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Spatial prefixes as applicatives in Harakmbut

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Abstract

This paper focuses on valence-increasing morphology that introduces a non-Actor argument into the clause in Harakmbut (isolate, Peru). It first discusses two dedicated applicative markers which are in complementary distribution, and then homes in on a set of spatial prefixes which can also serve an applicative function. These prefixes are positionally flexible, and may simultaneously occur in distinct slots on a single verb form. Three types of uses can be distinguished for the spatial prefixes: non-syntactic, valence-neutral spatial uses, valence-increasing spatial uses and valence-increasing non-spatial uses. It is argued that these three uses can be interpreted as distinct stages on a grammaticalization pathway from spatial, lexical element to abstract, non-spatial grammatical element. The prefixes investigated turn out to occupy different places on this applicativization pathway. These spatial prefixes are a previously unreported source for applicative markers.

1 Introduction[1]

This paper investigates applicative morphology in the underdescribed language Harakmbut, more specifically the Arakmbut (Amarakaeri) dialect,[2] spoken in the south-east Peruvian Amazon (departamentos of Madre de Dios and Cusco). Harakmbut is still considered an unclassified (Amazonian) language (cf. Wise 1999: 307; WALS), although Adelaar (2000, 2007) has argued for a genetic link with the Brazilian Katukina family, which may be further linked to Macro-Jê. For more information on its genetic affiliation, internal classification, vitality and sociolinguistic context the reader is referred to Van linden (2022).

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[2] I would like to point out that the speakers of this variety regard the label *Amarakaeri* as a depreciating term; it is adapted from *wa-mba-arak-a-eri* (NMLZ-VPL-kill-TRNS-AN), a verb-based nominalization meaning '(fierce) killer/murderer', which goes back to an ancient story about the origin of the different ethnolinguistic groups of the Harakmbut people. They prefer to call their variety 'Arak(m)but', as distinct from the Watipaeri variety, towards whose speakers they generally entertain feelings of enmity rather than brotherhood.

Harakmbut shows very rich applicative morphology, including dedicated applicatives, but also a set of spatial prefixes ("prefijos posicionales" in Tripp 1995: 218-219), which are sometimes found to serve applicative functions. The potential for spatial verb morphology to carry out applicative functions such as introducing an applied phrase into a main clause has been noted only recently in other language families as well (see, e.g., Payne this volume for Nilotic). In contrast to dedicated applicative morphology, spatial prefixes are not invariably valence-changing. In fact, their basic function is to specify the location/spatial configuration of participants in events. In terms of argument roles, this spatial information targets the S-argument in intransitive and the O-argument in transitive clauses. This paper will focus on three spatial prefixes: *ti-* (1), which indicates location high up, *on-~n-* (2), which signals the spatial relation of 'in', '(in)to' (Tripp 1976: 8) or 'on', and *ok-~k-* (3), which expresses 'separation' (Tripp 1995: 219).[3] While *ti-* in (1) is valence-neutral, *n-* in (2) and *k-* in (3) increase the valence of the verb.

(1) *ken* *on-**ti**-pok* *mboerek-ta*
then 3PL.IND-SPAT:up-pass man-ACC
'Then they pass the man (who is high up, on a ladder).' (Pear story)

(2) *o-wedn-ato* *ãnĩ* *bisikleta* *o-**n**-kot*
3SG.IND-lie-AM:MOVE&DO FILLER bicycle 3SG.IND-SPAT:on-fall
'He falls (literally: 'moves and lies down'), eh, he falls onto his bike.' (Pear story)

(3) *i-**k**-totok-me-y* *eʔ-pidn* *abuela-ta*
1SG-SPAT:separation-pull-REC.PST-1.IND NPF-thorn grandmother-ACC
'I pulled a thorn out of grandmother('s knee).' (Fieldnotes)

In (1), *ti-* does not introduce an applied phrase, but specifies the location of the object argument (*mboerek-ta*). In (2), *n-* introduces an applied phrase to the intransitive verb root *kot* 'fall' (*bisikleta*), which is zero-marked, as is typical for inanimate object arguments of transitive verb stems. In (3), *k-* introduces the Source-location participant (viz. the person "out of whom" the 1SG A-argument pulled a thorn) as a core argument (*abuela-ta*), and thus turns a transitive root into a ditransitive stem. Note that for (2) and (3), and similar cases (see Section 4.2), the language lacks non-applicative constructions, that is, the spatial prefixes are obligatory to introduce the Goal and Source arguments respectively. Since the spatial prefixes can introduce non-Actor arguments into main clauses, as in (2) and (3), they can be analysed as applicative morphemes according to the broad definition proposed in this volume (Pacchiarotti & Zúñiga this volume). In (1), however, the function of the spatial prefix is non-syntactic; it characterizes the object argument in terms of location, just like verbal classifiers – also present in the language – characterize object arguments (or S-arguments in the case of intransitive verbs) in terms of shape or substance (see Rose & Van linden 2022).

Interestingly, spatial prefixes not only attach to verbs whose semantics involve motion (self-motion in (1), involuntary motion in (2), caused motion in (3)); they are also found on non-motion verbs. In some cases, their spatial meaning has been metaphorically extended or gone lost completely and their specific semantic import is more tied to the verb's lexical meaning. In

[3] In addition to these three, Tripp (1995: 218-219) mentions three more "positional" prefixes, viz. *taʔ-* for force against an object, rear position, or downward movement, *wa-* 'meet (someone) / find (something)' (with the action directed at another person or object), and *to-* for accompaniment. The first two prefixes, *taʔ-* and *wa-*, will be discussed in Section 4.4; the prefix *to-*, by contrast, cannot be analysed as a spatial prefix. Rather, it is a sociative causative marker (Van linden 2022). To my knowledge, *ti-*, *on-~n-*, *ok-~k-*, *taʔ-*, and *wa-* are the only spatial prefixes in the language.

such cases, the spatial prefixes are invariably valence-increasing and sometimes even syntactically optional, like *ti-* in (4b). While in the base clause in (4a) the semantic role of the person dreamt about is mapped onto a comitative adjunct (*ndoʔedn nãŋ-ere* 'with my mother'), in the applicativised clause in (4b) this participant is expressed as a core argument, i.e. the object argument signalled by the accusative case (*ndoʔedn nãŋ-ta*).

