

Peter Arkadiev, University of Potsdam, Germany, alpgurev@gmail.com

Complex predicates as source constructions for non-canonical affixation

Abstract: I investigate the fate of affixes occurring on the components of verbal complex predicates (VCPs) when the latter undergo univerbation and give rise to new morphological structures. I use as a starting point a calculus of logically possible combinations of values of such parameters as inflectability of each component, their mutual order, and the prefixal resp. suffixal orientation of the relevant markers. After reviewing the more straightforward cases, I focus on those types of VCP that give rise to multiple exponence and ambifixation. While univerbation of VCPs has been recently recognised as one of the cross-linguistically recurrent sources of multiple exponence, the phenomenon of ambifixation (occurrence of the same affix as both prefix and suffix) and its diachronic origins have hardly been studied. On the basis of a number of examples from diverse languages, I show how univerbation of VCPs of different kinds and in morphological systems of different types leads to the emergence of patterns of ambifixation with morphological and lexical types of conditioning. I also address the question why, even though univerbation of VCPs is a typologically recurrent pathway towards both multiple exponence and ambifixation, both phenomena are relatively infrequent as opposed to simple suffixation and prefixation.

Keywords: verbal complex predicates, diachronic morphology, multiple exponence, ambifixation, univerbation

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1 Introduction

This article considers verbal complex predicates (VCPs) from a somewhat special perspective. Rather than investigating the properties of VCPs themselves, it focuses on the morphology that occurs in their components (which, in accordance with Bisang et al. forthcoming, will be called **lexical verb**, or **L-verb**, and **grammatical verb**, or **G-verb**), or, more precisely, on the changes undergone by this morphology when VCPs grammaticalise or lexicalise. In particular, I show that VCPs constitute an important and cross-linguistically recurrent source for such non-canonical patterns of affixation as **multiple exponence** (Harris 2017) and **ambifixation**.

While usually the components of a VCP start out as independent morphosyntactic and phonological words, in the process of grammaticalisation (or lexicalisation) they may undergo **univerbation** (Lehmann 2020), i.e. become a single word (phonological, morphosyntactic, or both), see e.g. Andersen (1987), Bowerman (2008), Haspelmath (2011). Univerbation of complex predicates is one of the recognised and cross-linguistically recurrent pathways of development of affixes from lexical material, see e.g. Bybee et al. (1994), Anderson (2006: Ch. 6), Givón (2015), Popova (forthcoming). This process can be illustrated by the fate of the verb ‘put’ in Lhasa Tibetan (tibe1272¹), which occurs as a lexical verb, e.g. in a clause-chaining construction in (1a), serves as a G-verb (auxiliary) in a VCP expressing perfect aspect in (1b), and finally develops into an inferential suffix in (1c) (see DeLancey 1991 for a discussion).

(1) Lhasa Tibetan (Sino-Tibetan > Bodic, China; DeLancey 2004: 1592)

- a. *kho phyin-byas bzhag-pa_red*
 he go-NFIN put-PFV
 ‘He went and put it there.’
- b. *kho phyin bzhag-pa_red*
 he go put-PFV
 ‘He has gone.’
- c. *kho phyin-zhag*
 he go-INFR.PFV
 ‘He has left (I infer).’

Examples like (1) can be found in the history of many languages, including European ones and abound in the literature on grammaticalisation. What has attracted comparatively less attention of linguists is the fate of affixal material occurring on the constituents of the VCP when they grammaticalise and univerbate. One of the reasons for this neglect has been the fact that most of the discussion of the morphology occurring on the components of VCPs undergoing

¹ Hereafter I provide glottocodes (<https://glottolog.org/>) with language names on first mention, except for a few well-known European languages.

grammaticalisation has been revolving around the notion of **decategorialisation** presupposing that the grammaticalising element (i.e. the G-verb) loses all or most of its own inflectional potential and internal morphological structure, see e.g. Hopper (1991), Narrog & Heine (2021: 72–78). The results of such decategorialisation are evident in the Central Tibetan example (1) above, where the auxiliary ‘put’ has lost its ability to inflect once it became an affix itself.

It is clear, however, that by no means all instances of univerbation of VCPs involve such simple loss of morphology on the former G-verb as shown in example (1c). Indeed, in many cases the position and/or form of the morphological material arisen through univerbation of VCPs often goes back to the inflection of the original G-verb. This is unsurprising given the typologically recurrent pattern where it is the G-verb that is inflected in the VCP, the L-verb being invariable (e.g. a non-finite form). Thus, in Nubian languages, such as Kunuz (kenu1236), the verb ‘give’ has developed into a benefactive applicative suffix (Abdel-Hafiz 1988: 112–114; Jakobi forthcoming §3.3.4). Crucially, this verb shows suppletion depending on the first vs. non-first person of the recipient (Abdel-Hafiz 1988: 231–232), as shown in (2a) vs. (2b). This morphological quirk is inherited by the benefactive affix, as shown in (3).

Kunuz (Nubian; Egypt, Sudan; Abdel-Hafiz 1988: 231, 114)

- (2) a. *buru ay-gi kita:p-ki de:s-s-u*
 girl 1SG-OBJ book-OBJ **give.1**-PST-3SG
 ‘The girl gave me the book.’
- b. *ay it-ti ka:-g tir-s-i*
 1SG man-OBJ house-OBJ **give.2/3**-PST-1SG
 ‘I gave the man the house.’
- (3) a. *id ay-gi ba:p-ki alle-de:s-s-u*
 man 1SG-OBJ door-OBJ repair-**BEN.1**-PST-3SG
 ‘The man repaired the door for me.’
- b. *it-ti ba:p-ki kop-tir-s-i*
 man-OBJ door-OBJ close-**BEN.2/3**-PST-1SG
 ‘I closed the door for the man.’

In this paper, I present a preliminary investigation of the fate of affixes occurring on the components of VCPs undergoing univerbation. As mentioned above, I am particularly interested in cases which result in patterns of affixation departing from the “canonical ideal” (Corbett 2005; Stump 2022: Ch. 1) of suffixes or prefixes, i.e. in patterns involving either more than one occurrence of an affix (**multiple exponence**) or affixes whose orientation with respect to the stem differs depending on the construction (**ambifixes**). While multiple exponence has been studied from this perspective by Harris (2017), who has identified univerbation of VCPs as one of its common sources, neither ambifixation as such nor its diachronic relation to multiple exponence

(the two phenomena are related insofar as multiple exponence can sometimes involve ambifixation, see examples in section 3) has been subject to any systematic research.

The remainder of the paper is structured as follows. In section 2 I first outline the parameters of VCPs and their morphological makeup that I consider and then present an overview of the proposed typology. In section 3, I briefly discuss how univerbation of VCPs gives rise to multiple exponence, and in section 4, I focus in greater detail on ambifixation arising from univerbation of VCPs and related constructions. Section 5 offers a broader diachronic-typological discussion.

2 Parameters of the morphological typology of VCPs

I consider the following parameters describing the morphological make-up of VCPs undergoing grammaticalisation:

- Which of the components of the complex predicate bear inflectional affixes: L-verb, G-verb, both.
- Orientation of these affixes (m) with respect to the stems of each of the relevant components: m-L, L-m; m-G, G-m (here I disregard more complex options, such as circumfixation, i.e. m-L-m / m-G-m).
- Order of L-verb and G-verb: L G, G L.

