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# Do prior motion serial verbs (go) morphologize? Insights into diachrony from typology

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## Abstract

Associated motion is a grammatical category which modifies a verbal predicate by adding a motion component such as indicating that motion took place prior to the event predicated by the verb. Many languages express prior associated motion ('go and V') in the form of a serial verb construction, while in other languages the same meaning is expressed morphologically. This suggests a possible diachronic link between serial verbs and affixes, but a comparison of the synchronic distributions of prior associated motion in serial verb constructions and verbal morphology reveal that such a path of grammaticalization is remarkably rare. This can be at least partially explained by temporal iconicity and a cross-linguistic suffixing bias. We conclude that prior motion serial verb constructions are relatively stable diachronically. The source of prior motion morphology is more likely other multiverb constructions, especially those with non-finite verbs where an overt morpheme marking dependency is lost to allow for a more efficient expression of this grammatical category, ultimately leading to univerbation.

**Keywords:** Serial verb constructions; associated motion; grammaticalization; typology

## 1. Introduction

This paper explores the diachronic implications of Lovestrand & Ross (2021) on the distribution of associated motion serial verb constructions and Ross (2021a, 2021b) on the distribution of associated motion verbal morphology. *Associated motion* is a grammatical category which modifies a verbal predicate by adding a motion component to the meaning of the verb. This additional motion component indicates a change of location for an argument of the verb, typically the subject. Associated motion can take place before, during or after the event predicated by the verb, but *prior motion* of the subject is the most common type of associated motion, and the focus of this paper. In addition to being expressed in *verbal*

*morphology*, as in the case of the suffix in (1), it is also very common to find prior motion expressed in a *serial verb construction* (SVC), as in (2).[1]

(1) Prior motion morphology: Kaytetye, Pama-Nyungan (Koch 1984:27)
*Arntwe* *nte* *eyle-**yene**-ne*
water 2SG.ERG get-**GO**-IMP
"Go and fetch some water!"

(2) Prior motion SVC: Barayin, Chadic (Lovestrand 2018:120)
*duwa* ***kol**-eyi* *d-eg-aga* *suu*
lion **go**-IPFV kill-IPFV-DAT.3PL animal
"The lion went and killed an animal for them."

It is often said that SVCs are prone to grammaticalization such that verbs take on specific grammatical functions and may shift lexical category (e.g. preposition, particle or auxiliary) or become part of the verbal morphology (e.g. Aikhenvald 2006:30; DeLancey 1991; Hopper & Traugott 2003:111–114). As Givón (1971a:413) succinctly generalized, "today's morphology is yesterday's syntax." The functional affinity of examples like (1) and (2) suggest a possible path of development from prior motion SVCs to prior motion affixes. In this paper, we use synchronic typological distributions to investigate this possibility, but we do not find evidence to support this as a typical pathway of grammaticalization. In fact, the strikingly few instances suggest that such a change may be much rarer cross-linguistically than we would initially assume, and that prior motion SVCs may be relatively stable diachronically rather than a transitional state of grammaticalization.

A diachronic relationship between SVCs and associated motion has been proposed before (e.g. Jacques 2013; Fix 2021), and there are a number of widespread observations about these morphosyntactic features that appear to support this hypothesis:

- Motion verbs are "the serializing verb type *par excellence*" (Foley & Olson 1985:47; see also Aikhenvald 2006:47; Durie 1997:310; Ross & Lovestrand 2018; Ross 2021b)
- "Asymmetrical serial verb constructions tend to undergo grammaticalization—the minor verb becomes a grammatical marker" (Aikhenvald 2006:30)
- "In a number of Australian languages [and elsewhere], compounded verbs get grammaticalized as markers of motion and direction" (Aikhenvald 2007:59; see also Kuteva et al. 2019:97–98, 203–204)
- Associated motion affixes are often cognate with lexical motion verbs and typically express similar semantic contrasts, such as deictic direction (cf. 'go' vs. 'come')
- The typology of both morphosyntactic types is similar (Section 3)

That the grammaticalization pathway from prior motion SVC to prior motion affix is attested will be illustrated with a transparent example from Akan in Section 2, but this appears to be an unusual case cross-linguistically. Section 3 introduces two quantitative typological studies, Lovestrand & Ross (2021) on motion SVCs and Ross (2021a, 2021b) on motion morphology,

[1] Abbreviations follow the Leipzig Glossing Rules with the addition of: AG 'agentive', AUG 'augment', CVB 'converb', DEP 'dependent', DISJ 'disjunct', FV 'final vowel,' INFL 'inflection', LNK 'linker', NMZ 'nominalizer', REAL 'realis', SS 'same-subject', SUB 'subordinate', VEN 'ventive' and 8 '(Bantu) noun class 8'.

as evidence that the most direct path of grammaticalization from serial verb to affix is not the predominant source for prior motion morphology. Section 4 argues that prior motion SVCs tend *not* to morphologize but are diachronically stable to a significant degree. Thus, we find that not all types of SVCs expressing grammatical functions necessarily follow similar pathways of grammaticalization (see also Bowern 2008). Section 5 examines other (non-SVC) sources of prior motion suffixes, the pathway to univerbation and the diachrony of SVCs. Section 6 is a brief reflection on our findings and directions for future research.

## 2. From prior motion SVC to prior motion prefix

The hypothesis of a process of grammaticalization from prior motion serial verb to prior motion affix aligns with general expectations about the grammaticalization of verbs. Hopper & Traugott (2003:111) represent a prototypical cline of grammaticalization with the diachronic stages in (3). In this type of analysis, the motion verb in a prior motion SVC would take the place of an auxiliary verb on the cline, and it would be expected to decategorize, losing its verbal properties, and change its phonological form, eventually morphologizing as a verbal affix.

(3) **Possible cline of grammaticalization of verbs**
full verb > auxiliary > verbal clitic > verbal affix

DeLancey (1991) applies this type of diachronic analysis to Lhasa Tibetan. Different verbs in Tibetan are said to be at various stages in the cline of grammaticalization. For example, the serial verb *tshar* 'finish' in (4a) is used as the second verb in SVCs in "completive perfect" aspectual function. With the same function in another context, the same form is analyzed as a suffix, as in (4b), showing signs of phonological dependency.[2] DeLancey (1991:8, 11) proposes that a variety of verbs in Tibetan follow along this same cline of grammaticalization, and infers that serial verb constructions are an intermediate stage between clause combining and verbal morphology in the grammaticalization cline (see also Section 5.3).

(4) Lhasa Tibetan (DeLancey 1991:10–11)

a. *kho phyin **tshar**-ba red*
he went finish-PRF.DISJ
"He has gone."

b. *nga khrom-la phyin-**tshar***
I market-LOC went-COMPL
"I've gone to the store."

Regarding prior motion, we focus in this section on a case study of Akan, a language outside our sample, based on Osam (2002), where the prior motion prefixes *bɛ-* and *kɔ-*, as in (5a), are historically derived from motion verbs 'come' and 'go' of the same forms which can still be used to express prior motion in SVCs, as in (5b).[3]

[2] The phonological dependency is evident in a context described by DeLancey as "conjunct" constructions, which "occur with volitional predicates with first person actors in statements and second person actors in questions; 'disjunct' forms occur elsewhere" (DeLancey 1991:10, 19).

[3] Note that in (5b) the second verb in the SVC ('buy') is marked by a prior motion prefix despite the fact that the meaning of this prefix is redundant with the meaning of the serial verb 'go' (Osam 2002:119). This phenomenon

(5) Akan (Osam 2002:119)

a. *Yɛ-**kɔ**-tɔ-ɔ* *bi*
1PL-**GO**-buy-COMPL some
"We went and bought some."

b. *Yɛ-**kɔ**-e* *kɔ-tɔ-ɔ* *bi*
1PL-**go**-COMPL GO-buy-COMPL some
"We went and bought some."

Akan is an example of the grammatical category of prior motion expressed by a verb in a serial verb construction morphologizing into an affix with the same function. Possible stages of grammaticalization are shown in Table 1. Stage 1 and Stage 3 are concurrently attested in Akan, and the other stages are proposed based on the grammaticalization cline in (3) above.[4]

| | Morphosyntax | Form | Key characteristics |
|---|---|---|---|
| Stage 0 | coordination?[5] | go (and) V | clause/constituent boundary |
| Stage 1 | asymmetric SVC | go V | specialized function and syntax |
| Stage 2 | clitic? | GO=V | loss of verbal qualities |
| Stage 3 | affix | GO-V | incorporation in morphology |

**Table 1:** Possible stages of prior motion morphologization (Akan)

Jacques (2013) proposed a similar development for Japhug. While these are two examples of languages in which prior motion affixes appear to have derived from prior motion SVCs, closer examination of the distributional typology of associated motion reveals that it is very unlikely that prior motion SVCs are the predominant source of prior motion morphology, and that Akan and Japhug may be an exception rather than typical. This is because the nearly universal pattern for prior motion SVCs is for the motion verb to precede the other verb, as in Akan and Japhug, but morphological prior motion is more likely to be expressed as a suffix, in contrast to the prefixes found in Akan and Japhug.

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has been reported in a variety of languages with associated motion morphology and is often referred to as "echo" associated motion (Wilkins 1991:221; Guillaume & Koch 2021:15). In fact, today this is obligatory in Akan prior motion SVCs, although the prefix would have originally developed from a simple SVC with motion indicated only by the first verb 'go' or 'come' (Osam 2002:120). Nearly a century and a half ago, Christaller (1875:69) had already reported that this echo prefix was required in the construction. A less precise description from several years earlier by Carr & Brown (1868:59–60) suggests a different analysis: that the motion verb was *reduplicated*, with the second sometimes phonologically reduced; if this was the case, then the prefix might have morphologized directly from within a three-verb SVC, with the second motion verb possibly marking goal or purpose, similar to usage as in (i) as found in Caribbean creoles today.

(i) Motion verb as purpose marker: Guyanese Creole (Winford 1993:199)
*Mi ron kom **kom** sii di pikni*
1SG run come **come** see the child
"I ran (hither) **to** see the child."

This would mean that the prior motion prefix did not in fact develop directly from a basic, two-verb prior motion SVC, although ultimately the source would have been a motion SVC, and regardless, given the prominence of SVCs in the language, one way or another the prefix would still have developed following the outlined stages in Table 1. As for earlier usage, several older sources provide limited examples, primarily with imperatives, of what may be basic, two-verb prior motion SVCs (cf. Riis 1854; Hutton 1821:384; Barbot 1732:415–416).

[4] Throughout this paper we will not make an attempt to establish a clear distinction between clitics and affixes but will follow the descriptive terminology used in the cited sources.

[5] On coordination as the source for SVCs, see among others Givón (1975) and Lord (1993).

## 3. Typological distribution of prior motion

This section compares the results of two related distributional studies of prior motion, one focused on SVCs and one focused on morphology. Section 3.1 briefly explains the language sample and introduces the diagnostics used to identify SVCs and the typology of associated motion. Section 3.2 then shows the quantitative results for the position of verbs or affixes. In SVCs, prior motion is nearly always expressed by a motion verb preceding another verb, whereas morphological prior motion has a suffixing bias. In Section 3.3 we look in detail at the relatively few languages in our sample with prior motion prefixes to show that, even in those cases, a prior motion SVC is often not the most likely diachronic source. This surprising finding is considered in detail in the rest of the paper.