(4) (a) *ndoʔ-edn* *nãŋ-ere* *i-yorok-mbedn-i*
1SG-GEN mother-COM 1SG-dream-all.night-1.IND
'I dreamt of my mother all night.' (elicitation)
(b) *ndoʔ-edn* *nãŋ-ta* *i-**ti**-yorok-mbedn-i*
1SG-GEN mother-ACC 1SG-SPAT:up-dream-all.night-1.IND
'I dreamt of my mother all night.' (elicitation)

Based on the present-day distribution of the spatial prefixes, I will set forth a diachronic hypothesis where *ti-*, *on-~n-*, and *ok-~k-* occupy different places along a grammaticalization path from spatial prefix characterizing the location/spatial configuration of S or O to non-spatial applicative, i.e. a pathway from a valence-neutral spatial use (cf. (1)) through a valence-increasing spatial use (cf. (2) and (3)) to a valence-increasing non-spatial use (cf. (4b)). In addition to these three prefixes, I will also briefly discuss two more prefixes that might be analysed similarly to *ti-*, *on-~n-*, and *ok-~k-* and can be placed on this same pathway, viz. prefixes *taʔ-* and *wa-* (Section 4.4). At the same time, on some verb roots the (combinations of) spatial prefixes are no longer semantically transparent, and we thus observe lexicalization of prefix(es)-verb combinations (e.g. *e-ma-**ti-on**-ka* NMLZ-VPL-SPAT:up-SPAT:on-do 'hunt').

More generally, this paper contributes to the typology and diachrony of applicatives in adding a new source for applicative markers, i.e. spatial verb morphology. Importantly, the Harakmbut spatial prefixes do not originate in verbs or adpositions, both of which are well-attested diachronic sources for applicative markers (Peterson 2007: 123-141). To my knowledge, they cannot be traced back to any independent element of a particular word class. While Nordlinger (2019) and Rose (2019) recently pointed to new applicativization strategies originating in nouns, viz. noun incorporation in Murrinhpatha (non-Pama-Nyungan, Australia) and verbal classifiers in Mojeño Trinitario (Arawak, Bolivia) respectively, this paper suggests that applicative markers need not arise from free morphemes; they can also develop from verb morphology that is already in place with a basic non-applicative function. The same strategy is described for directional markers in Nilotic by Payne, this volume. Interestingly, both in Nilotic and Harakmbut bound elements with spatial semantics develop into applicative markers.

The data used in this paper come from earlier work on Harakmbut, which has mainly concentrated on the Arakmbut variety (Hart 1963; Helberg 1984, 1990; Tripp 1976, 1995), as well as first-hand data collected in the field. The latter include elicited data and a collection of seven texts representing spontaneously produced language recorded in the native communities of Puerto Luz, San José del Karene and Shintuya, all with Arakmbut consultants, in the summers of 2010, 2011 and 2016. The practical orthography used in this paper is IPA-based, and different from the community spelling (see Van linden 2020: 9, note 2).

The discussion is organized as follows. Section 2 discusses the basic features of Harakmbut grammar that are needed to understand how applicatives work in the language. While Section 3 focuses on dedicated applicatives, Section 4 homes in on the three distinct uses of the spatial prefixes central to this paper, and briefly discusses two more potential candidates for the category of spatial prefix in the language. Section 5 addresses lexicalized uses of spatial prefixes. Section 6 recapitulates the major findings and elaborates on their diachronic implications.

2 Morphosyntactic-typological sketch of Harakmbut

This section discusses some basic features of Harakmbut grammar that are crucial to understand valence-changing operations. Specifically, it concentrates on verb classes in terms of transitivity, the morphological template of finite verbs, and the coding of grammatical relations, realized by both head- and dependent marking (based on Van linden 2022).

Harakmbut verbs divide into copular, intransitive, transitive and ditransitive roots[4] and require valence-changing morphology to change transitivity. For instance, the verb root *ĩrĩŋ* 'hide' is intransitive, as illustrated in (5a), and takes the transitivizer/causative suffix *-a*[5] to become a transitive stem ('hide, conceal'), cf. (5b).

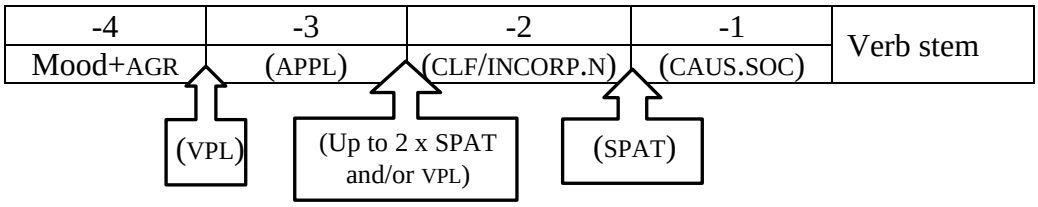
(5) (a) *mboerek* *õ-ĩrĩŋ-me* *apetpet-a* *mbe-arak-apey-a-po*
man 3SG.IND-hide-REC.PST jaguar-NOM 3SG>1SG-kill-APPR-QUOT-DEP
'The man hid lest the jaguar kill him.' (elicitation)

(b) *mboerek* *õ-ĩrĩŋ-**a**-me* *widn* *ken* *toto-ta* *o-arak-me-niŋ*
man 3SG.IND-hide-TRNS-REC.PST stone 3/DIST evil.spirit-ACC 3SG.IND-kill-REC.PST-REL
'The man hid the stone with which he had killed the evil spirit.' (elicitation; Van linden 2022: 470, ex. (61))

Harakmbut also has a set of labile verb roots, such as those denoting breaking events, which can occur in syntactically transitive and intransitive constructions without dedicated valence-changing morphology depending on their (non-)volitional event semantics (see Van linden 2020: 16-17). Intransitive constructions invariably have patientive S-arguments and feature the non-volitional perfective aspect marker, while transitive constructions show the volitional perfective marker when the A-argument is acting deliberately. However, in the case of involuntary actions, transitive constructions feature patientive A-arguments, applicative morphology and the non-volitional perfective marker, as illustrated in (11) in Section 3.

Valence-changing morphology is found in several slots in the morphological template of finite verbs. The template is presented in Figures 1 (prefixes) and 2 (suffixes); both figures include the verb stem slot and represent optional morphology between brackets.[6] The arrows in Figure 1 indicate between which fixed slots the flexible prefixes can intervene. More details on this positional flexibility and the differences in scope entailed will be given in Sections 4 and 5.