These three parameters yield a fairly broad set of logical possibilities as schematised in Table 1.

Table 1: Logically possible affixation patterns in VCPs

inflected verb	orientation	L before G	G before L
inflection on L	prefixes	m-L G	G m-L
	suffixes	L-m G	G L-m
inflection on G	prefixes	L m-G	m-G L
	suffixes	L G-m	G-m L
inflection both on L and G	prefixes on both	m-L m-G	m-G m-L
	suffixes on both	L-m G-m	G-m L-m
	pref-G, L-suff	L-m m-G	m-G L-m
	G-suff, pref-L	m-L G-m	G-m m-L

Checking whether all of the possibilities listed in Table 1 are in fact attested in the languages of the world would be a task for a separate investigation. Instead, below I give examples of straightforward cases in which univerbation of VCPs yields canonical affixes, i.e. suffixes,

prefixes or their combinations. These examples will serve as a background against which the less familiar phenomena will be discussed in the subsequent sections.

The most familiar situation is the one schematically described as L G-m, i.e. involving an invariable (e.g. bare stem or non-finite) L-verb followed by a G-verb inflected by means of suffixes. If the L-verb itself, when used independently, also inflects by suffixes, then the result of the univerbation of such a VCP simply conforms to the general pattern. This can be shown by the example of Ukrainian, where the original inceptive VCP consisting of an infinitive of the L-verb followed by the inflected G-verb ‘take’ yielded a new future suffix (Danylenko 2011), see (4). Since the G-verb inflected for the person-number of the subject by means of suffixes, the new future form also follows this pattern and thus does not depart from the overall system.

- (4) Ukrainian (Indo-European > Slavic, Ukraine; Danylenko 2011: 148)

* <i>pysa-ty</i>	<i>im-u</i>	>	<i>pysa-<u>ty</u>m-u</i>
write-INF	<u>take</u> -PRS.1SG		write-FUT-1SG
‘I start writing’			‘I shall write’

The mirror-image of the former case is constituted by VCPs where the G-verb is inflected by prefixes and precedes the L-verb, which, in turn, is either uninflected or occurs in a non-finite form (schematically m-G L). Such cases are well-documented, for example, in the Bantu languages (see e.g. Nurse 2008: 291–293). Thus, in Bemba (bemb1257), the negative prefix has arisen via grammaticalisation of the VCP involving the verb ‘refuse’ (Givón 2015: 120); since Bantu verbs are mostly inflected by prefixes and the G-verb preceded the L-verb, the univerbation resulted in a simple extension of the prefixal chain without any disruptions to the general inflectional patterns of the language, see (5).

- (5) Bemba (Atlantic-Congo > Bantu, Zambia; Givón 2015: 120)

a. *a-a-lí-kaana* *uku-boomba*
 3SG-REM-PST-refuse INF-work
 ‘S/he refused to work (long ago).’

b. *a-a-lí-kaanaa-boomba*
 3SG-REM-PST-NEG-work
 ‘She did not work (long ago).’

Somewhat more complicated cases can be found in languages rich in both suffixes and prefixes, such as West Circassian (adyg1241, see e.g. Korotkova & Lander 2010; Arkadiev & Letuchiy 2011). In a number of VCPs in this language (on which see Arkadiev forthcoming), while the order of the components is strictly L–G, both components can inflect, albeit for different features and by different means: the L-verb takes prefixes indicating person-number of participants, valency and deictic orientation, while the G-verb takes suffixes expressing tense-aspect-mood, polarity and clause type, as shown in (6b). Given that this division of labour between the prefixes on the L-verb and the suffixes on the G-verb fully conforms to the general distribution

- Let me now turn to still more intricate cases, where either both L-verb and G-verb in a VCP inflect for the same features by means of identical or similar (sets of) affixes, or the orientation of the affixes on the inflected verb is not harmonic with the order of the VCP's components (e.g. when a postposed G-verb inflects by means of prefixes).

So far we have seen VCPs whose components show clear asymmetries in their inflection. This is, however, not always the case, since the L-verb and the G-verb in a VCP can also share all or some inflectional morphology. Such behaviour is particularly characteristic of serial verb constructions (see e.g. Hopperdietzel & Klinger 2025; Peck 2025), but is also found in other types of VCPs as well, see e.g. Anderson (2006: Ch. 4) for a survey. Consider example (7) from Parji (duru1236), where both the lexical verb and the auxiliary bear tense and subject person-number suffixes, the latter being crucially identical in their feature content³.

³ Note that, according to Steever (1988: 89), such constructions are classified as involving serialisation; for my purposes, this terminological question is not crucial.

- (7) Parji (Dravidian, India; Burrow & Bhattacharya 1953: 58 quoted after Steever 1988: 89)

- a. *un-d-ed* *mẽ-d-ad*
 sit-PST-**3SG.M** be-NPST-**3SG.M**
 ‘He is sitting / has sat.’
- b. *ām* *pan-d-om* *mẽ-d-am*
 1PL.NOM tire-PST-**1PL** be-NPST-**1PL**
 ‘We are tired.’

If such VCPs univerbate, it is not infrequently the case that the inflection of both components is retained in the new complex morphological word, giving rise to the phenomenon of multiple exponence, more precisely, of what Harris (2017: 55) calls **periodic** multiple exponence, “when a bound morpheme must be accompanied by an exponent of feature F, while the stem must also be accompanied by an exponent of F”. This development can be illustrated by the present perfect in Pengo (peng1244), another Dravidian language, in which the cognate of the auxiliary verb construction shown in (7) has undergone univerbation (Steever 1984, 1988: 78–83).

- (8) Pengo (Dravidian, India; Steever 1984: 624, 628; glosses added)

- **hur-t-aŋ* *man-n-aŋ* > *hur-t-aŋ-n-aŋ*
 see-PST-**1SG** be-NPST-**1SG** see-PST-**1SG-PRF-1SG**
 ‘I have seen.’

The case of Pengo illustrates the type L-m G-m, where both components of the original VCP are inflected by suffixes and the auxiliary follows the lexical verb. The mirror-image of this, i.e. the situation where both components of the VCP are inflected by prefixes and the G-verb precedes the L-verb (type m-G m-L), is also attested. Consider example (9) from Alur (alur1250), where the preposed progressive auxiliary with the subject prefix has univerbated with the lexical verb also bearing the same prefix.

- (9) Alur (Nilotic, Uganda; Ringe 1953: 28-29; glosses added)

- **à-bèdò* *à-marò* > *à-bèd-à-marò*
1SG-be.PST **1SG-love.PST** **1SG-PROG.PST-1SG-love.PST**
 ‘I was loving.’

The examples from Pengo and Alur illustrate the situation when the orientation of the affixes is harmonic with the mutual order of the components of the VCP. Disharmonic orders, however, are also attested, in particular, the one schematised as m-L m-G, i.e. when both verbs bear prefixes but the G-verb follows the L-verb. This is found, for instance, in a number of Nakh-Daghestanian languages, which show recurrent patterns of VCPs at different stages of grammaticalisation and morphologisation. Consider first non-univerbated VCPs in Khwarshi (khva1239), where Habitual, Past Progressive, Pluperfect and General Resultative forms consist of a non-finite form of the lexical verb followed by a finite form of the auxiliary ‘be’ (Khalilova 2009:

189–192); both verbs take a gender-number prefix agreeing with the absolutive argument (note, however, that not all Khwarshi verbs take such prefixes, Khalilova 2009: 181), see (10).