### 3.1 Language sample and definitions

The distributional results compared below are based on a survey of motion SVCs in Lovestrand & Ross (2021) and motion morphology in Ross (2021a, 2021b), from a 325-language worldwide sample following the general methodology and sampling of the *World Atlas of Language Structures* (WALS: Dryer & Haspelmath 2013). The sample aims to be a reasonable approximation of the geographic and genetic diversity of the languages of the world; for details, see Ross (2021b).

A serial verb construction is a syntactic unit joining multiple verbs together in a single clause without any morphosyntactic marking of coordination or subordination. Among the 325 sample languages, Ross (2021b) identified at least one type of SVC in 125, about one-third, of the languages in the sample, applying the following criteria:

- two or more verbs
- with no marker of dependency or linking element
- with shared tense-aspect-modality and negation
- shared arguments

While the criteria used in this definition are not all uncontroversial, they generally follow traditional definitions in the literature on SVCs (for further discussion see Aikhenvald 2006, 2018; Lovestrand 2021a; Ross 2021b). On the issue of wordhood, we largely relied on the judgment of the author of the descriptive material available and chose to separate verb-verb compounds (sometimes referred to as one-word SVCs) as a distinct category from what we refer to as SVCs (see Section 5.4).

SVCs which have a syntactic structure that limits one of the components to a restricted class of verbs (which we call the "restricted" verb) are known as asymmetric SVCs, in contrast with symmetric SVCs which allow essentially any verb to appear in the construction (Aikhenvald 2018:6). A particularly common function of asymmetric SVCs is to express motion-related semantics. Lovestrand & Ross (2021) find that 101 of the 125 sample languages with SVCs have an SVC type in which the restricted verb is a motion verb. An important semantic distinction should be made between two related but distinct functions of motion verbs in SVCs: associated motion, as in (6), and direction, as in (7). As observed by Winford (1993) for Caribbean English creoles, these semantic types correlate with a difference in word order, which is in fact a robust cross-linguistic pattern: it is this asymmetry

that forms the foundation of the argument in this paper, and which will be explored in more detail in the following sections.

(6) Prior motion SVC: Jamaican Creole (Winford 1993:196)
*im* ***kom*** *shub* *mi* *doun*
3SG **come** shove 1SG down
"(S)he (came and) pushed me down."

(7) Directional SVC: Jamaican Creole (Winford 1993:184)
*Di* *pikni* *ron* ***kom*** *hoom*
the child run **come** home
"The child ran (hither) home."

The category of associated motion is distinct from direction. While directionals add information about the orientation of a path of motion to a predicate whose lexical meaning already includes a motion component, associated motion markers "associate, in different ways, different kinds of translational motion (spatial displacement / change of location) to a (generally non-motion) verb event" (Guillaume & Koch 2021:3). These two motion-related functions can be expressed via SVCs or verbal affixes. In the 325 sample languages, Lovestrand & Ross (2021) found associated motion SVCs in 74 languages and directional SVCs in 70 (of which 43 overlap), while the parallel study of Ross (2021a) found associated motion affixes in 83 languages and directional affixes in 114 (of which 57 overlap).

One important parameter in associated motion is the temporal relation of the motion to the activity or state predicated by the main verb – whether the motion is prior, concurrent or subsequent to that activity or state. In both morphology and SVCs, forms expressing concurrent or subsequent motion are less frequent, although they appear to be even rarer as SVCs than as morphology (Section 4.4). In contrast, prior motion, the main topic of this paper, is relatively common as both morphology and SVCs. Lovestrand & Ross (2021:90) find SVCs that express prior motion in 68 of 74 languages with associated motion SVCs, as in several examples above, and Ross (2021a:47) reports that 61 languages have prior motion morphology (out of 83 that have associated motion morphology of any type), as in (1) above.

A caveat is required regarding the categorization of prior motion. Few descriptive works make an explicit distinction between prior motion and purposive motion.[6] The semantic distinction between prior motion ('go and V')[7] and purposive motion ('go in order to V') is based on whether the activity associated with the end of the motion event is asserted to take place alongside the motion event, or only an intended goal at the end of an asserted motion event. In (8), it is not possible to assert that the motion did occur, without also asserting that the activity of the main verb did as well. The motion and other activity are mutually contingent. In contrast, in the case of the purposive motion SVC in (9), there may be an implicature that the activity following the motion verb actually happens, but this implicature can be cancelled.

[6] Descriptions may also confuse these terms, such as using "purposive" with reference to the volitionality that is typical of prior motion, or they may inaccurately gloss prior motion as 'go to V', etc.
[7] It should be emphasized that prior motion is distinct from a sequence of (possibly unrelated) events as is typical for coordination, but instead corresponds to the unitary event reading of *go and V* as pseudocoordination in English, which can also be paraphrased as 'go to V, and (thereby) V'.

(8) Prior motion SVC: Ewe, Niger-Congo (Essegbey 2004:483)
*Kofi* ***va*** ***ɖe*** *nyɔnu-a* *(*gake* *wo-gbe)*
Kofi **come** **marry** woman-DEF but 3SG-refuse
"Kofi came and married the woman (*but she refused)."

(9) Purposive motion SVC: Sranan, Surinamese creole (Sebba 1987:104)
*mi* *ben* ***go*** ***trow*** *nanga* *a* *uma* *ma* *a* *no* *ben* *wani* *mi*
1SG PST **go** **marry** with DEF woman but 3SG NEG PST want 1SG
"I went to marry the woman, but she didn't want me."

Since descriptive works do not consistently distinguish between prior and purposive motion, they are necessarily conflated into a single category here for both SVCs and affixes, as in the published quantitative studies we draw on for our analysis (Lovestrand & Ross 2021; Ross 2021a). Nevertheless, we assume that prior motion is found in a substantial portion of those languages and is the most frequent type of associated motion for both SVCs and motion morphology.

In summary, whether or not there is a diachronic relationship between SVCs and affixes expressing prior motion, they clearly are *functionally* interchangeable: as will be shown in the next section, the two forms rarely co-occur in the same language, so they appear to be alternatives that languages may select for the same function.

### 3.2 Motion SVC word order and the suffixing bias

Given the frequency of prior motion both in the form of SVCs and verbal morphology, it is tempting to connect the diachronic dots, and hypothesize that prior motion SVCs are one stage on a cline of grammaticalization, ultimately destined to become verbal morphology, as illustrated by Akan in Section 2. However, in the domain of prior motion, SVCs and morphology show inverse biases in the order of the motion morpheme and the main verb, and this section will show that Akan is actually quite unusual typologically.

As shown in Figure 1, Lovestrand & Ross (2021:107) report that 68 languages have a prior motion SVC. Among these, 64 (94%) place the restricted verb (the motion verb) in the first position of a two-verb SVC, followed by the main verb. In three languages the verb order is variable, and in only one language, Kayardild (Evans 1995:308–310), does the restricted verb of a prior motion SVC always follow the main verb. A likely explanation for the clear bias in verb order is the principle of temporal iconicity such that the linear order of verbs in the construction follows the chronological order of the activities or states they represent (Tai 1985; Li 1993:480, 500; Durie 1997:330; Good 2003:437, 444; Aikhenvald 2006).

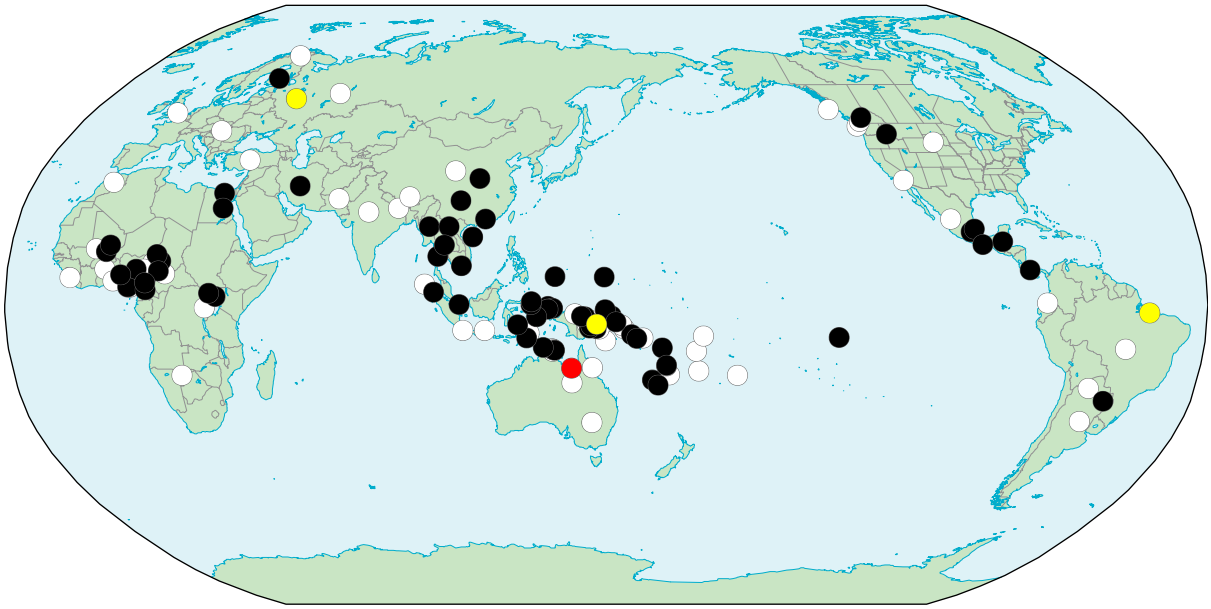

**Figure 1:** Position of motion verb in prior motion SVCs[8]
*(black: initial; red: final; yellow: variable; white: other SVCs attested but not prior motion)*

In regard to prior motion morphology, as shown in Figure 2, among the 61 languages that Ross (2021a) reports as having morphology expressing prior motion, only 18 have prior motion prefixes (including one language with both prefixes and suffixes), while the remaining 43 (70%) have suffixes. This clear bias towards suffixing aligns with many previous observations that suffixes are more common than prefixes cross-linguistically (e.g. Dryer 2013a; Hammarström 2021).