Figure 1. The prefix string of Harakmbut finite verb forms



[4] Or stems, if the verb lexeme derives from a non-verbal root through a verbalization process.
[5] It should be noted that this suffix does not invariably increase the valence of the verb; one of its functions on transitive verbs is also to signal a high degree of intensity of the action, e.g. on cutting events.
[6] Figure 1 is a revised version of the prefix string presented in Van linden (2020: 9-10), in which the two applicative morphemes discussed in Section 3 of this paper were mistakenly attributed distinct slots.

Figure 2. The suffix string of Harakmbut finite verb forms (cf. Tripp 1976)

	1	2	3	4	5	6	7
Verb stem	(ASP 1)	(TRNS)	(ASP 2/AM)	(AVRT)	(ASP 3)	(Tense)	Mood+AGR; MOD; EVID

In Figure 2, only slot 2 hosts valence-changing morphology; in Figure 1, three out of four slots do so, viz. slots -3 to -1. The prefixes in slots -3 and -1 increase the valence of the verb root; noun incorporation in slot -2 is either valence-decreasing, valence-increasing or valence-neutral depending on the type of noun incorporation as distinguished by Mithun (1984) (for noun incorporation in Harakmbut, see Van linden 2022 and Rose & Van linden 2022). Interestingly, the spatial prefixes, which are focus of this paper, do not have a fixed position in the template; they are positionally flexible. The same goes for the verbal plural marker (VPL) (see Van linden 2022: 464).

Grammatical relations are coded both on finite verb forms (head marking) and on noun phrases (dependent marking). Both head and dependent marking have been discussed in Van linden (2019: 461-463; 2022: 458–461, 468–469). Head marking on verb stems occurs in slots -4 and 7. On transitive stems, A-arguments are always indexed, unlike O-arguments. Specifically, the system shows hierarchical indexation: whereas third-person O-arguments are never indexed, speech act participant O-arguments (i.e. first or second person) require relational prefixes in slot -4, viz. portmanteau prefixes indexing both A and O. On the one hand, situations that involve a third person acting on another third person (i.e. non-local scenarios, cf. Zúñiga 2006) and those involving a speech act participant acting on a third person (i.e. direct scenarios) only index the A-argument with person markers that are identical to those used for S-arguments. On the other hand, situations involving a third person acting on a speech act participant (i.e. inverse scenarios) as well as situations involving one speech act participant acting on another speech act participant (i.e. local scenarios) trigger different sets of relational prefixes in slot -4. All of this means that valence changes are easiest to spot in situations involving first or second person O-arguments. Note that the participant cross-reference markers also code the verbal category of mood (cf. Van linden 2022: 457–461).

The dependent marking system on noun phrases is organized differently from the head marking system, but is no less complex. Here the complexity arises because the three argument roles (S, A and O) show differential (see Aissen 2003) or optional marking (case vs. zero exponence, see Bickel & Nichols 2007). The differential marking of O-arguments is animacy-based. Human and higher order animate O-arguments carry the accusative case marker *-ta* (e.g. *mboerek-ta* 'man' in (1)), while inanimate and lower order animate Os are zero-marked (e.g. *eʔpidn* 'thorn' in (2)). Accusative case is also marked on human indirect objects in ditransitive clauses. The differential marking of A-arguments is governed by both animacy and focus. Non-focal animate A-arguments typically go unmarked (e.g. *mboerek* 'man' in (5b)), while inanimate A-arguments are nominative-marked. Animate As that are in argument focus tend to be marked, e.g. *Lupe-a-nda* in (6), which features the focus marker *-nda* suffixed to the nominative case marker *-a*.

(6) *Lupe-a-nda* *oʔ-tegŋ-me* *mbiʔigŋ-tone-nda*
Lupe-NOM-FOC 3SG.IND-cut-REC.PST fish-big-NDA[7]
'Lupe herself cut the big fish.' (Van linden 2019: 460, ex. (5))

[7] The analysis of the suffix *-nda* on adjectival roots remains unclear (see Van linden 2022: 454).

Animate A-arguments that are in focus within the broader discourse context also typically carry nominative case, but no focus marker (Van linden 2019: 462). S-marking is optional. Whether they have human referents (e.g. *mboerek* 'man' in (5a)) or inanimate ones, S-arguments are typically zero-marked. Only very rarely (and in contexts discussed by McGregor 2007, 2010) are S-arguments marked by nominative case. While the Harakmbut dependent marking system has been analysed as a nominative-accusative system in earlier work (Helberg 1984; Tripp 1995), the patterns of optional A- and S-marking described in more detail in Van linden (2019: 461-463) point to a tripartite system of alignment, in which overt marking of S is highly constrained.[8] To this should be added that external noun phrases encoding arguments are very often unexpressed, which hampers the analysis of valence changes in examples involving non-local and direct scenarios (see Sections 4.2 and 4.3).

3 Dedicated applicatives

This section concentrates on dedicated applicatives, viz. the benefactive applicative *niŋ-* (cf. Tripp 1995: 204, 217) and the semantically underspecified applicative *ta-*,[9, 10] the description of which will serve as a standard of comparison for discussing the applicative functions of spatial prefixes in Section 4. The two applicative markers are in complementary distribution in slot -3, and to a large extent meet the criteria for canonical applicatives mentioned in Peterson (2007). That is, they are morphological devices marked on the verb that "allow the coding of a thematically peripheral argument or adjunct as a core-object argument" (Peterson 2007: 1), and they are syntactically optional, i.e. the applicative constructions alternate with non-applicative constructions that have an oblique rendering of the applied phrase (Peterson 2007: 50-51). Consider the pairs in (7) to (10), which contrast non-applicative structures in the (a)-examples with their applicative counterparts in the (b)-examples.