- (10) Khwarshi (Nakh-Daghestanian > Tsezic, Russia; Khalilova 2009: 189)

de *maxsara-ba* *l-i-še* *l-eč-i*
 1SG.ERG joke-PL.ABS NHPL-do-IPFV.CVB NHPL-be-PST.WIT
 ‘I was making jokes.’

When such VCPs with disharmonic order univerbate, periodic multiple exponence can arise, as documented e.g. by Harris (2009; 2017: 118–122, 124–130) for Nakh-Daghestanian and a number of other language families. This is illustrated in (11) for Bezhta (bezh1248), a close relative of Khwarshi, where serial verb constructions have developed into verbal compounds and some of them underwent grammaticalisation (Khalilova 2022), e.g. the G-verb ‘die’ became a marker of completive aspect; crucially, both the L-verb and the G-verb retain their original gender-number prefixes.

- (11) Bezhta (Nakh-Daghestanian > Tsezic, Russia; Khalilova 2022: 93)

kid *biło-ka* *j-ohda-j-uko-jo*
 girl house-APUD F-work-F-die-PST
 ‘The girl finished working at home.’

Let us scrutinise the status of the gender-number markers in such constructions. If the verbal form in (11) is considered a compound containing two roots, one (‘work’) more lexical and another (‘die’) more grammatical, then both instances of the feminine (singular) marker *j-* can be considered prefixes, each preceding its governing root. However, the verb ‘die’ in (11) can also be treated as a fully grammaticalised marker of completive aspect, i.e. as a suffix, as shown in (12a), as opposed to the simplex verb that does not necessarily express a completed event (12b). In this case, the second occurrence of the feminine marker should also be considered a suffix to the root ‘work’.

- (12) Bezhta (Nakh-Daghestanian > Tsezic, Russia; Khalilova 2022: 93)

- a. *kid* *biło-ka* *j-ohda-j-uko-jo*
 girl house-APUD F-work-F-CMPL-PST
 ‘The girl finished working at home.’
- b. *kid* *biło-ka* *j-ohda-jo*
 girl house-APUD F-work-PST
 ‘The girl worked at home.’

Note that if the lexical verb does not take agreement prefixes (e.g. because of a consonant-initial stem), its completive form shows only the suffixal position of the gender-number marker, see (13).

(13) Bezhta (Khalilova 2022: 93)

- a. *kibbal* *χabar* *tuq-ijo*
 girl.LAT news hear-PST
 ‘The girl heard the news.’
- b. *kibbal* *χabar* *tuq-b-uqo-jo*
 girl.LAT news hear-N-CMPL-PST
 ‘The girl has already heard the news (which she was not supposed to hear).’

Under such an analysis, the gender-number markers in Bezhta (as well as many other Nakh-Daghestanian languages showing similar structures), in addition to being in the relation of multiple exponence, are also **ambifixes**, i.e. affixes that occur both before and after the stem⁴ (see e.g. Newmark 1955: 168–170; Malkiel 1978: 145; Mugdan 2015: 268). In this case the default position of the gender-number marker in the verbal form is prefixal, but the presence of certain (derivational) suffixes going back to former G-verbs of serial verb constructions triggers their occurrence as suffixes as well.

Thus we have seen that the univibration of VCPs in which the order of the L-verb and the G-verb is not harmonic with the orientation of grammatical markers they bear, what can be called “affixalisation in counterposition” (cf. Stump 2022: 26 et passim), yields both multiple exponence and ambifixation. However, “canonical” ambifixation is rather understood as such situation when affixes occur **either** as prefixes **or** as suffixes, i.e. without multiple exponence. Importantly, such cases also arise through univibration of VCPs. This will be the subject of the next section.

4 Ambifixation arising from VCPs

In order for genuine ambifixation, not a mere side-effect of multiple exponence, to arise through univibration of VCPs, the following two conditions (in addition to the disharmonic, or counterposed ordering discussed above) must be satisfied:

- the components of the VCP must show morphological asymmetry, i.e. only one of them can be inflected for the relevant feature(s);
- the VCP as a whole must show morphological asymmetry as opposed to simplex verbs, which must be able to inflect for the relevant feature(s) when occurring outside of the VCP.

⁴ While on the surface the form in (11) resp. (12a) can be considered containing a circumfix, i.e. a combination of a prefix and a suffix (both happening to be identical in form), the two occurrences of the gender marker are separate affixes with independent distribution, as shown by (12b) and (13b). See also Harris (2017: 19–20).

These conditions can be satisfied either through a paradigmatic opposition between different forms of the same lexical verb showing distinct inflectional patterns when used independently (e.g. as finite predicate) vs. within VCPs (e.g. in a non-finite form), or by means of divergent morphological specifications of lexical verbs occurring independently vs. those occurring within relevant VCPs. I shall discuss these two subtypes in the following subsections.

4.1 Paradigmatic oppositions in ambifixation patterns

In some languages, the relevant inflectional markers can in principle occur on all verbs, but are restricted to finite or independent verbs and hence do not occur on L-verbs in VCPs. Univerbation in such cases results in a new paradigmatic opposition between forms going back to simplex verbs furnished with affixes of one orientation and forms derived from former VCPs attaching affixes of opposite orientation. An example of this kind is found in Eastern Fula (nige1253, discussed e.g. in Stump 2022: 66–76, based on the description in Arnott 1970: 216–222), where the past tense (or, rather, retrospective shift, Plungian & van der Auwera 2006: 344) marker *-no(o)* attaches to most verbal forms as a suffix, see (14a,b), but occurs as a prefix in the forms with the stative/progressive prefix *don-*, see (14c,d).

(14) Eastern Fula (Atlantic-Congo > Atlantic, Nigeria; Arnott 1970: 216; glosses added)

a.	<i>'o-war-ii</i> 3SG-come-PST 's/he came'	<i>'o-war-ii-no</i> 3SG-come-PST- RS 's/he had come'	general past
b.	<i>'o-war-ay</i> 3SG-come-FUT 's/he will come'	<i>'o-war-ay-no</i> 3SG-come-FUT- RS 's/he was about to come'	future
c.	<i>'o-<u>don</u>-war-a</i> 3SG- <u>ASP</u> -come-PROG 's/he is coming'	<i>'o-<u>don</u>-no-war-a</i> 3SG- <u>ASP</u> - RS -come-PROG 's/he was coming'	progressive
d.	<i>'o-<u>don</u>-jood-ii</i> 3SG- <u>ASP</u> -be_seated-STAT 's/he is seated'	<i>'o-<u>don</u>-no-jood-ii</i> 3SG- <u>ASP</u> - RS -be_seated-STAT 's/he was seated'	stative-middle

The marker *don-*, which Arnott (1970) and McIntosh (1984: 77–81) treat as a prefix, goes back to a locative copula and ultimately to a demonstrative (Kramer 2024: 127); it is perhaps not a coincidence that in Kramer (2024: 126–129) examples taken from these sources are resegmented in such a way that *don-* is spelled as an independent word. Thus the partial paradigm shown in (14) clearly results from the older simplex finite forms with tense-aspect and retrospective shift suffixes being complemented by newer forms going back to VCPs consisting of a preposed copula inflected for subject agreement and retrospective shift and a non-finite verbal form.