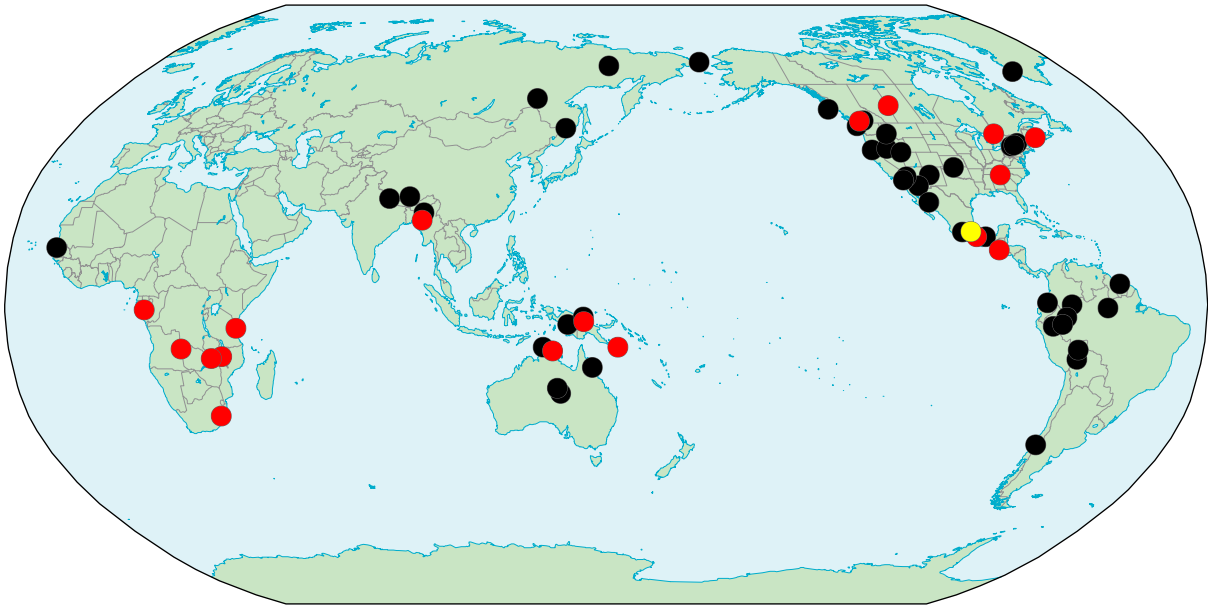

**Figure 2:** Position of prior motion affixes
*(black: suffix; red: prefix; yellow: mixed)*

[8] Maps were generated using the WALS Interactive Reference Tool by Hans-Jörg Bibiko.

Comparing these maps, we can observe that there is little overlap between languages with prior motion SVCs and prior motion affixes. In fact, only four languages (Arapesh, Tetelcingo Nahuatl, Nez Perce and Tiwi) have both.[9] Once again, the functional and typological similarities of prior motion SVCs and affixes and the fact that their distributions are nearly mutually exclusive might appear to suggest a diachronic connection, where prior motion SVCs morphologize as illustrated for Akan in Section 2 above.

However, Akan is typologically unusual in having both prior motion SVCs and prior motion affixes synchronically. To maintain the possibility that Akan represents a typical diachronic development, we would need to assume that this is a short transitional stage in order to account for why it is exceptional synchronically. This does not seem to be the case: early descriptions of Akan show that prior motion SVCs have been in use for several hundred years (see footnote 3 above), implying that there is no barrier to their transmission over multiple generations.

More importantly, there is a stark contrast between prior motion SVCs and prior motion affixes in the position of the morpheme expressing prior motion relative to the main verb, as shown in Table 2. This pattern immediately suggests that a direct path of grammaticalization as proposed for Akan (Table 1) is not, in fact, frequently attested.[10] Recall also from Section 3.1 that *directional* SVCs tend to have the motion verb in *second* position: this will be discussed more in Section 4.4, along with a weaker suffixing bias for directionals than for prior motion, suggesting similarly that direct development from motion SVCs to directional *suffix*, although possible, may not be a dominant pathway there either.

| | Preverbal motion morpheme | Postverbal motion morpheme | Both |
|---|---|---|---|
| SVC | 64 | 1 | 3 |
| Affix | 17 | 43 | 1 |

**Table 2:** Order of morphemes in prior motion SVCs and affixes

The 18 languages with prior motion prefixes are considered in more detail in the next section, including whether there is a possible diachronic relationship to SVCs in these languages.

### 3.3 Diachrony of prior motion prefixes

This section presents a closer examination of the 18 languages that have prior motion prefixes, revealing that the presumed path of morphologization directly from serial verb to prefix may be even rarer than suggested in Table 2. These 18 languages are listed in Table 3.[11]

[9] More generally, only 21 languages in the sample have both (any kind of) SVCs and (any kind of) associated motion morphology. This may be partly explained by morphological typology, given that SVCs are especially common in languages with limited verbal inflection.

[10] See also Guillaume (2013a) for an earlier observation of this difference between SVCs and associated motion affixes. For a different example of the effects of word order biasing the grammaticalization of SVCs, see Givón (1975:100) who pointed out that case-marking *postpositions* derived directly from (serial) verbs should be rare, while *prepositions* often grammaticalize from SVCs.

[11] The column *Prior* lists the number of prefixes that can express prior associated motion (e.g. itive and ventive), and the column *Dir.* lists how many of these forms also function as directional markers (Section 5.1).

| | Location | Family | Language | Prior | Dir. |
|---|---|---|---|---|---|
| 1 | Africa | Niger-Congo: Bantu | Sangu | 1 | 0 |
| 2 | Africa | Niger-Congo: Bantu | Swahili | 1 | 0 |
| 3 | Africa | Niger-Congo: Bantu | Chichewa | 2 | 0 |
| 4 | Africa | Niger-Congo: Bantu | Luvale | 1 | 0 |
| 5 | Africa | Niger-Congo: Bantu | Nsenga | 2 | 0 |
| 6 | Africa | Niger-Congo: Bantu | Zulu | 2 | 0 |
| 7 | North America | Salishan: Central | Squamish | 2 | 2 |
| 8 | North America | Algic: Algonquian | Cree | 2 | 1 |
| 9 | North America | Algic: Algonquian | Passamaquoddy-Maliseet | 2 | 1 |
| 10 | North America | Algic: Algonquian | Ojibwa | 2 | 2 |
| 11 | North America | Muskogean | Koasati | 2 | 0 |
| 12 | North America | Uto-Aztecan: Aztecan | Nahuatl (Tetelcingo) | 2[12] | 2 |
| 13 | North America | Oto-Manguean: Popolocan | Popoloca | 8 | 0 |
| 14 | Central America | Mayan | Tzutujil | 2 | 0 |
| 15 | Papua New Guinea | Austronesian: Oceanic | Sudest | 2 | 1 |
| 16 | Papua New Guinea | Sepik: Hill | Alamblak | 8 | 8 |
| 17 | Asia | Sino-Tibetan: Kuki-Chin | Lai | 5 | 5 |
| 18 | Australia | Gunwinyguan: Gunwinygic | Bininj Gun-wok | 1 | 1 |

**Table 3:** Languages with prior motion prefix (based on Ross 2021a)[13]

Six of these are Bantu languages—a large and reasonably well-studied language family. As we might expect, prior motion prefixes are derived from the verbs ‘go’ and ‘come’ in many Bantu languages (Guérois, Gibson & Persohn 2021). However, these forms are generally considered to have developed from an auxiliary construction with the main verb in a deranked (e.g. infinitive) form (see Section 5.2),[14] rather than from SVCs.[15] Today, Bantu languages generally lack SVCs,[16] and even diachronically there is only limited evidence of grammaticalization of SVCs in Bantu languages: for example, Botne (1998) reconstructs future markers from verbs glossed ‘say’ in SVCs (or serial-like subordinate constructions),

[12] Tetelcingo Nahuatl is a very rare example of a language with mixed affix positions for associated motion, which additionally has 7 prior motion *suffixes*.

[13] In Ross (2021a), another language, Tiwi, was mislabeled as having prefixes instead of suffixes.

[14] At least this is the case in general for the prefixes that have developed relatively recently and can be reconstructed transparently, whereas for the oldest prefix *ka-*, widespread in Bantu and used in a variety of grammatical functions including prior associated motion, its origin is less clear, although a similar development is possible; see Botne (1999) for discussion of this form.

[15] In fact, Givón (1971b) hypothesizes that both pathways are relevant to the diachronic development of Bantu morphology, but at different stages: the earliest morphologized verbs developed into *suffixes* from possible SVCs in early or pre-Bantu, when these languages were more like their many serializing cousins in much of the rest of the Niger-Congo family, but later on after Bantu had split from the rest of the family and shifted to a different word order, verbs in the individual Bantu languages then morphologized as *prefixes*. Bantu associated motion prefixes show etymological diversity (related to different lexical motion verbs) and are prefixes, suggesting later and independent development in individual Bantu languages or subgroups. In summary, it does not seem tenable to consider an origin for these associated motion prefixes in Proto-Bantu (or earlier) SVCs.

[16] SVCs are also attested in some more conservative Bantu languages (or possibly due to contact) closer to West Africa, such as Ewondo, the only Bantu language in the sample with prior motion SVCs (also lacking motion affixes), in this way resembling some other Bantoid languages (such as Tikar and Babungo) outside of narrow Bantu.

but other descriptions of grammaticalization paths for verbs instead point to more common auxiliary structures in which a finite auxiliary verb is followed by a verb marked as a non-finite deverbal form or as a finite dependent form (Güldemann 1999:547). This path of development is discussed in more detail in Section 5.2.

An origin in SVCs (or auxiliaries resembling SVCs in form) appears likely for five of the other 12 languages with prior motion prefixes. In particular, Popoloca stands out because the prior motion prefix paradigm varies by person and tense, clearly reflecting an origin from a finite verb (Veerman-Leichsenring 1991:266–273). Tetelcingo Nahuatl, the only language in the sample with both prior motion prefixes and at least the motion verb 'go' in purposive function in initial position in SVCs, has a prefix *wal-*, which is homophonous with the verb 'come' (Dryer 2021:148). In Tzutujil a number of auxiliary verbs take finite complements in constructions which resemble SVCs in form, and prior motion prefixes are derived from intransitive motion verbs (Dayley 1985:396–406; García Ixmatá 1997:209); a similar etymology applies to Squamish (Kuipers 1967:161; Montler 2008:24). In Lai, the prior motion prefixes transparently derive from finite motion verbs, even though there are no other constructions in the language that can be unambiguously identified as SVCs (Van Bik & Tluangneh 2017; Ross & Van Bik 2022). It is interesting to note that none of these languages prominently features SVCs today.

Among the remaining seven languages, impressionistically it seems that SVCs are an unlikely source for most of the prior motion prefixes, or at least there is no clear evidence or specific empirical motivation supporting that hypothesis beyond the assumption of SVCs as a common source for morphology. For example, the three Algonquian languages have motion prefixes as part of the general feature of "preverbs" in the family (Pentland 2005),[17] which appear to derive from spatial deictics rather than verbs (Proulx 1991:144–145).[18] Additionally, six of these seven languages have partial or complete overlap with multifunctional directional affixes, making it more difficult to determine the diachronic path of grammaticalization, and suggesting directional morphology as a source for some of these associated motion affixes.[19] Even without a detailed diachronic analysis of each of these constructions, it is likely that most of the 18 prior motion prefixes in our sample developed from other sources. SVCs are an occasional source of prior motion prefixes, but not a typical source.[20]

[17] Some preverbs may also be derived from verbs, and Corral Esteban (2017) compares verb roots in this context to compound SVCs, but preverbs form a closed class of grammatical morphemes, often with distinctive forms.