(7) (a) *Pablo* *o-matinoa* *Maribel-tewapa*
Pablo 3SG.IND-sing[11] Maribel-BEN
'Pablo is singing for Maribel (to cure her).' (elicitation)
(b) *Pablo* *o-**niŋ**-matinoa* *Maribel-ta*
Pablo 3SG.IND-BEN.APPL-sing Maribel-ACC
'Pablo is singing for Maribel (to cure her).' (elicitation)

(8) (a) *Yoma* *oʔ-ka* *wenpu* *ndo-tewapa*
Yoma 3SG.IND-make string.bag 1SG-BEN
'Yoma is making a string bag for me.' (elicitation)
(b) *Yoma* *me-**niŋ**-ka-ne* *wenpu*
Yoma 3SG>1/2SG-BEN.APPL-make-IND string.bag
'Yoma is making me a string bag.' (elicitation)

(9) (a) *mboerek* *oʔ-wadn* *wettone-ere*
man 3SG.IND-sit woman-COM

[8] While in Van linden (2019: 463) I mistakenly argued for an "optional ergative-accusative" alignment system, I now believe that the Harakmbut case-marking system comes closer to a tripartite system, in which O-arguments are accusative-marked, A-arguments nominative-marked, and S-arguments zero-marked.
[9] An applicative prefix of the form *tV-* is one of the shared characteristics of the languages in the Guaporé-Mamoré linguistic area (Crevels & Van der Voort 2008), and further beyond in (North)western and Southern Amazonia (Crevels & Van der Voort 2020).
[10] The applicative *ta-* occasionally ends in a glottal stop to demarcate a syllable boundary (cf. Van linden 2022: 443); I will nevertheless refer to it as *ta-*, while the spatial prefix *taʔ-* discussed in Section 4.4, which invariably ends in a glottal stop, will be referred to as *taʔ-*.
[11] This is a lexicalized verb stem containing the spatial prefix *ti-*, as detailed in (32a) below.

'The man is sitting with his wife.' (elicitation)

(b) *mboerek* *o-**ta**-wadn* *wettone-ta*
man 3SG.IND-APPL-sit woman-ACC
'The man is sitting with his wife.' (elicitation)

(10) (a) *Ana* *o-mba-tuk-ʔe* *tareʔ* *Lupe-ere*
Ana 3SG.IND-VPL-plant-ITER manioc Lupe-COM
'An is planting (a whole field of) manioc with Lupe.' (elicitation)

(b) *Ana* *o-**ta**-mba-tuk-ʔe* *tareʔ* *Lupe-ta*
Ana 3SG.IND-APPL-VPL-plant-ITER manioc Lupe-ACC
'An is planting (a whole field of) manioc with Lupe.' (elicitation)

The pairs in (7) to (10) illustrate the syntactic optionality of the benefactive applicative as well as that of the semantically underspecified applicative when the applied phrase bears the semantic role of Comitative participant. For example, to render the meaning in (7), speakers can opt for the non-applicative construction in (7a), in which the Beneficiary of the action denoted by the verb is coded as a benefactive adjunct, or for the applicative construction in (7b), in which the verb features the benefactive applicative prefix *niŋ-* and the Beneficiary now appears as an accusative-marked direct object.[12] At the same time, the examples demonstrate the valence-changing nature of the applicative markers. The intransitive predicates in (7a) and (9a) become transitive in (7b) and (9b), while the transitive predicates in (8a) and (10a) become ditransitive in (8b) and (10b). That is, the applicatives in the (b)-examples introduce an internal argument to the argument structure of the underived verb roots; the applied phrases are marked for accusative case (cf. (7b), (9b), (10b)) or trigger a relational person prefix on the verb, as in (8b), just like direct objects and indirect objects of underived transitive and ditransitive predicates respectively (see Section 2). Semantically, the applied phrases have a thematic role that is peripheral to those dictated by the verb root, such as Beneficiary in (7b)-(8b) and Comitative in (9b)-(10b).

While *niŋ-* invariably introduces Beneficiary participants and is syntactically optional, the semantically underspecified applicative *ta-* is not restricted to introducing Comitative participants; it can also introduce Maleficiaries, Beneficiaries and Possessors. Unlike in (9) and (10), it is not straightforward to come up with non-applicative counterparts for these other thematic roles, which are to be inferred on the basis of the lexical semantics of the verb root the applicative attaches to and the event denoted by the applicative construction. In example (11), for instance, *ta-* introduces a Maleficiary and is syntactically obligatory.

(11) *mbe-**ta**-k-puk-on-ne* *ilo*
3SG>1/2SG-APPL-SPAT:separation-tear-PFV.NVOL-IND thread
'The thread got torn on me' (Lit.: 'The thread got torn with respect to me; the thread got torn to my detriment.') (Van linden 2020: 16, ex. (12b))

Example (11) refers to a non-volitional event, viz. the breaking of the thread during sewing. In such events, the labile root *puk* is used intransitively, with a patientive subject (*ilo*) and the non-volitional perfective suffix *-on*. The applicative prefix *ta-* here introduces an object argument into the main clause which has the thematic role of Maleficiary (viz. the involuntary Agent); the 1SG participant is adversely affected by this event. The applied phrase triggers a portmanteau prefix on the verb indexing both the 3SG A-argument *ilo* and the 1SG O-argument

[12] The possible discourse or meaning differences between the applicative and non-applicative constructions need further research.

(Van linden 2020: 16-17). Note that the spatial prefix *k-* here merely indicates that the tearing event led to two separate parts of the thread. That is, it shows a valence-neutral spatial use, as discussed in Section 4.1 below.

In example (12), *ta-* introduces a Beneficiary and is syntactically obligatory as well. The intransitive verb root *ndi* 'be asphyxiated because of barbasco' in (12) is only predicated of fish. Unlike the A-argument in (7b), which features the benefactive applicative *niŋ-*, the fish are not voluntarily engaged in the event. In (12), the applied phrase ('1/2PL'), indexed on the verb, is mapped onto the participant inferred to benefit from this involuntary event, i.e. the people who can easily collect the asphyxiated fish to eat them. The benefactive applicative *niŋ-* is not acceptable here, and thus seems to be restricted to voluntary events.

(12) *ken* *o-ma-ndi-me* *ken=piʔ,*
then 3SG.IND[13]-VPL-be.asphyxiated.by.barbasco-REC.PST 3=INDET

wakkaʔ-mon *ken* *mo-**ta**-ma-ndi-me-ne*
much-MIN then 3>1/2PL-APPL-VPL-be.asphyxiated.by.barbasco-REC.PST-IND
'then they [i.e. the fish] were asphyxiated because of barbasco; somewhat many fish were asphyxiated for us [i.e. to our benefit].' (Anecdote on communal fishing activity)

In cases like (13), in turn, *ta-* introduces a Possessor as an object argument, which is indexed on the verb by a relational prefix.[14] It is also possible for the indexed Possessor to be additionally expressed by a genitive-marked free (pro)noun. Note that a possessive interpretation such as 'my thread broke' also works for (11).