A somewhat different example is provided by verbal negation marking in Tabasaran (taba1259, Magometov 1965: 290–310; Babaliyeva 2023: 33–34). Abstracting away from many complicated morpho(phono)logical details and considerable dialectal variation described in Magometov (1965), the basic pattern for non-prohibitive forms is as follows: non-finite forms, such as infinitive, participles and converbs mark negation by the prefix *dar-* whose vowel can undergo assimilation to the root vowel, see examples (15a,b); by contrast, in finite forms negation is expressed by the same marker *-dar*, now suffixed after the tense-aspect suffix and before the personal suffix, see examples (15c,d).

- (15) Tabasaran (Nakh-Daghestanian > Lezgif, Russia, Azerbaijan; Magometov 1965: 292, 305, 308, 310; segmentation and glosses added based on Babaliyeva 2023)

a. <i>awx-uz</i> sleep-INF 'to sleep'	<i>dar-awx-uz</i> NEG-sleep-INF 'not to sleep'	infinitive
b. <i>ip'-urdi</i> do-IPFV.CVB 'while doing'	<i>dir-ip'-urdi</i> NEG-do-IPFV.CVB 'while not doing'	imperfective converb
c. <i>ap'-nu-za</i> do-PFV.PST-1SG 'I did'	<i>ap'-un-dar-za</i> do-PFV.PST-NEG-1SG 'I did not do'	aorist
d. <i>ap'-idi-za</i> do-FUT-1SG 'I will do'	<i>ap'-i-dar-za</i> do-FUT-NEG-1SG 'I will not do'	future

While not immediately visible in the forms just given, this distribution of the negation marker is clearly related to the fact that most synchronically synthetic finite verbal forms in Tabasaran go back to combinations of non-finite forms with the postposed auxiliary or copula (Magometov 1965: 246–263). This phenomenon is common to all Lezgif languages (Alekseev 1985: 95; Arkadiev & Maisak 2018: 134–137; Daniel & Maisak forthcoming: §4). Importantly, the marker *dar* itself serves as the negative form of the copula, as shown in (16a), which is employed to form the negative counterparts of the finite forms. Thus, the negative aorist in (15c) goes back to the combination of the perfective converb in *-nu ~ -un* with the negative copula, and the negative future in (15d) derives from the combination of the truncated future form in *-idi* with the same negative copula. Perhaps the most revealing forms are those of the imperfective sub-paradigm based on the imperfective converb, such as the Imperfect shown in (16b–c), where the VCP origins of both positive and negative forms are fairly obvious.

(16) Tabasaran (Magometov 1965: 229, 252, 307)

- a. *uzu dar-za*
 1SG NEG.COP-1SG
 ‘I am not’
- b. *ip’-urdej-za* < **ip’-urdi* *’aj-za*
 do-IPFV.PST-1SG do-IPFV.CVB COP.PST-1SG
 ‘I was doing’
- c. *ip’-ur-dar-ij-za* < **ip’-urdi* *dar-ij-za*
 do-IPFV-NEG-PST-1SG do-IPFV.CVB NEG.COP-PST-1SG
 ‘I was not doing.’

The development observed in Tabasaran is a mirror-image of the one in Fula not only because of the differences in the order of affixes and components of VCPs (L-m ~ G-m-L in Fula vs. m-L ~ L-m-G in Tabasaran), but also and primarily because the innovative pattern arisen through univerbation of VCPs in Tabasaran is not a relatively minor one, confined to a few cells in the tense-aspect paradigm, as the Past Progressive and Past Stative/Middle in Fula, but the dominant way of expressing negation in finite declarative clauses. Finally, the Tabasaran case also shows that the inflectional pattern occurring outside of and constituting the paradigmatic opposition to (former) VCPs can be represented by non-finite forms, rather than finite ones.

4.2 Lexical oppositions in ambifixation patterns

A different type of ambifixation pattern arises when the formal asymmetry underlying the distinction between simplex verbs and univerbated VCPs is of an essentially lexical nature. We have already seen something similar in Bezhta in section 3, where only vowel-initial verbal stems take gender-number prefixes. In Bezhta VCPs, however, both the L-verb and the G-verb can belong to either of the agreeing (prefixed) or non-agreeing (non-prefixed) class, thus yielding a complete range of possibilities, from no gender-number marking at all to multiple exponence (see Khalilova 2022 for examples). Now what if some of these options, most importantly, the double-marking one, are, for some reason, marginal or unavailable? Such a situation is attested in a number of languages of New Guinea that have a closed class of so-called “object verbs”, i.e. transitive verbs that inflect for the person (and sometimes number) of their animate object (patient or recipient), see e.g. Foley (1986: 139–142; 2000: 377–378), Suter (2012), Windschuttel (2018), Pawley & Hammarström (2018: 107–108), Fedden (forthcoming: §5.2). Crucially, some of these “object verbs” productively serve as second members of univerbated VCPs whose function is to allow an unprefixed verb to index an animate object.

Thus, in Western Dani (west2594, Nuclear Trans New Guinea > Dani, Indonesia; Barclay 2008: 333–385) there is a handful of verbs that inflect for the person and number of their object by means of prefixes, such as ‘hit/kill’, ‘think/consider’, and ‘see’ (see Windschuttel 2018: 39–42

for an overview of the phenomenon across the Dani languages). Table 2 shows two of them in the Intermediate Past tense with a third person singular subject suffix. As can be seen, while with ‘think’ the object prefixes (apart from third person singular, which is null and may involve a different stem-form) are clearly segmentable (*n*- 1st person, *k*- 2nd person, *-in*- plural), the verb ‘see’ shows fusion and irregularity. In addition, one synchronically simplex verb, ‘place/put’, apparently inflects for the object by means of suffixes rather than prefixes (Barclay 2008: 337–338), cf. *panegerak* ‘he placed it for me’.

Table 2. Western Dani object-prefixing verbs (Barclay 2008: 334, 336, 339)

	‘think’+3SG.SBJ	‘see’+3SG.SBJ
1SG	<i>n-ombakerak</i>	<i>neegerak</i>
2SG	<i>k-ombakerak</i>	<i>kegerak</i>
3SG	<i>ombakerak</i>	<i>kagarak</i>
1PL	<i>n-in-ombakerak</i>	<i>niigerak</i>
2PL	<i>k-in-ombakerak</i>	<i>kiigerak</i>
3PL	<i>in-ombakerak</i>	<i>iigerak</i>

All other transitive verbs in Western Dani, in order to index a human object, have to combine with one of the prefixing verbal stems, which in this case function as suffixes. Moreover, there are several verbal stems with object prefixes which no longer occur as lexical verbs but only as second components of such VCPs. Table 3 shows the third person singular subject Intermediate Past tense paradigms of the verbs ‘inspect’, combining with the object forms of ‘see’ (note the voicing *k*→*g* after the nasal final consonant of the L-verb), and ‘cut’ as well as ‘help’, which occur with object forms of a semantically bleached stem; note that with ‘help’, according to Barclay (2008: 369–370), the “light verb” is an independent word, in contrast to being a suffix with ‘cut’ (ibid.: 372).