[18] The etymology of ventive preverb **py-* is obscure: Bloomfield (1946) considered this to be a verb root 'come' (cf. Aubin 1975:134–135), but given that 'go' and corresponding itive preverbs may be unspecified for direction (cf. Dryer 2021:155–156), a more likely source is a directional adverb 'hither' as a preverb that combined with an irregular, "zero root" verb 'go' (Proulx 1985:89; Nikolaev 2017:255), as well as other verbs.

[19] Bininj Gun-wok is a particularly interesting language in this regard: the directional ventive prefix *m-* 'toward' can also be interpreted as prior, concurrent *or* subsequent motion depending on context. What is particularly unusual about this is that there is no corresponding itive ('away') form, suggesting that the original function was directional, as ventive directionals are more likely to occur in contrast to unmarked motion verbs (typically understood as motion away by default). For prior motion, both morphology and SVCs, itive (or unspecified) forms may exist on their own in a language, while ventive prior forms typically have itive counterparts.

[20] It would be tempting to try to narrow the sample by considering only the subset of languages with typological features correlated with SVCs, but we are limited here by synchronic typological distributions, which may have shifted from the diachronic conditions in which earlier SVCs or other constructions developed into affixes. For example, SVO (as opposed to SOV) word order is strongly correlated with SVCs (cf. Ross 2021b), but a

## 4. Diachronic pertinacity of prior motion SVCs

If prior motion SVCs do not generally follow a path of grammaticalization to become prior motion prefixes (Section 3), how can their diachronic tendencies be described? Do prior motion SVCs grammaticalize into prior motion *suffixes*? Do they undergo semantic shift into other categories? While these possibilities cannot be ruled out completely, we suggest that they are unlikely, and instead propose that prior motion serial verbs are relatively stable over time and tend not to morphologize. In order to defend that proposal, we will first consider two possible alternative explanations for the apparent dearth of prior motion prefixes. In Section 4.1, we consider whether prior motion SVCs that morphologize also undergo semantic shift so that they are not identified as associated motion morphology. In Section 4.2, we briefly consider whether it is possible that the morphologization process involves a shift in order of the prior motion morpheme and the verb. Rejecting those explanations as insufficient, in Section 4.3, we give an explanation for why prior motion SVCs end up being a relatively stable stage of grammaticalization that rarely morphologizes. Finally, in Section 4.4, we briefly discuss other motion types: concurrent associated motion, subsequent associated motion and directionals.

### 4.1 Semantic shift

One possible way to maintain that the restricted verb in a prior motion SVC is generally part of a grammaticalization cline despite the low frequency of prior motion prefixes is to assume that the process of morphologization tends to be accompanied by a semantic shift to a non-literal motion meaning such as future tense (Kuteva et al. 2019:214–217; Lord 1993:215–216; Schmidtke-Bode 2009:178–185).[21] This semantic shift is attested with the prefix *kɔ-* in Akan when under negation as in (10) (cf. (5) above). Similar developments are attested elsewhere, such as in the Bantu languages (Guérois, Gibson & Persohn 2021:590).

(10) Akan (Osam 2002:123)
*Yɛ-n-kɔ-kɔ*
1PL-NEG-GO/FUT-go
"We will not go."

If prior motion serial verbs, which are relatively frequent, tend to grammaticalize into non-motion prefixes, this tendency would be confirmed by a relatively high number of prefixes with non-motion meanings derived from motion verbs, such as future tense. The distributional study in Ross (2021) did not count affixes with non-motion meanings that may have been derived from motion verbs, but a rough estimation of the frequency of future tense prefixes can be obtained by cross-indexing the results of the WALS chapter on future tense with the chapter on the position of tense-aspect affixes (Dahl & Velupillai 2013; Dryer 2013b). The

preliminary analysis of the data with this in mind suggested little or no improvement from the overall picture presented above, with prior motion prefixes no more common among SVO languages than in general.

[21] This possibility may be less plausible, however, if we consider that it could imply that associated motion morphology should also be diachronically unstable, which does not seem to be the case. In fact, the large paradigms in at least the Arandic languages of Australia and the Tacanan languages of South America appear to function as attractors for the continued, recurrent development of additional associated motion affixes from new verbs following similar grammaticalization pathways, as also implied by the almost exceptionless consistency of prefixing *or* suffixing associated motion in a language, including prior, concurrent, and subsequent (Ross 2021a).

results, filtered for languages with an inflectional future, are shown in Table 4.[22] The predominant pattern is suffixing, found in 50 languages. Only 14 languages are prefixing. The results do not suggest that grammaticalization of prior motion serial verbs as future tense prefixes is especially frequent.

| | |
|---|---|
| Tense-aspect prefixes | 14 |
| Tense-aspect suffixes | 50 |
| Tense-aspect tone | 1 |
| Mixed type | 9 |
| No tense-aspect inflection | 4 |

**Table 4:** Tense-aspect position for languages with an inflectional future (based on WALS)

Beyond future tense, there are a variety of other semantic shifts possible for motion verbs (Bourdin 1992; Kuteva et al. 2019), but it is unlikely that these less frequent developments would account for the extent of the distinct positioning biases for prior motion SVCs and affixes. Regardless, the distributional patterns for future tense, as well as prior motion, typically can be generalized to represent a prefixing or suffixing bias in whole-language typology, especially for tense-aspect-modality and related affixes (Dryer 2013a, 2013b). Table 5 shows that prior motion typically correlates with this general pattern.

| | TAM prefixes | TAM suffixes |
|---|---|---|
| Prior motion prefixes | 6 | 1 |
| Prior motion suffixes | 1 | 31 |

**Table 5:** Prefixing vs. Suffixing for TAM and prior motion (Dryer 2013b; Ross 2021a)[23]

In addition to the absence of evidence for widespread grammaticalization of prior motion serial verbs as prefixes, the assumption that morphologized motion verbs tend to undergo semantic shift is problematic in that it does not explain the prevalence of prior motion suffixes (Table 2). Any attempt to explain the lack of prior motion *prefixes* by assuming that they undergo semantic shift creates a second puzzle of why prior motion *suffixes* would not undergo similar semantic shift to non-literal motion meanings.

## 4.2 Order shift

Order shift, if it is clearly attested anywhere, is very rare. Comrie (1980:84) frames this observation as a hypothesis about the nature of grammaticalization: "The order of morphemes in a word reflects, in so far as those morphemes derive etymologically from separate words, the order of those separate words at the time they started being fused together into a single word" (see also Jacques 2013). One type of order shift is attested in Kaqchikel (Mayan: Heaton 2016), but only regarding the position of prior motion in the verbal prefix template: historical texts, dating back about 500 years, show usage corresponding to the form in (11a), which now varies in the modern language with the form in (11b), where prior motion is marked adjacent to the verb root.

[22] There are also four languages reported to have an inflectional future but also classified as not having any tense-aspect inflection, which presumably reflect the different diagnostics applied in the two WALS chapters by different authors.

[23] This table includes the subset of languages overlapping in both samples and excludes those languages with mixed values for either feature as well as those without TAM inflection.

(11) Kaqchikel (Heaton 2016:321)

a. *y-at-**b'e**-in-tz'et-a'*
PRS-2SG.ABS-**GO**-1SG.ERG-watch-TR
"I go see you."

b. *y-at-in-**b'e**-tz'et-a'*
PRS-2SG.ABS-1SG.ERG-**GO**-watch-TR
"I go see you."

Cases of order shift all the way from prefix to suffix are not clearly attested. Lamarre (2020) documents the case of northern Mandarin where a superficial analysis could lead to such a hypothesis; however, Lamarre proposes that the source of the prior motion enclitic in northern Mandarin in (12a) is the directional purposive construction in (12b), rather than the prior motion SVC in (12c).[24]

(12) Northern Mandarin (Lamarre 2020:121, 134–135)

a. *mǎi* *cài=qu*
buy food=GO
"Go buy food."

b. *dào* *Běijīng* *dúshū=qu*
move.to Beijing study=GO
"Go to Beijing to study."

c. *qù* *mǎi* *cài*
go buy food
"Go buy food."

Given that even apparent examples of order shift have plausible alternative explanations, it is not reasonable to assume that the heavily suffixing skewed distribution observed in the sample could be explained by a regular pattern of order shift.[25]

### 4.3 Diachronic pertinacity

We propose that prior motion SVCs are a relatively stable diachronic state, borrowing the term "diachronic pertinacity" from Butt & Lahiri (2013) who make a similar proposal for light verbs in South Asian languages. We emphasize that prior motion SVCs *can* morphologize and become prefixes, as in the case of Akan described in Section 2, but that prior motion SVCs, like some other types of multiverb constructions "are not simply transitionary points on the way to the end of the grammaticalisation cline" (Bowern 2008:175). This conclusion is supported in three ways: first, high synchronic frequency in a

[24] While Chinese prior motion SVCs (with motion verb first) are generally considered separate words, directional verbs in second position have been considered to form "compounds" by some researchers (e.g. Chao 1968; Li & Thompson 1981), although their properties are intermediate between syntax and morphology (Yin 2010) while undergoing a drawn out process of morphologization (Peyraube 2006).

[25] Flexible ordering is attested by directionals in Berber, which may also indicate (typically subsequent) motion, which appear variably as proclitics *or* enclitics depending on the specific usage (Penchoen 1973:43). Their etymological source is likely demonstratives, and later extended from directional usage to motion, so they are not part of the pathway proposed in this section.

representative sample should imply diachronic stability, because it is unlikely that the languages in our sample coincidentally captured a high number of forms that are diachronically unstable and therefore infrequent. Second, the lack of evidence of morphologization suggests stability. Third, although we are limited by the relatively few languages with SVCs that have long historical records, it appears that prior motion SVCs are attested historically as well. Prior motion SVCs are attested since early documentation of West African languages since at least the 1800s, as discussed for Akan in Section 3.2 above. Elsewhere, they are even found in the earliest written records of Chinese, the oracle bone inscriptions from over 3,000 years ago (Li 2014:81).[26]

The relative diachronic stability of prior motion SVCs can be understood as an effect of an interaction between temporal iconicity and the suffixing bias. Whatever the explanation for the suffixing bias (e.g. Mithun 2003; Himmelmann 2014), the effect on SVCs is that the restricted verb in an asymmetric SVC should be more likely to grammaticalize into an affix or clitic if it is in the position following the main verb, rather than preceding it. The principle of temporal iconicity, namely, that the linear order of the verbs mirrors the order of events, applies in a near universal fashion in prior motion SVCs, such that a restricted verb expressing prior motion will almost always precede the main verb, and therefore not be found in the post-verbal position which privileges morphologization. The interaction between these two principles limits the morphologization of prior motion SVCs to cases where some (unknown) factor overrides the suffixing bias and results in a relatively rare case of a prior motion prefix.

### 4.4 Other motion types

Aside from prior motion, we can also consider other temporal relations (concurrent and subsequent) within associated motion, as well as directionals. In contrast to prior motion, the motion verb in these other types of SVCs is not biased to initial position, so morphologization consistent with the suffixing bias could occur. Despite that possibility, in this section we will briefly summarize the evidence that, like prior motion, these other motion types may not often develop directly from SVCs to affixes.

