*
>   stone-NOM-GL   change-come-PST
>   'They all turned into stones' (*he turned into a stone). (Seiler 1985: 83)

> ➢ Associated motion markers (Rembarrnga, Bininj Kun-Wok sister language)

3.3. Summary

> ➢ Aikhenvald's (2006) properties of asymmetrical SVCs do not trigger grammaticalization
> ➢ Grammaticalization pathways of VCCs are not 'special'
> ➢ I agree with Bisang (2009): SVCs/VCCs are a stage of grammaticalization, not grammaticalization triggers
> ➢ More research is needed

4. Conclusions

> ➢ The order of components in mental process VCCs correlates with the order of verb and object in syntax and with the order of stems in incorporation constructions
>   o This can be explained by the multiclausal origin of mental process VCCs
> ➢ The order in manner-of-motion and directional VCCs is determined by the semantics of components
>   o I argue for iconically-ordered multi-verb constructions as the source of manner-of-motion and directional VCCs
> ➢ There is nothing special in the way VCCs grammaticalize

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[7] According to Seiler (1985: 108; 119-132), the linking morpheme *-i-* does not have any synchronic functions except morphological linkage between members of certain VCCs and between classifier prefix and verbal root. It is worth noting that classifiers exhibit historical link with the VCC (see Seiler 1985: 119-130).

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APP - applicative; CAUS – causative; DAT – dative applicative; DEF – definite; DYNM – dynamic; GL – goal; INC – incompletive; INCH - inchoative; IND – indicative; LINK/LK – linker; LOC - locative; NEG – negation; NOM – nominative/nominalizer; O/OBJ - object; PF - perfect; PL - plural; PST - past; SG – singular; TH – thematic suffix; U - undergoer