Table 3. Western Dani complex object-suffixing verbs (Barclay 2008: 367, 372, 370)

	‘inspect’+3SG.SBJ	‘cut’+3SG.SBJ	‘help’+3SG.SBJ
1SG	<i>mbaan-nee-gerak</i>	<i>mban-n-egerak</i>	<i>yeenggwa n-egerak</i>
2SG	<i>mbaang-gee-gerak</i>	<i>mbang-g-egerak</i>	<i>yeenggwa k-egerak</i>
3SG	<i>mbaang-ga-garak</i>	<i>mban-egerak</i>	<i>yeenggwa egerak</i>
1PL	<i>mbaan-nii-gerak</i>	<i>mban-nira-garak</i>	<i>yeenggwa nira-garak</i>
2PL	<i>mbaang-gii-gerak</i>	<i>mbang-gira-garak</i>	<i>yeenggwa kira-garak</i>
3PL	<i>mbaan-ii-gerak</i>	<i>mban-ira-garak</i>	<i>yeenggwa ira-garak</i>

Finally, some object verbs can not only attach to the bare stem of the lexical verb as suffixes, but also combine with the lexical verb marked by the “connector” suffix *-ogo* (Barclay 2008: 529–533), see (17). Note that while in some cases there does not seem to be any meaning difference between these options (Barclay 2008: 380), in others the unverbated construction denotes a more integrated event than the non-unverbated one, cf. (17b,c).

(17) Western Dani (Nuclear Trans New Guinea > Dani, Indonesia; Barclay 2008: 532, 363)

- a. *tu paar-ogo ii-girak*
 door open-CONN 3PL.O\see-PST.INT.1SG
 ‘I opened the door for them.’
- b. *lap-pan-eegerak*
 cook-put/1SG.O-PST.REM.3SG
 ‘He cooked for me.’
- c. *lar-ogo pan-eegerak*
 cook-CONN put/1SG.O-PST.REM.3SG
 ‘He cooked and placed the food so that it could be distributed to me.’

Thus, object markers in Western Dani and other languages showing a similar phenomenon are ambifixes with a lexical distribution: prefixes with a closed class of simplex verbs, suffixes with a potentially open class of complex verbs. Importantly, even synchronically, VCPs in Western Dani are not uniform in their degree of grammaticalisation (cf. Windschuttel 2018: 22–24): some of the G-verbs also exist as independent lexemes while others only function as object-indexing members of complex verbs; some only combine with lexical verbs as second members of compounds or even as suffixes, while others may occur as independent words and even license overt marking on the L-verb.

An arguably more advanced stage of a similar diachronic development is found in Momu (fass1245, Honeyman 2016), a language of the Baibai-Fas family of northern New Guinea, which is unrelated to and located at a certain distance from the languages of the Trans New Guinean family with VCP-based object marking. In Momu, transitive verbs taking human objects fall into two classes that Honeyman (2016: 204–209) somewhat misleadingly calls “high-transitive”, which take transitive suffixes *-n* or *-r* indexing the person-number of the object, and “low-transitive”, which do not take transitive suffixes but index their object by means of prefixes instead. In addition, the suffixing verbs can also optionally take object prefixes thus exhibiting multiple exponence, cf. (18). The forms of object-indexing prefixes and suffixes are not identical (most notably, the prefixes do not index third person objects at all) but still are clearly related to each other. In Table 4 (based on Honeyman 2016: 206, 208) I give partial paradigms of suffixal and prefixal transitive verbs with third person singular subjects.

- (18) Momu (Baibai-Fas, Papua New Guinea; Honeyman 2016: 191)

(*ma-*)*pup-ma-n*

(1/2PL.O-)punch-1/2PL.O-TR

‘punch us/you (pl)’

Table 4. Suffixal and prefixal object-indexing in Momu (Baibai-Fas, Papua New Guinea)

	‘help’ (- <i>n</i> suffix)	‘afraid’ (- <i>r</i> suffix)	‘leave’
1SG	<i>eky-a-n</i>	<i>kafoky-a-r</i>	<i>a-feno</i>
2SG	<i>ek-wa-n</i>	<i>kafok-wa-r</i>	<i>wa-feno</i>
3SG	<i>eky-en</i>	<i>kafoky-er</i>	<i>feno</i>
1/2PL	<i>ek-ma-n</i>	<i>kafok-ma-r</i>	<i>ma-feno</i>
3PL	<i>ek-nin</i>	<i>kafok-ninta</i>	<i>feno</i>

As Honeyman (2016: 201–204) argues, the verbs with object-indexing suffixes historically derive from serial verb constructions with the postposed G-verb ‘show’ of the type exemplified in (19). This verb belongs to the prefixal class but exhibits morphological irregularities conspicuously reminiscent of the forms of transitive suffixes, as shown in Table 5 based on Honeyman (2016: 203).

- (19) Momu (Honeyman 2016: 202; segmentation and glossing adapted)

man *pana=ni-s*

bag get_one=3PL.O-show.3SG.S

‘She showed the bag to them.’

Table 5. Momu object-indexing suffixes and object indexation with ‘show’

	‘show’		transitive suffixes	
	SG	PL	SG	PL
1	<i>was</i>	<i>mas</i>	<i>an/r</i>	<i>man/r</i>
2	<i>was</i>	<i>mas</i>	<i>wan/r</i>	<i>man/r</i>
3	<i>as</i>	<i>nís</i>	<i>en/r</i>	<i>nín(ta)</i>

While Honeyman (2016: 203–204) himself admits that the proposed diachronic scenario does not fully explain the form of the transitive suffixes, the hypothesis that the latter arose from univerbation of VCPs with a postposed auxiliary inflected by means of prefixes appears to be warranted. It remains to be hoped that evidence from the related language Baibai, once it becomes available, will throw more light on the history of this system.

Lexically conditioned ambifixation patterns that developed from univerbation of VCPs are also attested outside of New Guinea. One of the well-known cases is the Cushitic branch of the Afroasiatic family spoken in East Africa, see e.g. Zaborski (1975) and Vanhove (2014, 2020); cf. also Banti (2004) for an alternative view. Thus, in Beja (beja1238), the northernmost and arguably the most archaic Cushitic language, verbs fall into two roughly coextensive classes. The so-called “strong verbs” form their TAM forms by vocalic alternations and index their subjects by means of prefixes; by contrast, the so-called “weak verbs” have invariable stems and use suffixes both for TAM inflection and, crucially, for subject indexing. The conjugation of Beja strong and weak verbs in the Imperfective Indicative are shown in Table 6 (based on Zaborski 1975: 16, 18; transcription unified on the basis of Vanhove 2014); the table also contains the Perfective Indicative forms of the strong verb ‘say’ (based on Vanhove 2020: 666), for reasons to be explained below.