Concurrent and subsequent motion are less frequent among both SVCs and affixes, but the relative frequencies already give a first hint that SVCs may not be the direct source for associated motion morphology: among the languages with associated motion SVCs concurrent and subsequent motion are found in only 7% and 8% respectively (versus 94% for

[26] Another possibility is that prior motion SVCs, being so common among languages with SVCs (of any type) in general, may not be inherently long-lived, but may frequently recur through the same grammaticalization pathway so as to give the impression of stability. For example, Old Egyptian *jw* 'come' had an aspectual function apparently grammaticalized from an earlier SVC (Reintges 1997:130–135), while about three millennia later prior motion SVCs are attested with *bôk* 'go' in its descendant Coptic (Georgakopoulos et al. 2020:54–55). We must be careful not to read too much into this sparse documentation, especially regarding colloquial usage, but even for a language with extensive use of SVCs, it is reasonable to consider a semantic domain such as prior motion to be periodically refreshed with new lexical verbs. This is in fact documented for the valency-increasing "disposal" construction (Chappell 2006:450–452) in Chinese, from early usage of *yǐ* 'take, use' later shifting to *jiāng* 'guide, lead', which now has shifted to *bǎ* 'grasp, hold' in the same function, along the way losing verbal properties while grammaticalizing as prepositions. It is therefore possible that prior motion SVCs and prior motion affixes, even if not cognate, might represent different stages of the same diachronic development, although the other arguments in this paper suggest that would be rare.

prior), but those rates are substantially higher (43% and 27% for concurrent and subsequent affixes respectively, and 73% for prior) among the languages with associated motion morphology. In other words, even if SVCs were a major source for prior affixes, we would still need to identify another source for concurrent and subsequent affixes.[27] We acknowledge, however, that concurrent and subsequent SVCs may be somewhat under-reported in descriptive grammars given the bias toward giving examples of more prototypical usage such as prior.

The statistical distribution of the three temporal relations also should be considered: it has been well-established that statistically (though not absolutely) associated motion affixes follow an implicational hierarchy: prior > concurrent > subsequent (Levinson & Wilkins 2006; Guillaume 2016; Guillaume & Koch 2021; Ross 2021a). This directly describes a synchronic typological distribution, where languages with concurrent motion have prior, and those with subsequent already have both, but also implies a particular diachronic development, where prior develops first, then concurrent, and finally subsequent. As such, we should generally expect concurrent and subsequent SVCs to develop into affixes only, if at all, by analogy to prior motion affixes, rather than independently from SVCs in general; see also Guillaume (2013b:144–147) on innovations along these lines within the established associated motion paradigms of Tacanan languages. More research on this topic is needed, but at this point we see little evidence to suggest motion SVCs are a typical source for concurrent or subsequent affixes, in particular because concurrent and subsequent SVCs are rarer than analogous affixes.

Turning to directional SVCs and affixes, we can briefly consider a possible diachronic relation analogous to that discussed for prior motion in this paper, although it is harder to reach reliable conclusions. In directional SVCs the restricted verb (the motion verb) is almost always in the second position (Lovestrand & Ross 2021), while directional affixes are more evenly split between prefixes and suffixes (Ross 2021a), as shown in Table 6. This is particularly surprising, because we would expect a general suffixing bias to reinforce the postverbal ordering of directional SVCs to produce suffixes.

| | Preverbal motion morpheme | Postverbal motion morpheme | Both |
|---|---|---|---|
| SVC | 6 | 63 | 1 |
| Affix | 41 | 67 | 6 |

**Table 6:** Order of morphemes in directional SVCs and affixes

In this case, the general cross-linguistic suffixing bias obscures any possible relationship. Still, it is remarkable that directional prefixes are relatively more common than prior motion prefixes (see Table 2 above). It is clear that other sources (such as adverbials or demonstratives) must be responsible for many of the directional prefixes in the sample. But unless those other sources have a strong *prefixing* bias, we would expect them to have also produced many of the *suffixes*. The weak skew toward suffixes for directional affixes may be explained by the general cross-linguistic suffixing bias, rather than as an effect of word order in SVCs.[28]

[27] This is not to say, however, that concurrent and subsequent SVCs are necessarily less likely to develop into affixes than prior SVCs, given the particular rarity of that development as established in this paper.

[28] As with prior motion in Section 3.3, limiting the sample based on other typological correlations did not appear to improve the results, with directional suffixes no more likely within only the SVO languages than in general.

Nevertheless, some directional SVCs may be the source for some directional suffixes, and we cautiously suggest that this may be more common than an analogous development for prior motion prefixes. This is particularly apparent among the Oceanic languages, where directional SVCs in Proto-Oceanic have now grammaticalized into postverbal particles or clitics in many languages (Ross 2004). These morphemes have continued on this grammaticalization pathway to the point of morphologizing in a few languages (cf. Ross 2021a). A useful illustration is provided by Barth & Anderson (2015) from Matukar Panau, which has directional SVCs, as in (13), that have given rise to incipient directional suffixes, as in (14).

(13) Matukar Panau (Barth 2018–2021: Manus Sago 1 video narration)
*A-la* *a-**pid**-ago.*
2PL-go 2PL-**descend**-REAL.IPFV
"You went down (inside the kitchen)."

(14) Matukar Panau (Barth & Anderson 2015:218)
*Nga-dab-**pid**-e* *book* *nga-ngale-nge.*
1SG-reach-**DOWN**-REAL.DEP book 1SG-get-REAL.PFV
"I reached down and took the book."

In summary, we find limited evidence for the grammaticalization of motion SVCs in general, though conclusions about types other than prior motion are less certain. A remaining puzzle, however, is why motion verbs in second position, as in directional or subsequent motion SVCs, would also be unlikely to morphologize given the suffixing bias, suggesting that perhaps *morphologization* of SVCs is in general rarer than commonly assumed; of course the restricted verb in SVCs may otherwise *grammaticalize*, such as (particularly in the case of transitive verbs) into a preposition (e.g. Lord 1973; Givón 1975; Li & Thompson 1974; Sebba 1987; Osam 1994).

## 5. Possible sources of prior motion suffixes

If, as we have shown, prior motion SVCs are not the predominant diachronic source for prior motion suffixes, what are other more likely sources? First, in Section 5.1 we briefly explain why directional markers are not likely to be a predominant source, despite that possibility being raised in Section 4.2. In Section 5.2 we propose that multiverb constructions with dependent, non-finite marking on the non-motion verb are a more likely source. Section 5.3 examines how motion verbs become affixes, and Section 5.4 addresses implications for the diachrony of SVCs and other multiverb constructions.

### 5.1 Directional suffix to prior motion suffix is not a predominant path

In Section 4.2, we encountered an idiosyncratic case of post-verbal prior motion morphemes deriving from directional markers. In fact, it is not uncommon to find morphology that expresses both associated motion and directionality (Belkadi 2016, 2021; Dryer 2021; Ross 2021a), in contrast to SVCs where strong word order biases make this overlap exceedingly rare. In this section, we consider the possible development of prior motion suffixes from directional suffixes. One reason to approach this hypothesis cautiously is that despite prior being the most common temporal relation for associated motion cross-linguistically, concurrent and subsequent are in fact relatively more likely to overlap with directional

functions. Dryer (2021:154–155) reports that in a sample of 56 languages with multifunctional associated motion and directional markers, 29 can express prior motion, while 38 can express concurrent motion and 12 can express subsequent motion (including some overlap between those categories). A substantial number of prior markers are found to be multifunctional, but this is readily explained by the fact that there are simply more prior markers cross-linguistically in general, of which some are multifunctional. But the relatively high number of multifunctional concurrent and subsequent markers is likely due to a natural semantic extension from direction to motion (or vice versa) depending on verb semantics (Belkadi 2016). As shown in (15), ventive directional affixes can have a subsequent motion interpretation in some contexts, as if extending the action of the lexical verb to the deictic center.

(15) Pero, Chadic (Frajzyngier 1989:94)
*cúg-ínà* *tù* *púccù*
fall-COMPL.VEN LOC there
"He fell there and subsequently came here."

Nevertheless, there are rare cases of directional suffixes developing into prior motion suffixes. For example, the Kanakuru ventive directional suffix, as in (16a), appears to have extended to (itive or neutral) prior motion with non-motion verbs as in (16b). We can be confident about the original directional function based on comparison with other Chadic languages, where the prior motion function is an unusual innovation (Lovestrand 2021b).

(16) Kanakuru, Chadic (Newman 1974:7, 73)
a. *a* *gət-təru*
PFV carry-VEN
"He carried it (here)."

b. *a* *ɗop-təru*
PFV tie-VEN
"He went and tied it."

The result of this innovation is a shared form between the directional marker and the prior motion marker. Assuming this path of grammaticalization were typical, we would expect to find a relatively high rate of directional suffixes sharing their form with a prior motion suffix. However, only 13 languages from Ross (2021a) appear to have multifunctional suffixes of this type, out of 44 languages with prior motion suffixes.[29] In other words, in less than one third of the cases of prior motion suffixes do we find shared forms with directionals.

Furthermore, shared forms alone are not necessarily indicative of the path of grammaticalization from directionals to prior motion. It is also possible that directional meanings are derived from prior motion markers, or independent, parallel developments.[30]

[29] Among the 18 languages with prior motion prefixes shown above in Table 3, there are 9 where some or all of those also function as directionals. Thus, as with other potential explanations considered in this paper, this particular development would not explain the suffixing bias for prior motion.

[30] In principle, we might consider directional function more grammaticalized (more semantically bleached) than associated motion function, and therefore more likely to develop from prior motion affixes than vice versa, but it

Given only limited evidence for this apparently rare development, we conclude that directional morphemes are not a typical source of prior motion suffixes cross-linguistically.[31] Regardless, even to the extent that this might occur, as established in Section 4.4 above directionals themselves do not appear to be generally derived from SVCs, so this would not be an indirect diachronic connection from SVCs to prior motion affixes.

## 5.2 Dependent multiverb constructions as a more typical source

Prior motion affixes are often assumed to have a verbal etymology, especially from the lexical motion verbs 'come' and 'go'. At the same time, we have established that SVCs are not the predominant pathway for this development due to their iconic ordering, which would most directly produce prefixes rather than more common suffixes. Given these facts, we must consider development from other multiverb constructions not restricted to iconic ordering. We explore that hypothesis in this section, focusing on multiverb constructions where non-finite or dependent affixes on the non-motion verb clarify its semantic relationship to a finite motion verb regardless of word order.

Prior motion affixes are often but not always verbal in origin: other sources include demonstrative adverbs,[32] as well as directionals as discussed above in Section 5.1. In the current sample, we find that the majority of motion affixes appear to be verbal in origin, certainly more than would be explained by an occasional development from prior motion SVC to affix. Based on explicit comments about reconstruction in grammatical descriptions, transparently cognate lexical motion verbs and other available information, the distribution of lexical sources for prior motion affixes in the sample languages is estimated in Table 7. As shown in the first column, most of the languages have lexical motion verbs as the most likely etymological source for at least one affix; the etymological source for some languages is obscure, although possibly historical motion verbs, while other sources such as demonstratives are most likely for other languages. Recall from Section 3.3 that prefixes in only five languages are likely to have originated from SVCs, so alternative explanations must be found for the majority of those affixes with a verbal origin.