(13) *o-**ta**-mba-to-tiak-me-ne* *e-mamboya*
1<>2SG-APPL-CLF:hand;leaf-CAUS.SOC-come-REC.PST-IND NMLZ-photograph
'I brought your photograph.' (Lit. 'I brought a photograph with respect to you.') (Fieldnotes)

While the semantically underspecified applicative *ta-* is a syntactically optional means of expressing a comitative participant, as in (9)-(10), the meanings it gives rise to in (11) to (13) do not have clear non-applicative counterparts. This means that, unlike the benefactive applicative *niŋ-*, it cannot be regarded as a canonical applicative in the sense of Peterson (2007).

Free pronouns or noun phrases expressing the applied participant often do not occur in natural discourse, as their referents can be inferred from verb indexation if first or second person or from the preceding discourse if third person. Example (14) is a case in point for *ta-*; an example for *niŋ-* is (17) in Section 4.1.

(14) *ãnĩ* *pera* *o-**ta**-ma-nda-mbereʔ*
FILLER pear 3SG.IND-APPL-VPL-CLF:fruit-steal
(Preceding context: a man is picking pears, a boy arrives on his bike and steals a basket of pears) 'Eh, he [i.e. the boy] is stealing pears from him [i.e. the pear picker].' (Pear story)

In (14), *ta-* introduces the participant from whom the boy steals the pears, i.e. the pear picker, which is not overtly expressed, as it is a discourse-given participant.[15]

[13] Note that plural lower animate or inanimate subjects trigger singular agreement on the verb.
[14] Only this possessive meaning of *ta-* was noted earlier (Tripp 1995: 204).
[15] Note that the use of *ta-* in (14) is functionally equivalent to the separative applicative suffix *-apitsa* in Nanti (Arawak, Peru), which indicates "both that the applied object is the erstwhile possessor of the demoted object, and

If applied participants are expressed by free pronouns or noun phrases, they typically follow the pattern of differential object marking described in Section 2. However, it should be noted that in examples with *niŋ-* I have also come across third person applied participants marked for benefactive case (*-tewapa*), just like in examples with *ta-* used in possessive contexts I have found first, second and third person applied participants marked for genitive case, together with the verb indexation. These cases, which may hint at non-syntactic functions of the dedicated applicatives (see Pacchiarotti & Zúñiga this volume), are left for further study.

4 Spatial prefixes as applicatives

Whereas the dedicated applicatives *niŋ-* and *ta-* discussed in Section 3 are invariably valence-increasing, spatial prefixes are not. Nor do they have a fixed slot in the morphological template of the finite verb. They can be inserted either before or after incorporated nouns in slot -2 (see Figure 1). When they occur before slot -2, there can be combinations of two contiguous spatial prefixes (see also Tripp 1995: 219), or of two prefixes each preceded by a verbal plural marker (see example (33c) in Section 5). The discussion below is organized in terms of the semantics and valence-changing behaviour of the three spatial prefixes *ti-*, *on-~n-*, and *ok-~k-*. Section 4.1 discusses the basic non-syntactic, or valence-neutral uses of the spatial prefixes: they specify the location/spatial configuration of participants in the event denoted by the verb root they attach to, but they do not introduce a core argument into the clause. Section 4.2 homes in on applicative functions of the spatial prefixes that involve spatial semantics. Section 4.3 presents cases where the spatial prefixes show valence-increasing uses as well, but their spatial meaning has been metaphorically extended or gone lost at the expense of the lexical semantics of the host verb. In Section 4.4, the discussion is widened to two more potential candidates for the category of spatial prefix.

4.1 *Valence-neutral spatial uses*

The three spatial prefixes studied here show valence-neutral uses and express only spatial meaning when combining with intransitive, transitive and labile verb roots that do not necessarily have a motion component in their lexical semantics. The location/spatial configuration targets the S-argument of intransitive roots or of intransitively used labile roots, as in (15), or the O-argument of transitive roots, as in (1) and (16b). Note that in (11) above, which features an intransitively used labile root with dedicated applicative marking, the spatial prefix *ok-~k-* targets the A-argument, viz. the patientive subject *ilo* ‘thread’.

(15) *o-**k**-ket-on* *pĩã*
3SG.IND-SPAT:separation-break-PFV.NVOL arrow
‘The arrow broke into pieces.’ (elicitation)

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that the verbal subject is involved in depriving the possessor of the demoted object” (Michael 2012: 163-164). Comparing non-applicative (ia) with applicative (ib) below, we see that *-apitsa* introduces a 1SG object while demoting the base object *kotsiro* ‘knife’, which no longer triggers object marking on the verb in (ib), as opposed to (ia) (=*ro*). The applied phrase in (ib) bears the thematic role of the erstwhile possessor of the demoted object (Michael 2012: 163-164).

(i) a. *i=koshi-t-ak-i=ro* *kotsiro*
3MSG=steal-EPC-PFV-REAL.I=3FSG knife
‘He stole the knife.’
b. *i=koshi-t-**apitsa**-ak-i=na* *kotsiro*
3MSG=steal-EPC-APPL:SEP-PFV-REAL.I=1SG knife
‘He stole the knife from me.’ (Michael 2012: 164, ex. (51))

(16) (a) *Lupe* *oʔ-tegŋ-me* *mbiʔigŋ*
Lupe 3SG.IND-cut-REC.PST fish
'Lupe cut (into) the fish.' (Lupe made cuts in the fish, e.g. to remove the guts) (elicitation)

(b) *Lupe* *o-**k**-tegŋ-me* *mbiʔigŋ*
Lupe 3SG.IND-SPAT:separation-cut-REC.PST fish
'Lupe cut the fish into pieces.' (elicitation)

Comparing (16a) with (16b), we see that the spatial prefix does not change the argument structure of the verb root it attaches to; the latter remains transitive. Together, examples (1), (11), (15) and (16) show that the prefixes serve a non-syntactic function; their basic function is semantic, viz. narrowing down the location/spatial configuration of the O-argument in the case of transitive roots and that of the S-argument in the case of intransitively used labile roots. Thus, just like verbal classifiers, spatial prefixes operate on an ergative basis in Harakmbut (see Van linden 2022: 467). In (15) and (16b), the prefix *ok-~k-* specifies the internal spatial configuration of the S and O arguments respectively. That is, it signals that the targeted entity changed from a whole entity (or an entity in one piece, whose internal parts are spatially contiguous) at the beginning of the event to an entity that is broken into pieces (which are no longer spatially contiguous) at the end of the event. The prefix *ti-* occurring on a transitive root in (1), in turn, signals that the O-argument, the man on the ladder, is high up with respect to the A-argument.