Table 6. Prefixing and suffixing verbs in Beja (Cushitic, Sudan)

	‘burn’ IPFV.IND	‘visit’ IPFV.IND	‘say’ PFV.IND
1SG	<i>an-li:w</i>	<i>du:r-an-i</i>	<i>a-ni</i>
2SG.M	<i>tin-li:w-a</i>	<i>du:r-ten-ij-a</i>	<i>ti-ni-ja</i>
2SG.F	<i>tin-li:w-i</i>	<i>du:r-ten-i:</i>	<i>ti-ni:</i>
3SG.M	<i>in-li:w</i>	<i>du:r-i:n-i</i>	<i>i-ni:</i>
3SG.F	<i>tin-liw</i>	<i>du:r-ti:n-i</i>	<i>ti-ni</i>
1PL	<i>ne:-liw</i>	<i>du:r-ne:-j</i>	<i>ni-di</i>
2PL	<i>te:-liw-na</i>	<i>du:r-te:-na</i>	<i>ti-di:-na</i>
3PL	<i>e:-liw-na</i>	<i>du:r-e:-na</i>	<i>e:-n(a)</i>

As is evident from Table 6, the subject markers of strong and weak verbs closely resemble each other, differing, apart from phonological adjustments, only in their position with respect to the root. Moreover, the forms of the suffixes occurring in weak verbs betray similarity to the forms of the irregular strong verb ‘say’ and appear to go back to the univerbation of the latter with an invariable stem (see the discussion in Zaborski 1975: 18–21; cf. also Vanhove 2020: 665–667, 681). Constructions involving the verb ‘say’ as an independent auxiliary also occur synchronically (Vanhove, forthcoming: §7), cf. (20). According to Güldemann (2005), complex predicates with the G-verb ‘say’ constitute an areal feature of Northeast Africa, compare the data from Saharan languages discussed below.

- (20) Beja (Afroasiatic > Cushitic, Sudan; Vanhove, forthcoming, ex. (60))

e:n *i=taktʔi* **lawwa:w i-ni**
 PROX.PL.M.ACC DEF.M=scarecrow **prowl** **3SG.M-say/PFV**
 ‘He prowled swiftly around these scarecrows.’

Beja is the Cushitic language where the VCP-origin of suffixal verbs is most obvious synchronically and where, at the same time, the prefixal verb class is the most robust, accounting for about 50% of all verbs. Compare this to the situation in Somali (soma1255, Zaborski 1975: 45–63; Saeed 1999: 79–82), where the weak (suffixal) class constitutes an absolute majority of all verbs, while the residual class of strong (prefixal) verbs comprises only four verbs, i.e. ‘say’, ‘come’, ‘be (in a place)’ and ‘know’. Yet another verb, ‘be’, combines the features of both classes, taking subject prefixes in the Present tense and subject suffixes in the Past tense. There does not seem to be any synchronically transparent relation between the suffixes of weak verbs and inflected forms of any of the strong verbs, including ‘say’. Still, in Somali the formal identity between the prefixal and the suffixal subject indexes is quite obvious, see Table 7.

Table 7. Prefixing and suffixing verbs in Somali (Cushitic, Somalia; Saeed 1999: 80–81)

	‘know’ PST	‘wait’ PST
1SG	<i>iqiin</i>	<i>sug-ay</i>
2SG	<i>t-iqiin</i>	<i>sug-t-ay</i>
3SG.M	<i>y-iqiin</i>	<i>sug-ay</i>
3SG.F	<i>t-iqiin</i>	<i>sug-t-ay</i>
1PL	<i>n-iqiin</i>	<i>sug-n-ay</i>
2PL	<i>t-iqiin-een</i>	<i>sug-t-een</i>
3PL	<i>y-iqiin-enn</i>	<i>sug-een</i>

The morphologically transparent situation in Somali contrasts with that in the fairly closely related Dhaasanac (daas1238, Sasse 1974, 1976; Zaborski 1975: 69–78; Tosco 2001: 111–203), where the number of distinctions related to subject-indexing has been reduced to two semantically unmotivated (i.e. morphomic, Aronoff 1994) patterns called A (1SG, 3SG.M, 1PL.IN, 3PL) and B (2SG, 3SG.F, 1PL.EX, 2PL), and the forms expressing them became largely opaque. While in the four extant prefixing verbs the cognates of Somali *y-* and *t-* can still be discerned (Sasse 1974: 426–427; Tosco 2001: 199–202), the inflection of the majority of the verbs corresponding to the Somali suffixing class involves a variety of alternations affecting stem-final consonants (Sasse 1974: 425; Tosco 2001: 127–141), see some examples of Perfective forms in Table 8. Even though these alternations can be diachronically and morphophonologically related to the distribution of the former suffix *-t* (see e.g. Sasse 1976: 201, 213–214, 219–220), itself going back to the prefix on a postposed auxiliary, this pattern of subject marking is no longer amenable to a meaningful

ambifixal analysis, with a possible exception of the type illustrated by the verb ‘chase’. Dhaasanac thus illustrates how an originally transparent pattern of ambifixation can become obliterated by morphophonological change.

Table 8. Prefixing and “suffixing” verbs in Dhaasanac (based on Sasse 1974: 427–432)

	A-form	B-form
‘come’ (PFV)	<i>y-imi</i>	<i>c-imi</i>
‘kill’ (PFV)	<i>y-is</i>	<i>c-is</i>
‘cut’ (PFV)	<i>muri</i>	<i>mud<i>ɗ</i>i</i>
‘sew’ (PFV)	<i>ɖaai</i>	<i>ɖaayyi</i>
‘cough’ (PFV)	<i>?ufumi</i>	<i>?ufeenni</i>
‘chase’ (PFV)	<i>bisiyi</i>	<i>bisici</i>

A similar development has been proposed as an explanation for an ambifixation pattern observed in Cupeño (cupe1243), a Northern Uto-Aztecan language of Southern California (Jacobs 1975; Hill 2006: 106–110). Cupeño distinguishes between so-called athematic verbs that attach derivational and tense-aspect suffixes directly to the root and two classes of so-called thematic verbs whose roots are followed by the suffixes *-in* (*-men* in the plural) and *-yax*. While there is arguably some association between verb class and valency and agentivity, it is by no means straightforward, and many verbal roots occur in more than one class. In the past tense, both types of verbs take subject agreement markers, which are prefixed to the root in athematic verbs but occur between the root and the thematic suffixes in thematic verbs, cf. (21).

(21) Cupeño (Uto-Aztecan > Northern Uto-Aztecan, USA; Hill 2006: 109–110, transcription adapted)

- | | |
|---------------------|----------------------------------|
| a. <i>ne-túl</i> | <i>yut-ne-<u>n</u></i> |
| 1SG-finish | raise-1SG- <u>TH</u> |
| ‘I finished’ | ‘I raised’ |
| b. <i>čem-tewáʂ</i> | <i>haw-č<i>e</i>’-<u>men</u></i> |
| 1PL-lose | sing-1PL- <u>TH.PL</u> |
| ‘we lost’ | ‘we were singing’ |
| c. <i>pe-ya-qál</i> | <i>het-pe-<u>yax</u></i> |
| 3SG-say-PST.IPFV.SG | crouch-3SG- <u>TH</u> |
| ‘he was saying’ | ‘he crouched’ |

Jacobs (1975: 128–139) hypothesises that the thematic suffix *-yax* goes back to the copula *yax*, which exists as such both in Cupeño and in the related languages and goes back to Proto-Uto-Aztecan ‘sit’ (ibid.: 125). In the closely related language Cahuilla (cahu1264, Seiler 1977: 223–

227) the copula, fully inflected, including the subject indexing prefixes, occurs in a construction with the bare verbal stem expressing an attenuative meaning, cf. (22).