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is not clear at this time whether this is supported empirically, and given their frequent independent development, as well as correlations with word order, we do not assume any particular path of grammaticalization.

[31] A remaining possibility would be an indirect effect of alignment between directional and associated motion affixes, possibly by analogy due to semantic similarity or as an effect of whole-language typology as discussed above in Section 4.1. The position of these affix types appears to be correlated: associated motion and directional suffixes are found in 36 languages, and prefixes for both in another 11, while only 4 have associated motion suffixes but directional prefixes (and none have associated motion prefixes but directional suffixes). More generally, and in connection with the discussion of order shift in Section 4.2, it is possible that distinct semantic types of SVCs might converge morphosyntactically by analogy during grammaticalization, such that, for example, motion verbs in initial position in prior motion SVCs could shift to match the final position of motion verbs in directional SVCs, as a sort of templatic effect on the way toward morphologizing. We are unable to assess that diachronic possibility from the current perspective of synchronic distribution, although Kießling (2011:48–51) documented limited exceptions to iconic order in Isu (Grassfields Bantu) SVCs as individual verbs grammaticalized in specific functions associated with specific syntactic distributions.

[32] A natural extension of *altrilocality* (action elsewhere: *there*) is prior motion to facilitate that distal event, or similarly proximal action at the deictic center via prior motion *here*. As observed by Guérois, Gibson & Persohn (2021:593–596), the opposite development also appears to occur, from prior motion to location.

| | Probably motion verb | Etymology obscure | Probably other source |
|---|---|---|---|
| Prefixes[33] | 12 | 1 | 5 |
| Suffixes | 24 | 16 | 3 |

**Table 7:** Most likely origins for prior motion affixes in 61 sample languages

Few studies have attempted to systematically reconstruct syntactic sources for prior motion affixes, but one pathway that has been established is development from dependent multiverb constructions, especially in Australian languages. Associated motion was first described as a grammatical category in the analysis of the suffixing verbal morphology of Kaytetye, a Pama-Nyungan language of Australia (Koch 1984), as shown in example (1) above. Koch (2021:313) reviews the diachronic studies of associated motion suffixes in Pama-Nyungan languages and concludes: "The most recurrent source construction of AM markers is a non-finite subordinate verb followed by a verb of motion" (see also Koch 2015, 2019; Tunbridge 1988; Austin 1989; Wilkins 1991). For illustration, some potential precursor constructions are shown in (17) and (18). A similar origin was suggested for associated motion paradigms in the Tacanan family of South America by Guillaume (2013a:30–33).

(17) Wardaman, isolate (Merlan 1994:280)
*linyje-yema* *ya-wurr-ya* *wuja-wu*
cut-PURP 3.3NSG-go-PRS wood-DAT
"They're going to cut wood."

(18) Djabugay, Pama-Nyungan (Patz 1991:285)
*gudji* *nyina-y-garra-ny* *bulmba-:*
he.SBJ sit-LNK-come-PST camp-LOC
"He came to sit in the camp."

The Wardaman construction in (17) is a pre-grammaticalized stage, with a purposive complement followed by a finite motion verb. In contrast, the Djabugay construction in (18) represents an almost fully grammaticalized case, with only the phonological remnant of a dependent linking suffix in what is now a compounded form with two verb roots, on the way to creating a prior motion suffix. A path of grammaticalization along these lines is proposed in Table 8.

| | Morphosyntax | Form | Key characteristics |
|---|---|---|---|
| Stage 0 | subordination | V-SUB, go-INFL | clause boundary, initial subordinate verb |
| Stage 1 | multiverb construction | V-DEP go-INFL | specialized function, non-iconic word order |
| Stage 2 | compounding | V-DEP-GO-INFL | loss of verbal qualities, structural reanalysis |
| Stage 3 | affix | V-GO-INFL | loss of dependency marker |

**Table 8:** Prior motion morphologization via dependent, non-iconic multiverb construction

These constructions begin at stage 0 as two clauses, where the first ends with a non-finite subordinate verb. A lexical motion verb in the second clause then takes on a specialized function expressing either purposive or prior motion in connection with that dependent-marked verb;[34] the Wardaman construction in (17) above may be transitioning to stage 1.

[33] Tetelcingo Nahuatl, the only language in the sample with both prefixes and suffixes, is included here under prefixes because at least one is considered to have a verbal origin; it is unclear whether the suffixes do as well.
[34] For additional background, especially regarding converbs in multiverb constructions, see Ross (2021b).

Stage 2 involves univerbation, where the two verbs combine into one, and in doing so the structural relationships between the morphemes are reanalyzed. This is represented by Djabugay in (18), where the dependency-marker remains as a linking morpheme, which would ultimately be lost at stage 3.

It should be emphasized that the finite inflectional suffixes at stage 3 are actually the original inflection from the *motion* verb, which both have now been reanalyzed as suffixes of the initial, lexical verb in place of its original non-finite dependency-marker. Semantically, studies of associated motion morphology have considered the motion to be subordinate (e.g. Koch 1984:26) and backgrounded (e.g. Wilkins 1991) to the action of the lexical verb, which corresponds to this morphosyntactic reanalysis. See also Harris & Campbell (1995:191–193) on the reanalysis of auxiliaries during grammaticalization in general.

The Bantu languages, already mentioned in Section 3.3, exhibit the mirror image of stages 1 and 3 in Table 8, with initial motion auxiliary verbs becoming prefixes.[35] This can be illustrated by Nyakyusa, where these two forms for prior motion are both found synchronically (Persohn 2020, 2018, p.c.; Guérois, Gibson & Persohn 2021:576). The widespread Bantu prefix *ka-* marks prior itive motion (or distal location), as in (19), but today is restricted to combining with subjunctives. More generally, an auxiliary construction, as in (20), can be used with the verb *(j)a*, which is etymologically 'go' (as shown by cognates in related languages), but no longer functions as an independent lexical verb of motion; it should be emphasized that even though this construction involves an infinitive, so that a purposive translation as 'go (in order) to V' is tempting, this auxiliary has grammaticalized to express prior associated motion (i.e. 'go and V'). Although the newer construction has not yet morphologized, these two expressions of prior motion conveniently illustrate the diachronic stages of development across Bantu, where loss of infinitival *ku-* and univerbation would produce a new prior motion prefix.

(19) Prior motion prefix: Nyakyusa (Persohn 2020:282)
*(ʊ)-ka-sy-e* *ɪ-fi-lombe!*
(2SG)-GO-grind-SBJV AUG-8-maize
"Go grind maize!"

(20) Prior motion auxiliary: Nyakyusa (Persohn 2018:118)
*ʊ-j-ile* *kʊ-bomba?*
2SG-go-PFV INF-work
"Did you go (and) work?"

As with the Australian developments discussed above, it is from the motion auxiliary verb that the finite inflection, in this case the subject agreement prefix, originates in the univerbation process. Conversely, the final vowel, which is normally *-a* but changes in some inflectional contexts, comes from the lexical verb. Gowlett (2003:635) points out that synchronic residue of this is still apparent in some Bantu languages: in Zulu, the final vowel shifts to *-i* in the simple negative form in (21a), but with the prior motion prefix in (21b), the final vowel of the lexical verb appears to "remember" it should not change for negation of the erstwhile auxiliary.

[35] The Bantu languages are in general exceptions to the cross-linguistic suffixing bias, with heavily prefixing morphology, providing the context for the grammaticalization of prior motion prefixes.

(21) Zulu (Gowlett 2003:635)

a. *à-gà-síz̧-**ì***
NEG-3SG.NEG-help-**FV.NEG**
"He is not helping."

b. *à-gá-**z̧õ**-síz̧-**à***
NEG-3SG.NEG-**COME**-help-**FV**
"He is not coming to help."

These examples have shown a transition from a motion verb with a non-finite verbal complement, to a single word derived from the motion verb and another verb without non-finite morphology, producing prefixes or suffixes following general typological inclinations in the particular language. This suggests that diachronic instability and morphologization are closely associated with one of the verbs having a dependent form, regardless of word order. This effect and the resulting development of affixes from motion verbs are discussed in the next section.

### 5.3 The path to univerbation

We posit that the catalyst for univerbation in dependent multiverb constructions is an overtly-marked dependent verb, due to another type of iconicity: "tightness" and efficiency of form. Givón (1991:86) considers the tightly-bound form of SVCs as a kind of iconicity corresponding to the expression of a single event: "The temporal-physical distance between chunks of linguistically-coded information correlates directly to the conceptual distance between them." Semantically, associated motion unifies a motion subevent with another predicate. As a formally "tight" construction, SVCs are an iconically appropriate means of expressing this conceptual unity (see also Aikhenvald 2006:50–51; Kießling 2011:9–10). On the other hand, when a construction with an overtly-marked dependent verbal form comes to express associated motion, there is a conflict between the conceptual tightness of the semantics and the form which is interrupted by a linking morpheme. This incongruence can be resolved by removing the linking morpheme. In the case of SVCs, prosodic pauses are eliminated, as Givón pointed out, but beyond that there is no disruptive element to eliminate: adjacent verbs are already in a compact configuration, such that they do not need to be further reduced in order to efficiently express their function. At this point, the difference between the two construction types is that SVCs have stable forms, while the reduced dependent multiverb constructions are unstable and prone to collapse; the reasons for this are explored in this section before turning to implications for the diachronic typology of SVCs in Section 5.4.

We address several related questions about the diachrony of multiverb constructions and prior motion. First, let us return to DeLancey's (1991) study of Lhasa Tibetan mentioned above in Section 2. Consider the directional construction in (22), where the linking suffix has become optional. Similar to examples in Section 5.2, the starting point is a dependent multiverb construction, and the eventual result would be morphologization of the motion verb.

(22) Lhasa Tibetan (DeLancey 1991:8)
*kho bros(-**byas**) phyin-pa red*
he flee(-**DEP**) went-PRF.DISJ
"He fled (in some direction other than hither)."

DeLancey (1991:7–8) identified three major stages of development: (i) loss of the dependency-marking suffix in clause-chaining, as in (22), followed by (ii) morphologization of the grammaticalized verb, and ultimately (iii) replacement of the original finite inflection with new suffixes. The first two changes correspond to those proposed above in Table 8, but in a different order, where at least in some Australian languages the linking morpheme is lost after compounding. But DeLancey's proposal, represented in Table 9 below, fits well for many extensively suffixing, readily agglutinating languages with object-verb word order.

| | Morphosyntax | Form | Key characteristics |
|---|---|---|---|
| Stage 0 | subordination | V-SUB, go-INFL | clause boundary, initial subordinate verb |
| Stage 1 | multiverb construction | V-DEP go-INFL | specialized function, non-iconic word order |
| Stage 2 | "serialization" | V go-INFL | loss of dependency marker |
| Stage 3 | morphologization | V-GO-INFL | loss of verbal qualities, structural reanalysis |

**Table 9:** Morphologization via "serialization" (following DeLancey 1991)

We have already explained that the linking morpheme is lost due to iconicity and efficiency of form, but the open question is why the stage DeLancey calls "serialization" is unstable in these languages, compared to typical SVCs. The remainder of this section and Section 5.4 below will offer a typological explanation for this tendency and related effects in the morphologization of prior motion.