Finally, example (17) illustrates the valence-neutral spatial use of *on-~n-*. It is taken from a story in which a jaguar has killed a young girl. Her mother brings her corpse back home (having kept it safe by having thrown it into a ravine), and her kinsmen tie the corpse up on the patio as if she were seated in hopes of luring the jaguar to the village so that they can kill him (in which they succeed, see example (24b) below).

(17) *ken-taʔ* *ãrĩ-tẽ* *kuru-te* *on-niŋ-**on**-tuk-po,*
DIST-LOC FILLER-LOC patio-LOC 3PL.IND-BEN.APPL-SPAT:on-plant-DEP
muneyo-ta *eʔ-wadn-a-pa* *on-niŋ-ka-tuy*
girl-ACC NMLZ-sit-TRNS-manner 3PL.IND-BEN.APPL-do-REM.PST.INDIR.EVD
'Then, eh, they planted her on the patio for him [i.e. the jaguar], as if the girl were seated (lit. 'they made the girl sit'), they did that for him [i.e. the jaguar].' (narrative)

In the first verb in (17), the spatial prefix follows the benefactive applicative *niŋ-*, whose applied phrase is left unexpressed, but can be inferred from the preceding context, namely the jaguar. The spatial prefix *on-* specifies the location of the girl (the O-argument of the transitive root *tuk* 'plant', left unexpressed) with respect to the oblique participant *kuru-te* 'patio-LOC' at the end of the event denoted by the verb; her corpse ends up on the surface of the patio whereas normally Patient participants of planting events are at least partially in the ground. Note that the prefix does not increase the valence of the transitive root *tuk* 'plant', unlike *niŋ-*, because the location *kuru-te* is expressed as an adjunct.

4.2 *Valence-increasing spatial uses*

We now turn to syntactic uses of the three spatial prefixes discussed in Section 4.1, more specifically to syntactic uses in which they still retain spatial semantics. This use is found on both intransitive and transitive roots, and the location/spatial configuration targets the underived S-argument of intransitive roots, i.e. the A-argument in the applicative structures in (18) to (21), and the underived O-argument of transitive roots, i.e. the base objects in (3) and

(22). Examples (18) to (20) illustrate the valence-increasing use of the spatial prefixes with the intransitive verb root *kot* ‘fall’. Example (18) repeats (2).

(18) *o-wedn-ato* *ãnĩ* *bisikleta* *o-**n**-kot*
3SG.IND-lie-AM:MOVE&DO FILLER bicycle 3SG.IND-SPAT:on-fall
‘He falls (literally: ‘moves and lies down’), eh, he falls onto his bike.’ (Pear story)

(19) *o-**k**-mba-kot-onka-me-te* *yave* *An-ta*
3SG.IND-SPAT:separation-VPL-fall-suddenly-REC.PST-INDIR.EVD key An-ACC
‘An’s keys fell all of a sudden.’ (Lit. ‘The keys suddenly fell away from An.’) (Fieldnotes)

(20) *Pomelo-a* *o-ku-**ti**-kot-ay* *Joeri-ta*
grapefruit-NOM 3SG.IND-head-SPAT:up-fall-AVRT Joeri-ACC
‘A grapefuit almost fell on Joeri’s head.’ (Fieldnotes)

The constructions in (18)–(20) are all transitive, with the applied phrases functioning as direct objects that are either accusative-marked or are unmarked for case, in accordance with the patterns of differential O-marking (see Section 2). In (18), the prefix *n-* introduces the applied phrase *bisikleta* ‘bicycle’, which expresses the Goal participant of the falling event. In (19), the prefix *k-* introduces the applied phrase *An-ta* ‘An-ACC’, which expresses the Source participant of the falling event. In (20), the prefix *ti-* introduces the Goal participant of the (averted) falling event, i.e. *Joeri-ta* ‘Joeri-ACC’. Note that the incorporated noun *-ku* ‘head’ is interpreted as the relevant subpart of the Goal participant, as rendered in the translation provided (cf. Type II noun incorporation in Mithun (1984: 857–858)). Semantically, while *n-* and *ti-* both introduce Goal arguments, they differ in that *n-* is underspecified in terms of the location of the moving entity (the underived S) at the beginning of the event, while *ti-* signals that it falls from high up, viz. from a grapefruit tree. The three prefixes thus introduce a Location argument into the clause, and locate the underived S-argument (now A-argument) with respect to this applied phrase, either at the beginning or at the end of the event denoted by the verb.

This valence-increasing use of spatial prefixes with intransitive verb roots is rather frequent in the texts analysed; they typically occur on self-motion verbs like ‘go (out)’ or posture verbs like ‘lie’ (see (32d) below), but also introduce Location arguments with verbs like ‘urinate’. A motion-verb example with *ok-~k-* is given in (21).

(21) *pĩã* *o-**k**-mã-õrõk-on-po* *wa-tiak-ya*
arrow 3SG.IND-SPAT:separation-VPL-go.out-PFV.NVOL-DEP NMZL-come-LOC
‘[Kumamin went], having gone out of the hideout leaving his arrow behind.’ (Lit. ‘having gone out of the hideout away from his arrow’) (narrative)

In (21), the spatial prefix introduces the applied phrase *pĩã* ‘arrow’, which expresses the Source participant of the leaving event. Note that the verbal plural marker precedes – and thus scopes over – the verb root rather than the applied phrase. Here, verbal plurality is interpreted in terms of dispersedness, viz. ‘going out in various directions’, not knowing where to go because of fear. Note also that (21) contains a Source participant coded as adjunct, viz. *watiak-ya* ‘from the hideout’. However, the applied Source participant, the arrow, is far more topical in the events related than the oblique one, the hideout. That is, the spatial prefix is used here to introduce discourse-topical information as a core argument.

The valence-increasing potential of spatial prefixes on intransitive verbs has been noted by Tripp (1995: 204) – albeit for other spatial prefixes, namely *ta?-* and *wa-* (see Section 4.4).

Tripp (1995: 204) claims that spatial prefixes do not have valence-increasing effects when used with transitive verbs. However, this is only partially true. That is, while spatial prefixes may be valence-neutral on transitive roots, as shown in Section 4.1, they sometimes do change the valence of a transitive root, turning it into a ditransitive stem. In these contexts, they typically express caused motion as in (3) and (22).