(22) Cahuilla (Uto-Aztecan > Northern Uto-Aztecan, USA; Jacobs 1975: 129)

taxmu **hem-yax-ʔi**
sing **3PL-COP-PST**
'They sang a little.'

A similar development is hypothesised by Jacobs (1975: 157–164) also for the transitive thematic suffix *-in*, which he relates to the verb **ixan* 'do' that arguably underwent the same type of change as the copula, i.e. univerbation with the nominalised lexical verb. It has to be mentioned, however, that Jacobs (1975: 139–148) also discusses an alternative hypothesis of the origin of *-in*, whereby it, rather than descending from univerbated VCPs with a transitive (causative) auxiliary, emerged through analogical extension of the common Uto-Aztecan causative suffix *-in*, which substituted the intransitive *-yax* in the forms already containing subject suffixes (see also Heath 1998: 735–738).

It has to be mentioned that similar patterns of ambifixation certainly also arise through the univerbation of complex predicates based on lexical classes other than verbs, i.e. constructions involving a non-verbal element and a light verb employed to convert this element into a predicate. A clear example comes from the Saharan language family (e.g. Hutchison 1981: 90–111; Cyffer 2000; Walters 2016: 64–70, 79–83), where the synchronically most productive class of verbs consists of a so-called preverb, an invariable element which may belong to virtually any word class, and a fully-inflected suffixed light verb 'say' (compare similar origin of the suffixal verb class in the Cushitic languages above). Given that simplex verbs in Saharan languages contain a number of prefixes expressing certain person and tense values, the coexistence of simplex and complex verbs yields a pattern of ambifixation, in many cases obliterated by quite extensive morphophonological readjustments, but in some cases still fairly transparent, as shown in examples (23) from Dazaga (daza1242) and (24) from Kanuri (cent2050) (for convenience, both surface and underlying forms are given).

(23) Dazaga (Saharan, Chad; Walters 2016: 76–77, 81–82)

a. <i>náâr</i>	<i>dîlénìnîr</i>
n-báb-r	dîlé-n-<u>n</u>-r
2SG.O-hit-1SG.S	imitate-2SG.O-<u>LV</u>-1SG.S
'I hit you'	'I imitated you'
b. <i>táàm</i>	<i>dîléđìnòm</i>
d-báb-m	dîlé-d-<u>n</u>-m
1SG.O-hit-2SG.S	imitate-1SG.O-<u>LV</u>-2SG.S
'you hit me'	'you imitated me'

(24) Kanuri (Saharan, Nigeria, Niger; Hutchison 1981: 97, 117–118)

a. <i>záwìn</i>	<i>sàì</i>	<i>fálézàì</i>
s-a-bù-ìn	s-a-n-ì	fálé-s-a-<u>n</u>-ì
3.S-PL-eat-IPFV	3.S-PL-say-IPFV	show-3.S-PL-LV-IPFV
‘they eat’	‘they say’	‘they show’
b. <i>jíwúkò</i>	<i>wùrjókò</i>	
tì-bù-k-ò	wùr-tì-n-k-ò	
FUT-eat-1SG.S-FV	push_down-FUT-LV-1SG.S-FV	
‘I shall eat’	‘I shall push down’	

With respect to Kanuri, Hutchison (1981: 97–111) states that while simplex (prefixing) verbs form a closed class of less than 150 members, the complex (suffixing) verbs constitute an open class, whose “members come from a great many sources historically, both from within and from outside of the Kanuri language” (ibid.: 101), these sources including nominals, adverbs, ideophones, and Arabic borrowings.

All cases discussed so far involve attested or more or less reliably reconstructed G-verbs of VCPs that underwent grammaticalisation and developed into clearly segmentable affixes with functions related to tense-aspect, valency and transitivity marking or verbalisation of non-predicate word classes. VCPs, however, are also subject to lexicalisation, and this can yield non-canonical patterns of affixation as well. When a combination of a lexical verb with a postposed G-verb bearing a prefix undergoes lexicalisation, the former G-verb becomes opaque and is reanalysed as an extension of the lexical stem rather than as an affix (schematically: L–m–G > L–m–l). Such a reanalysis is complete once the former simplex L itself either becomes obsolete or drifts semantically and/or formally apart from the innovated verb to such a degree that no lexical relation between them can be synchronically discerned. The former prefix of the etymological G-verb thus becomes “entrapped” (Ullat 1975: 180–184) between what are now two parts of a stem and is ultimately reanalysed as an **infix**. Entrapment of former prefixes or suffixes through lexicalisation of unverbated complex constructions is actually a cross-linguistically recurrent and well-known pathway to infixation, see Yu (2007: 148–157). While infixes as such have been subject to considerable research and are not of immediate interest for this paper, below I would like to briefly discuss a case where infixation is part of a broader pattern involving both ambifixation and multiple exponence as well.

In Marind (nucl1622), an Anim language of southern New Guinea, verbs fall into four inflectional classes determined by the encoding of the absolutive argument (Olsson 2021: 230–242). The four options are prefixation, infixation, suffixation and multiple exponence (infix + suffix or prefix + suffix), shown in Table 9 for first person and second person singular absolutive, based on Olsson (2021: 232, 236–238, 241, 242). The table also indicates the number of verbal lexemes found in each class.

Table 9. Absolutive indexing in Marind (Anim, Indonesia) verbs

Class	1.ABS	2SG.ABS	gloss
prefixing (26)	<i>n-agum</i>	<i>y-agum</i>	‘scold X’
infixing (> 150)	<i>husa<n>ab</i>	<i>husa<y>ab</i>	‘pour water on X’
	<i>kuta<n>ib</i>	<i>kuta<y>ib</i>	‘get lost’
	<i>aya<n>in</i>	<i>aya<y>in</i>	‘run around’
suffixing (4)	<i>hu-n</i>	<i>hu-y</i>	‘come out’
double-marking (6)	<i>ik<n>ebe-n</i>	<i>ik<y>ebe-y</i>	‘disappear’
	<i>n-ulu-n</i>	<i>y-ulu-y</i>	‘call X’s name’

A diachronic account of Marind absolutive marking has been proposed in Olsson & Usher (2016), see also Olsson (2021: 230–242) and is based on the observation that, even though the infixing verbs constitute the by far most numerous class, they can actually be grouped into a small number of subclasses sharing the same “final”, i.e. the string following the infix. These finals, some of which are shown in Table 9, are *-b*, *-h*, *-wn*, *-ib*, *-in*, *-ip* and *-tuk*. By contrast, the “initials”, i.e. the parts of the stem preceding the infix are much more variegated in their shapes. Olsson (2021: 233) states that the infixing verbs originate from an “earlier system in which a lexical element (the initial) was predicated by means of an inflected auxiliary-like verb (the final). Some of these collocations fossilised, with the prefix on the final ‘trapped’ inside as an infix, and survive today as the monolexemic verbs”. Importantly, neither initials nor finals have any independent existence in the synchronically observable system of the language, which supports their treatment as lexicalised complex stems. As for the suffixing verbs, Olsson & Usher (2016: 22) hypothesise that they have the same origin as the infixed verbs, with the former G-verb being subsequently lost, for instance due to its consisting of just a single vowel that was subject to word-final truncation. Finally, for the few verbs that, in addition to a prefix or an infix, also inflect for the absolutive by means of a suffix, Olsson & Usher (2016: 23), cf. also Olsson (2021: 241), propose an origin “as regular single-marking verbs, but a segment in the initial or final was reanalysed as an exponent of Undergoer indexing”.