It is important to understand these changes in the context of the typology and diachrony of multiverb constructions. Example (22) above expresses a directional function rather than prior motion, and it was not selected by accident: Lhasa Tibetan has not grammaticalized prior motion from clause-chaining, which is functionally similar to coordination and would be most likely to produce iconic ordering for motion events, similar to what we have already seen for SVCs. In fact, this is a gap in our proposal so far and in some published accounts when clause-chaining is assumed to be a source for prior motion suffixes (e.g. Watters 2002:107–108, 325 for Kham).[36] Instead, clause-chaining with motion verbs in final position would be more likely to produce directional functions, as in (22) above, or *subsequent* motion, as in (23), which shows the gradual reduction of the linking element in varieties of Ecuadorian Quechua, corresponding to the event integration of this grammatical function as predicted by our analysis.

(23) Ecuadorian Quechua (Muysken 2011:147)

a. *k'atu-shpa* *shamu-ni*
b. *k'atu-sha* *shamu-ni*
c. *k'atu-sh* *shamu-ni*
d. *k'atu-Ø* *shamu-ni*
sell-SS come-1SG
"I come having sold."

[36] In fact, prior motion *prefixes* in Koasati and other Muskogean languages appear to have developed from exactly this kind of construction but with iconic ordering and the motion verb in first position (Booker 1980:236–243). The prior motion prefixes stand out as typologically unusual within the heavily suffixing Muskogean languages, and the rarity of this development is likely due to the general suffixing bias. Specifically within heavily suffixing, head-final, object-verb languages like Tibetan, it is the second verb that tends to be grammaticalized: for example, in (4) above, from sequential clause-chaining of 'went and finished', it was 'finish' in second position that morphologized as an aspectual suffix, rather than 'go' in first position as a prior motion prefix.

For prior motion, we must assume another source construction, such as the Wardaman purposive in (17) above, or some kind of nominalized verb in general. English has such a construction for prior motion with the gerund as in *go shopping*, although with an added sense of durativity or iteration.[37] Some varieties of Ecuadorian Quechua have developed suffixes from 'go' via nominalized constructions with a range of functions from purposive or prior motion to prospective aspect, comparable to English *going to* (Muysken 2011:143–145), as in (24).

(24) Ecuadorian Quechua (Muysken 2011:147)

a. *puñu-**k*** ***ri**-ni*
sleep-**NMZ.AG** **go**-1SG
"I am going to sleep."

b. *puñu-**gri**-ni*
sleep-**GO**-1SG
"I am going to sleep."

Lhasa Tibetan does have similar constructions with a motion verb following a nominalized complement (DeLancey 2017:400), and a construction of that type could be a source for the ventive prior motion use of 'come' in imperatives (Denwood 1999:167–168).

Beyond the relatively well-established examples already discussed above in Section 5.2, there are few other diachronic studies of associated motion morphology from which to draw support for this proposal, but we expect that additional examples will continue to be identified as research continues. One clear reconstruction was identified by Jacques & Alonso de la Fuente (2018) for Manchu, where the ventive prior motion suffix *-nji* appears to have developed from an imperfective converb ending in *-me* serving as purposive complement to the motion verb *ji-* 'come', as in (25). Interestingly, that was an innovation in Manchu, while the corresponding itive prior motion suffix *-na*/*ne* was already present in Proto-Tungusic, where the etymology is less clear but could be parallel, thus serving as a model for the later development of the ventive.

(25) Manchu (Jacques & Alonso de la Fuente 2018:505)

a. *ala-nji-mbi*
tell-VEN-PRS
"come and tell"

b. *ala-me* *ji-mbi*
tell-IPFV.CVB come-PRS
"come to tell"

Steever (1993:202–209) reconstructs a similar origin for the itive prior motion suffix *-ka* found in several northeastern South-Central Dravidian languages, a feature not attested elsewhere in the family. This suffix likely originated in a multiverb construction with final

[37] This "expeditionary" construction is distinct from the similar concurrent motion "non-expeditionary" construction *come singing* (cf. Matsumoto 2015:137–165), with participle in adverbial function similar to usage (usually with the reverse order: 'singing come') found in many languages with clause-chaining. This adverbial modification is also the source for directionals, as in (22) above.

'go': an allomorph *-isaka* in Kui appears to retain a fused form of a purposive suffix of the initial verb.

To summarize our account so far, the order of verbs in multiverb constructions, and ultimately position as prefix or suffix for morphologized verbs, can be traced back to the syntactic source. For coordination and functionally-similar clause-chaining, event sequences are reported iconically. Other subordinate construction types such as complementation with nominalization may be found in non-iconic order, as they do not develop directly from sequences of events, so they may produce non-iconic prior motion *suffixes*.

For the 24 languages with prior motion suffixes derived from motion verbs (Table 7), we find the general pathway described in this section to be a likely source for half or more of the languages, including at least Alyawarra, Arrernte and Yidiny (Australia, cf. Section 5.2) and Cahuilla, Chemehuevi, O'odham, Southern Paiute and Yaqui (Uto-Aztecan), as well as Araona and Barasano (South America) and Kham and Shigatse Tibetan (Asia).[38]

## 5.4 The rise and fall of prior motion SVCs?

Returning to the typology of SVCs, consider two morphosyntactic subtypes (Ross 2021b, 2022): Agreeing SVCs with repeated inflection already shown in (2) above, and Sharing SVCs where only one verb is inflected but both verbs are interpreted in the same way, as in (26).[39]

(26) Nuaulu (Bolton 1990:159)
*Au* *u-eu* *keta* *sanue* *isa.*
1SG 1SG-go shoot bird a
"I'm going to go and shoot a bird."

Agreeing SVCs typically derive from (asyndetic) coordination of two finite verbs, or some other kind of construction with independent inflection such as a finite complement. Sharing SVCs could develop as a variant of Agreeing SVCs with reduced inflection, and in some languages there is variation between these types. But another important source is non-finite, dependent multiverb constructions. In fact, this is exactly what DeLancey proposed for Tibetan in the "serialization" stage. There is a relevant typological correlation with word order (Ross 2021b): in SVO languages, like Nuaulu in (26), the inflection in Sharing SVCs is typically on the first verb. In SOV languages, Sharing SVCs typically have the inflection on the second verb, as in Tibetan in (22) above. What distinguishes Agreeing SVCs from these Sharing SVCs derived from dependent multiverb constructions is that the fully-inflected, finite verbs in Agreeing SVCs have always had independent forms, whereas DeLancey's unstable "serialization" arises from the loss of verbal inflection, producing a potentially

[38] The cross-linguistic suffixing preference appears to not apply in some languages. The Bantu languages with prior motion prefixes also follow this development if we consider their strong prefixing preference. Another particularly unusual example is Japhug (Jacques 2013), where SVCs grammaticalized as prefixes despite SOV word order; like the Bantu languages, however, Japhug has a strong prefixing preference.

[39] As for Isolating SVCs (with little or no inflection), they are a widespread feature of languages with limited morphology in general but for that reason could be unlikely to morphologize, which is one factor to consider in explaining the rarity of prior motion affixes developing from SVCs in general.

impoverished or incomplete verb form that may not be suitable to stand alone.[40] In the most extreme case, this would be a verb root that violates phonotactic constraints: Romance roots such as Spanish *habl-* or Italian *parl-* 'speak', for example, must be inflected to form a phonological word.[41] In these cases, cliticization would be immediate, with the deficient verb leaning on an adjacent word, and morphologization would tend to proceed rapidly, without a distinct synchronic stage of SVCs.

Even where the immediate result does not violate phonological norms in the language, for example as in (22) above, bare verb roots may still rarely occur alone, and over time it is likely that these morphemes would be reanalyzed; see also Aikhenvald (2006:50–51) on the correlation of iconically tight forms with more grammaticalized functions. We do not assume that multiverb constructions expressing prior motion, even if not optimally iconic in this way, are necessarily less representative of the grammatical category, but that this may be a factor in reshaping those constructions already prone to reanalysis. We have also seen cases, such as Quechua and Manchu in (24) and (25) above, where a morphologized affix blends the form of the dependent inflection with that of the motion verb. This may even apply to the Australian languages, such as Djabugay in (18) above, where the linking morpheme has been compounded and reanalyzed as part of the motion marking. This could occur through frequent collocation of these morphemes, along the lines of Zwicky's (1982) analysis of "stranded" *to* (as in *I want to*, and similar usage), which would also lead to phonological reduction and further reanalysis. In short, DeLancey's unstable type of SVCs derived from dependent multiverb constructions tend to form compounds and ultimately affixes. In fact, it is often difficult to determine whether constructions of this type should be classified as SVCs, VVCs or affixes.

In addition to the general cross-linguistic suffixing bias, there are also typological correlations with word order for the distribution of SVCs and compounds. SVCs are found in most SVO languages but rarer in SOV languages where other constructions are more typical, especially dependent multiverb constructions (Ross 2021b). A closer look at single-word, SVC-like verb-verb compounds (VVCs), however, reveals a different typological profile: in the data from Ross (2021b), VVCs are attested in 35 SOV languages (32%) but only 14 SVO languages (14%). Thus, to make up for their relative lack of SVCs, SOV languages are more than twice as likely to have VVCs, along with comparable dependent multiverb constructions.

[40] It is possible that in some contexts of coincidentally favorable inflection, the loss of dependency-marking could produce typical SVCs that would be diachronically stable; Emerillon may be such a language (Rose 2009).
[41] Korean appears to have found an alternative solution to this problem, with a default suffix that is hardly more than an epenthetic vowel, with no semantic function, to maintain pronounceable verb forms (Chung 1993:14–19). Another alternative would be phonological reduction or alteration of the root to produce an irregular, minimal form in specific functions such as imperative (cf. Floricic & Molinu 2003), which at the same time might be susceptible to univerbation once disassociated from the finite verb paradigm; compare also the similar variation and reduction attested in morphologization of a prior motion prefix even from the phonologically simple root *va-* 'go' in some Sicilian dialects via pseudocoordination (two finite forms joined by a linking element, which was then lost along with reduction of the initial motion verb), including *va-*, *vo-*, *uo-* and *o-* (Di Caro 2019:31). This is an exceptional example of pseudocoordination as a source for an associated motion prefix, which will not be discussed further in this article because this development is otherwise unknown at this time, due especially to the limited documentation of pseudocoordination outside Europe (cf. Ross 2021b). Regardless, motion verbs in pseudocoordination appear in initial, iconic position, like in SVCs, so they would not be a source for suffixes.

From the preliminary sample of motion VVCs identified in Lovestrand & Ross (2021:121–123), we find prior motion and other related categories to be less often expressed via VVCs than in SVCs; instead, VVCs are more often of the symmetric type, such that they would be more likely to become lexicalized compounds rather than taking on grammatical functions as productive affixes (cf. Aikhenvald 2006:30). In the sample, there are 17 languages with prior motion VVCs and 23 with directional VVCs.[42] This lower frequency reinforces our conclusion that most SVCs do not become affixes via compounding, and given the alternative sources for VVCs and their distinct typological distributions discussed below, SVCs may not often become VVCs at all.