(22) *tiaway-we* *õʔ-ẽ,* *sowata-yo* *o-**k**-mbereʔ* *ken*
see-NEG 3SG.IND-be silence-LOC 3SG.IND-SPAT:separation-steal 3
'he [i.e. the pear picker] doesn't see him [i.e. the boy]; he [i.e. the boy] is stealing them [i.e. the pears] from him [i.e. the pear picker] secretly, while the pear picker is away.' (Pear story)

Just like in (3), the spatial prefix *k-* introduces a Source argument 'from him' (left unexpressed) in (22) with respect to which it locates the base object 'the pears' (also unexpressed in (22)). While in (3) the Source argument benefits from the pulling event, in (22) the Source argument is adversely affected by the stealing event, and can additionally be interpreted as a Maleficiary, similarly to the applied phrase of the dedicated applicative *ta-* in (14). The difference with *ta-* in (14) is that *k-* adds spatial information about the Maleficiary in (22), indicating that he was not physically present at the stealing event. That is, while *ta-* can be used, for instance, to introduce victims of pickpockets, *ok-~k-* cannot, as it necessarily implies a physical distance between the (base) O-argument and the applied O-argument throughout the stealing event.[16] By using the spatial prefix *ok-~k-* rather than the dedicated applicative *ta-*, Harakmbut speakers can thus convey very specific spatial information in an economical way.

A last question that needs discussing is whether the valence-increasing uses illustrated above have "alternative constructions in which the semantically peripheral entity is expressed as an oblique" (Peterson 2007: 121). They do not, at least not without losing spatial details expressed in the examples given. For instance, the intransitive root *kot* 'fall' does occur with obliques (and without spatial prefixes), but such examples express events like 'fall into a river', i.e. into a container, which have a different spatial configuration than the events in (18) to (20). The examples given here thus illustrate obligatory applicative constructions, and are hence more similar to the non-comitative uses of the dedicated applicative *ta-* than to the examples with the benefactive applicative *niŋ-*.

4.3 *Valence-increasing non-spatial uses*

The second valence-increasing use of the spatial prefixes discussed so far is one in which their spatial meaning has weakened to mere involvement in the event. It has been attested for only two of them, *on-~n-* and *ti-*. In this use, the semantic role of the participant introduced by the spatial prefixes depends much more on the lexical semantics of the verb they attach to. In some cases we can see metaphorical extension at work; in others it is more difficult to account for the shift from spatial to non-spatial meaning. Also, in this use, *on-~n-* and *ti-* typically introduce human non-Actor arguments into the clause, while the spatial valence-increasing uses do not show this animacy restriction. Examples (23) and (24) offer contrastive pairs, in which the (b)-examples come from different parts of the same story.

(23) (a) *kate-apo* *ken-pa* *ya-mba-suhka*
what-REAS DIST-manner 3SG.DUB-VPL-eat.crumbs
'Why are they eating crumbs like that?' (elicitation)

[16] Note that in the pulling event in (3) this requirement of distance only holds at the end of the event; at the beginning, the O-argument ('thorn') and the applied O-argument ('grandmother') are spatially contiguous.

(b) *kate-apo* *ken-pa* *me-**n**-mba-suhka-ne*
what-REAS DIST-manner 3SG>1/2SG-SPAT:on-VPL-eat.crumbs-IND
'[The girl fished with barbasco, but she did not kill any fish.] "Why are they [i.e. the fish] eating crumbs to me like that [instead of being asphyxiated]?"' (narrative)

(24) (a) *on-harak-uy-ate* *ken-taʔ* *sik-yo,*
3PL.IND-kill-REM.PST-INDIR.EVD DIST-LOC black-LOC
'Then they killed him/her/it/them at night.' (elicitation)

(b) *on-**ti**-harak-uy-ate* *ken-taʔ* *sik-yo,*
3PL.IND-SPAT:up-kill-REM.PST-INDIR.EVD DIST-LOC black-LOC
watimbuy-a-nda *o-**ti**-harak-po*
brother.in.law-NOM-FOC 3SG.IND-SPAT:up-kill-DEP
'Then they killed him [i.e. the jaguar] at night in her defence [i.e. the girl's defence]. Her brother-in-law himself killed him [i.e. the jaguar] in her defence.' (narrative)

Unlike in (17), in (23b) the spatial prefix *on-~n-* does not specify the location of an argument, nor does it introduce a Location argument into the clause, as it does in (18). Rather, it is functionally equivalent to the dedicated applicative *ta-* introducing a human Maleficiary, as in (11); the applied phrase is indexed on the verb by a relational prefix. The speaker, the girl referred to in (24b), is wondering why the fish are just eating the barbasco rather than getting asphyxiated by it. This situation affects her negatively, because her mother takes this as a sign from the spirits that her daughter is not respecting the social mores; she thinks her daughter is having an illicit relationship with her brother-in-law. In (23a), by contrast, the action of eating crumbs is not represented as affecting anybody. Similarly to (23b), unlike in (1), the spatial prefix *ti-* in (24b) does not convey any spatial information about an argument, neither does it introduce a Location argument and specify the moving entity's location at the beginning of the event talked about, as it happens in (20). Instead, it introduces an (unexpressed) argument, namely 'the girl' who was killed (see example (17)), with a semantically peripheral role. Specifically, it expresses that the girl's kinsmen killed the jaguar to prevent the latter from eating the girl's propped-up corpse, i.e. they killed him in her "defence". This contrasts with (24a), where the killing event is not represented as serving to protect someone. The semantic role of Maleficiary in (23b) and that of a Beneficiary in whose defence the Agent carries out an action in (24b) have no spatial semantics to them.

Non-spatial, purely valence-increasing uses of *ti-* and *on-~n-* are very frequent in naturally occurring discourse. For example, clauses introducing reported speech typically feature the verb *n-a* (SPAT:on-say) 'say to someone, tell', with the Addressee as the applied phrase. An example is given in (25), where the reported speech clause is underlined. The applied phrase is again left unexpressed, but its referent can be gathered from the preceding context: the mother is addressing her daughter. Reporting clauses with transitivized *n-a* are much more frequent than those with the intransitive root *a* 'say'.