5 Discussion and conclusions

As the survey in the preceding sections has hopefully shown, verbal complex predicates constitute an important type of environment where such non-canonical and still rarely discussed morphological phenomena as multiple exponence and ambifixation arise. On the one hand, VCPs whose both components inflect for the same feature(s) by means of the same or similar markers can univerbate while retaining inflection on both parts and thus yield patterns of

multiple exponence. On the other hand, ambifixation arises when an asymmetry in morphological expression of some feature(s) exists between VCPs and simplex verbs, either due to the paradigmatic distinctions between verbal forms occurring independently vs. as parts of VCPs (e.g. in terms of finiteness), or related to lexical specifications of different types of verbs, and when such an asymmetry is coupled with “counterposition” of the inflected member of the VCP (most frequently, a postposed G-verb with prefixes, although Fula shows an arguably rare case of a preposed G-verb with suffixes). If a postposed G-verb inflected by prefixes unverbates with an L-verb likewise inflected by prefixes, a pattern combining multiple exponence with ambifixation (prefixes plus suffixes) emerges, as attested in many Nakh-Daghestanian languages as well as elsewhere (see Harris 2017: 118–130). Finally, lexicalisation rather than grammaticalisation of VCPs may yield patterns involving infixes, which, as shown by the case of Marind, can coexist with prefixes and suffixes in the same morphological system.

Given that unverbation of VCPs is a ubiquitous process that occurred in diverse language families all over the world, it is unsurprising that both multiple exponence and ambifixation are found in many unrelated languages across the globe (Harris 2017; Brody 2019; Stump 2022; Arkadiev 2025). At the same time, it is undeniable that both of these phenomena are relatively rare as compared to simple suffixation and prefixation, both cross-linguistically and, arguably in most cases, within language-particular systems as well. How can the rarity of multiple exponence and ambifixation be explained from a diachronic-typological perspective? (See also Zingler 2023: 392–396.)

As has been suggested in the literature, see e.g. Harris (2008, 2010) and Cysouw & Wohlgemuth (2010), typologically rare structures are usually characterised by some or all of the following properties:

- they arise from less frequently occurring source constructions;
- their development involves several successive stages;
- they are diachronically unstable, i.e. tend to be replaced by some other structures.

Let us apply this logic to the phenomena discussed above. With respect to periodic multiple exponence we can observe that it can only emerge if both L-verb and G-verb in a VCP inflect for the same feature(s), which, although well-attested, is arguably less frequent than situations when one of the verbs, usually the L-verb, is uninflected. Moreover, for multiple exponence to emerge, this ability to inflect should be retained by the construction during all stages of its grammaticalisation, including unverbation, in spite of the already mentioned tendency towards decategorialisation. Finally, after unverbation has occurred, multiple exponence should be retained despite various processes of obliteration (such as morphophonological contraction and fusion) and analogical leveling, for instance the so-called “externalisation of inflection” (see Haspelmath 1993; Harris & Faarlund 2006; Stolz 2010; Harris 2017: 178–183). Given that the sources of periodic multiple exponence are infrequent in comparison to the sources of simple prefixes and suffixes and that both its emergence and retention are subject to various kinds of

pressures, the relative rarity of this phenomenon is in the end unsurprising, cf. the discussion in Harris (2017: 244–247).

The same logic can be applied to ambifixation, with a necessary caveat that univerbation of VCPs is certainly not the only source thereof, just like multiple exponence of different kinds can develop from a variety of sources. Limiting ourselves to patterns of ambifixation going back to VCPs, we have to recall that a necessary prerequisite for its emergence is the preexistence of constructions involving “counterposition”, i.e. postposed G-verbs with prefixes or preposed G-verbs with suffixes. Neither of these situations, in particular the second one, seems to be extremely frequent cross-linguistically. Moreover, as has already been discussed, further conditions have to be satisfied in order for ambifixation *sensu stricto* (i.e. not combined with multiple exponence) to develop: first, the original pattern of affixation (e.g. simplex verbs with prefixes) have to remain in the language simultaneously with the pattern originating from VCPs; second, at the same time, this original pattern should not be found on the L-verb of the VCP undergoing univerbation, otherwise the construction will end up developing multiple exponence. Both of these requirements render the potential range of source constructions for ambifixation still less frequent, and it is remarkable that they are in fact robustly attested across languages.

Moreover, patterns of ambifixation are subject to diachronic processes leading to their loss as well. For instance, it is not infrequently the case that prefixal and suffixal subpatterns are distributed unevenly, one of them being restricted to certain paradigmatic cells or a closed class of lexemes, another being productive and dominant. This is the case, for instance, in many languages of New Guinea discussed by Windschuttel (2018), as well as in the Cushitic and Saharan languages of Northeast Africa. If the recessive pattern vanishes altogether, ambifixation becomes suffixation (resp. prefixation) pure and simple. Thus, in the Mek branch of the Trans New Guinea family all verbs index their objects by means of suffixes, the latter being cognate to object prefixes found in the other branches of the family (Windschuttel 2018: 61–64). Likewise, Zaborski (1975: 163–165) suggests that the Cushitic languages form a cline from those like Beja with a well-preserved class of archaic prefixal verbs alongside the innovative suffixal ones going back to unverbated constructions with an auxiliary, to those like Somali and Dhaasanac with just a handful of prefixal verbs and finally to the Highland East Cushitic languages that lost the prefixal verb class altogether, much of their verbal suffixing morphology going back to former periphrastic constructions (Zaborski 1975: 106–110, 119; Sosal 2026: 293–350).

The above considerations notwithstanding, it must be acknowledged that both multiple exponence and ambifixation are typologically well-attested phenomena and that univerbation of VCPs is a prominent common source of both of them. Moreover, at least in some languages and language families both phenomena manifest a certain degree of diachronic resilience and stability. Their study is important for morphological typology, both synchronic and diachronic, since it broadens our understanding of the structure and working of morphological systems and of the processes driving their emergence and development as well as of the forces leading to their restructuring and loss.

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Abbreviations

1 – 1st person; 2 – 2nd person; 3 – 3rd person; ABS – absolutive; ACC – accusative; APUD – apudessive; ASP – aspect; BEN – benefactive; CMPL – completive; CONN – connective marker; COP – copula; CSL – cislocative; CVB – converb; DEF – definite; ERG – ergative; F – feminine; FREQ – frequentative; FUT – future; FV – final vowel; IND – indicative; INF – infinitive; INFR – inferential; INT – intermediate; IO – indirect object; IPFV – imperfective; LAT – lative; LV – light verb; M – masculine; N – neuter; NEG – negation; NFIN – non-finite; NHPL – non-human plural; NOM – nominative; NPST – nonpast; O – object; OBJ – objective case; PFV – perfective; PL – plural; PRF – perfect; PROG – progressive; PROX – proximal; PRS – present; PST – past; REM – remote; RS – retrospective shift; S – subject; SG – singular; STAT – stative; TH – thematic marker; TR – transitive marker; WIT – witnessed.

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