As expected, directional (as well as subsequent and concurrent motion) VVCs almost exclusively have the motion verb in final position. However, *prior* motion VVCs often have non-iconic order, also with the motion verb in final position: in 7 languages the motion verb is first following iconic order, but in 9 the motion verb is final, while Lakhota appears to permit both orders in distinct construction types (de Reuse 2006). All 10 languages with a motion verb in second position for prior motion have SOV or generally verb-final word order,[43] and most of these languages appear to fit into DeLancey's proposed diachronic trajectory.[44] In general, we find a number of languages in the sample that appear to be going through each of the stages in Table 9 above, from dependent multiverb constructions via serialization to compounding and finally morphologization.

This transition from compounding to morphologization is exemplified by Rama (Craig 1991:484–485), a Chibchan language of Nicaragua with SOV word order. The verb *bang* 'go' has already grammaticalized with bleached semantics as a suffix for a range of functions including aspect and subordination, as well as marking imperatives, as in (27a) where a sense of prior motion may still be conveyed. Several other motion verbs can be used today in VVCs, representing different degrees of grammaticalization: *traal* 'walk', as in (27b), is relatively unrestricted and can also be used as an independent verb, while *alkung* 'go' is now shifting from lexical verb to affix as it may be restricted to usage only in this construction, as in (27c).

(27) Rama (Craig 1991:484–485)
a. *nsu-kami-bang*
1PL-sleep-GO
"Let's (go) sleep."

[42] There are 6 languages with concurrent motion VVCs, as well as 3 with subsequent motion VVCs and an additional 8 with the restricted "caused accompanied motion" subtype (cf. Lovestrand & Ross 2021:104–106).
[43] Aside from the 8 languages with SOV basic order, in Chukchi and Qiang word order is pragmatically determined but usually verb-final (Dunn 1999:345; LaPolla & Huang 2003:20).
[44] An alternative grammaticalization pathway, directly to verb compound, is via polysynthetic *incorporation* where a verb root is incorporated as the complement to a motion verb similarly to a nominal object; this is attested in Chukchi as the origin for a purposive motion suffix from the verb 'set off' (Dunn 1999:231–233, 238, 267–268), and a similar development may explain the suffixes in Greenlandic and the Iroquoian languages in the sample. As with the diachronic shift of inflection for dependent multiverb constructions becoming affixes, the *incorporated* verb root would become the main, lexical root of the verb when the motion verb is reanalyzed as its suffix.

b. *naas ngulkang alais-traal-i*
1SG wild.pig hunt-walk-PRS
"I go hunt the wild pig."

c. *nsul u y-alpaak-alkung-u*
1PL COM 3-meet-go-PST
"They went to meet together with us."

This consistent flow from lexical verb to affix is reminiscent of DeLancey's description of Tibetan. Remarkably, this cycle now appears to even be feeding itself, as shown in (28), where *bang* 'go' has grammaticalized into a purposive subordinator that can be used with *taak* 'go', a lexical motion verb that has not yet entered into usage in the VVC construction.[45]

(28) Rama (Craig 1991:457)
*tiiskama ni-sung-bang taak-i*
baby 1-see-GO/PURP go-PRS
"I am going (in order) to see/look at the baby."

At this point, it appears that we can conclude there are actually (at least) two distinct diachronic typologies, which are not necessarily intuitive from a synchronic perspective. On the one hand, we have typical SVCs with iconic order, which are relatively stable diachronically, and very rarely may compound and eventually morphologize as prior motion prefixes (as in Akan and Japhug, as well as several languages in our sample). On the other hand, we have DeLancey's diachronic type, typical especially of SOV languages with a strong preference for agglutination and suffixing, where dependent multiverb constructions lose linking morphology then pass through a brief and unstable serialization stage, followed by relatively rapid compounding and morphologization. In other words, the reason that DeLancey's unstable "serialization" behaves more like VVCs than other SVCs is because it is in fact part of the same diachronic phenomenon as VVCs. Their diachronic instability results in synchronic rarity, so they make up only a small part of our cross-linguistic sample of SVCs, with VVCs or dependent multiverb constructions found synchronically in other languages following the same developmental pathway. Conversely, this is an additional reason to distinguish between multi-word SVCs and one-word SVCs typologically, and likewise raises doubts about broad usage of the term "serialization".

As a final illustration of our proposal, consider the range of multiverb constructions found in Paraguayan Guarani, as established by Velázquez-Castillo (2004) and corresponding closely to the two diachronic types we have described. On the one hand, there are dependent multiverb constructions, for either purposive motion (29a) or concurrent motion (29b), varying by position of the motion verb, which follows iconic ordering. On the other hand, there are SVCs that express prior motion (30), with no dependency-marking suffix on either verb.[46] There are also some grammaticalized VVCs (31), although not with motion roots.

[45] As an independent verb, *bang* is used today only as a suppletive imperative form of *taak* (Craig 1991:475–477).

[46] Paraguayan Guarani does not fit the typical typological profile we have described for languages with dependent multiverb constructions, due to divergence from earlier stages, as Proto-Tupían is thought to have been SOV and head-final, with dependency-marking in adverbial subordination (Rodrigues & Cabral 2012:542, 553–556). Proto-Tupían is also thought to have had multiverb constructions similar to those found in modern

(29) Paraguayan Guarani (Velázquez-Castillo 2004:187)
a. *o-ho-*(*ta*) *o-karú-vo*
3-go-(FUT) 3-eat-CVB
"S/he goes to eat."

b. *o-karu-*(*ta*) *o-hó-vo*
3-eat-(FUT) 3-go-CVB
"S/he eats as s/he goes."

(30) Paraguayan Guarani (adapted from Velázquez-Castillo 2004:188)
*o-ho-*(*ta*) *o-karu*
3-go-(FUT) 3-eat
"S/he goes and eats."

(31) Paraguayan Guarani (Velázquez-Castillo 2004:188, 206)
*o-guapy-jeko-*(*ta*)
3-sit-lean-(FUT)
"S/he will sit leaning back."

In all cases, both verbs feature subject agreement prefixes.[47] Consistent with a general suffixing bias, the final roots in grammaticalized VVCs can produce new suffixes, while initial motion verbs in SVCs do not morphologize although they can take on extended grammatical functions beyond literal motion. Therefore, the SVCs appear to be relatively stable and not connected diachronically to the other types, having grammaticalized from asyndetic coordination. Given that the subject agreement prefix is omitted from dependent verbs in certain circumstances, a diachronic relationship between dependent multiverb constructions and VVCs seems plausible.

To summarize, reanalysis and erosion motivated by iconicity and efficiency results in the loss of dependency-marking suffixes, producing verb forms that may be morphophonologically or morphosyntactically anomalous and therefore prone to univerbation. From this point, as Harris & Campbell (1995:193–194) observed, auxiliation proceeds along the well-established general pathways of grammaticalization,[48] susceptible to agglutination at the syntax-

languages in the family (Rodrigues & Cabral 2012:527; compare also Rose 2009), while the distinct SVCs are likely an innovation.

[47] Future *-ta*, the only overt tense suffix in the language, which is shown but not translated in these examples, would appear in each case only on the first verb (and after the second root for the compound).

[48] Associated motion *auxiliaries* are rarely documented cross-linguistically, although that may be partly due to a lack of general familiarity with this grammatical category among linguists. We have already seen a prior motion auxiliary from Nyakyusa in (20) above, and auxiliaries of this type are attested in some other languages such as Trumai (Guirardello-Damian 2012), but in general appear to be rare synchronically, possibly because they may not be diachronically stable and readily morphologize. Alternatively, it may be the case that grammaticalized expressions of prior motion more often develop from purposive constructions, as is the case for the majority of the dependent multiverb constructions we identified as potential sources in this section, such that the function of prior motion (in a strict sense) would develop during morphologization; this is similar to *purpose* clauses grammaticalizing into *result* clauses in some languages as observed by Schmidtke-Bode (2009:178). On the other hand, for SVCs that develop from coordination, prior motion would be a natural extension of event sequence. These are relevant topics for future typological research. A looser classification could include many motion SVCs as auxiliaries, but see Essegbey (2004) for an argument that auxiliaries should have a distinctive form even in serializing languages.

phonology interface. Typical SVCs, on the other hand, are diachronically stable because the verbs developed from and maintain independent forms, so no reduction is likely to occur.

## 6. Conclusion

Prior associated motion is a grammatical category frequently expressed in both SVCs and verbal morphology, but despite their similar typology and semantic features, and despite the fact that prior motion morphology appears to be frequently derived from verb forms, it is not the case that a direct diachronic link between prior motion SVCs and prior motion morphology can be assumed as a typical grammaticalization pathway. This has been demonstrated primarily because of the incongruent position of motion verbs and affixes. In a prior motion SVC, the verb expressing prior motion nearly always precedes the other verb; in verbal morphology, there is a bias towards expressing prior morphology as a suffix, and even in cases of prior motion prefixes it is often possible to identify diachronic sources other than SVCs.

Instead, we infer that prior motion SVCs are a type of relatively stable multiverb construction, as has been argued for other types of multiverb constructions (Bowern 2008; Butt & Lahiri 2013). This observation can be partially explained by a general suffixing bias, in other words against prefixation. The verb order of prior motion SVCs is consistently aligned with the principle of temporal iconicity which places the motion verb before the other verb, in a position that is less likely to morphologize.

Prior motion morphology is more likely to be derived from dependent multiverb constructions. This is, in part, because a non-iconic expression of prior motion (the motion verb following the other verb) is more likely to arise in a context where a marker of dependency clarifies the semantic relationship between the verbs. Furthermore, as shown by Bantu languages, which have exceptionally prominent prefixation, dependent multiverb constructions in iconic order may also grammaticalize. This suggests that dependent marking can be a catalyst for change in multiverb constructions. In turn, reanalysis and reduction of linking morphology may produce morphophonologically unstable verb forms, which rapidly compound and morphologize.

In order to further explore these patterns, the distributional studies of associated motion would need to be expanded to other types of constructions, in particular to systematically include particles and multiverb constructions other than SVCs. The ideas proposed here should likewise be tested for SVCs in other semantic domains. Further studies reconstructing the development of associated motion morphology paradigms in individual languages and families are also welcome, especially for the few exceptional cases where prior motion SVCs have developed into prior motion affixes. Additionally, language contact and diffusion has been proposed as an important factor in the development of associated motion (see especially Guillaume 2016), and the relationship between source constructions, word order, and morphologization should be considered in that context as well. In fact, the distribution of associated motion prefixes vs. suffixes in the sample (see Figure 9 in Ross 2021a:50) suggests areality and possibly contact effects (or at least regional variability in effects of the cross-linguistic suffixing bias). At the same time, contact effects might reinforce continued usage and thereby diachronic pertenacity of motion SVCs as a regional feature.

Serial verb constructions are frequently appealed to as source construction for any morpheme grammaticalized from a verb. The current study demonstrates that just because grammaticalized morphemes are known to derive from a verbal source does not necessarily mean that they developed via an intermediate stage of SVCs as opposed to another type of multiverb construction.

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