(25) *in-pa* *o-**n**-a-tuy-ỹã* *<u>taʔmba-yo</u>*
PROX-manner 3SG.IND-SPAT:on-say-REM.PST.INDIR.EVD-REP.EVD swidden-LOC
<u>ya-wa-atu</u> *o-**n**-a-po* *wã-ỹẽ-ã*
2SG.IMP-go-short.while 3SG.IND-SPAT:on-say-DEP NPF-mother-NOM

‘Her mother said to her like this – so they say: “Go to the swidden for a short while!”, telling her.’ (narrative)

Another frequently occurring verb that often takes *on-~n-* is *ka* ‘do, make’, which comes to mean ‘do something to someone’, as illustrated in (26). Example (26) is uttered by Maribel, interrupting her aunt who is telling a story. Prior to Maribel’s turn in (26), her aunt told about a little boy who had special powers; he made every pond next to which he was seated dry up so that his mother and her associates could easily collect the fish (no need for nets, fishhooks, or barbasco). The people of the village were suspicious and jealous, and they killed the boy. Maribel then asks how the people did this to the little boy, that is, how they killed him.

(26)	*men-pa*	*an-**on**-ka-tuy,*	*tia*
	which-manner	3PL.DUB-SPAT:on-do-REM.PST.INDIR.EVD	aunt
	‘How did they do it to him, auntie?’ (narrative)		

Note that the applied phrase ‘the boy’ in (26) is again left unexpressed because it is discourse-given at that stage. In the turns following (26), Maribel’s aunt answers by saying that they made the boy suffer from fatal diarrhoea.

For the frequent uses in (25) and (26), I invoke metaphorical extension to explain the semantic shift of the spatial prefix: the prefix *on-~n-* introduces an argument that is the human Goal of the actions of saying and doing respectively. That is, the concept of Goal is extended from the concrete spatial domain to the abstract domain of human cognition and interaction (cf. Givón 2009: 89).

In relation to the question of syntactic optionality of this non-spatial applicative use of spatial prefixes, it should be noted that for (23b), (24b), (25) and (26) it is hard to come up with an alternative structure that lacks the valence-increasing spatial prefixes and yet includes reference to the participant in the corresponding applied phrase. These examples thus instantiate obligatory applicative constructions. Yet, *ti-* proves to be syntactically optional when occurring on the intransitive root *yorok* ‘dream’ in (4) above, repeated here as (27).

(27)	(a)	*ndoʔ-edn*	*nãŋ-ere*	*i-yorok-mbedn-i*
		1SG-GEN	mother-COM	1SG-dream-all.night-1.IND
		‘I dreamt of my mother all night.’ (elicitation)		
	(b)	*ndoʔ-edn*	*nãŋ-ta*	*i-**ti**-yorok-mbedn-i*
		1SG-GEN	mother-ACC	1SG-SPAT:up-dream-all.night-1.IND
		‘I dreamt of my mother all night.’ (elicitation)		

The prefix *ti-* does not contribute any spatial meaning to (27b); the circumstance that (27b) is semantically equivalent to (27a) suggests that the thematic role of the applied phrase is that of a comitative participant similarly to what the dedicated applicative *ta-* introduces in (9b) and (10b). Yet, in view of the meaning of the verb root *yorok* ‘dream’,[17] the thematic role of the applied argument is rather that of Stimulus. I have no insights into the semantic difference between the applicative and non-applicative variants in (27).

If we consider the cases discussed in this section in isolation, the gloss ‘SPATIAL’ seems inappropriate for the prefixes studied.[18] In this valence-increasing non-spatial use, their use on

[17] Note that both (27a) and (27b) are used when the person dreamt of is still alive at the moment of dreaming. When a deceased person visits you in your dreams, the Harakmbut use the verb *tiaway* ‘see’ but at the same time attach the suffix *-kundak* ‘deceased’ to the noun coding the direct object.

[18] Yet I have kept their spatial origin in the glosses for the sake of consistency; identical forms attaching to identical host types (verbs) and having related meanings receive a single gloss.

specific verb roots does not seem to be semantically motivated; it is unclear why one verb root combines with *on-~n-*, another with *ti-*, and yet another with the dedicated applicative *ta-*. Unlike the verb root *kot* 'fall' in Section 4.2, the verb roots in the examples discussed in this section do not show variation in terms of the spatial prefixes they combine with. What the examples do share is that the applied argument is invariably a human participant. In terms of syntactic optionality, finally, the spatial prefixes resemble the dedicated applicative *ta-* in being obligatory for some and optional for other semantic roles.

4.4 *Other spatial prefixes?*

Besides *ti-*, *on-~n-*, and *ok-~k-* discussed in Sections 4.1-4.3, Tripp (1995: 218-219) mentions three additional "positional" prefixes, viz. *taʔ-*, *wa-*, and *to-* (see note 3). While there are reasons to analyse the last one as a sociative causative marker which fills slot -1 in the morphological template of the verb (Van linden 2022: 465), the prefixes *taʔ-* and *wa-* might indeed receive a similar treatment to the threesome central to this paper.

The prefix *taʔ-* formally differs from the semantically underspecified applicative *ta-* merely by a final glottal stop, and signals "force against an object, rear position, or downward movement" (Tripp 1995: 218). Examples are in (28) and (29).

(28) *e-mba-**taʔ**-tegŋ-nãỹõ* *õwẽỹ,* *mon-ka* *taʔmba*
NMLZ-VPL-SPAT:force.against-cut-COND tree 1PL.IMP-do swidden
'If he fells the trees, we will make a swidden.' (elicitation)

In (28), the prefix *taʔ-* does not affect the valence of the verb root it attaches to; *tegŋ* 'cut' remains transitive. Although the event of cutting trees in (28) results in chopped up tree pieces (stumps and felled trees), speakers do not use the spatial prefix *ok-~k-* to indicate separation (see (16b)), but rather *taʔ-*, highlighting the force used to cut down a tree as well as the falling movement of the tree. The prefix *taʔ-* in (28) thus shows a valence-neutral spatial use.

An example of valence-increasing spatial use can be found in Tripp's (1995: 204) grammar notes. Prefixing *taʔ-* to the intransitive root *wa* 'go' (see (30)) yields the transitive stem *taʔ-wa,* meaning 'follow, chase, track down (an enemy or prey)'.

A non-spatial use of *taʔ-* is illustrated in (29), where it combines with the spatial prefix *on-~n-* (see also Section 5). The complex verb stem *nõ-põ-ẽ* 'know; think' is transitive, with *ndigŋ* 'pain, anger, hate' serving as the direct object; together the verb and object mean 'become angry'. The prefixes *n-* and *taʔ-* together introduce just one internal argument 'at her/her mother', which is left unexpressed.

(29) *õ-kỹẽ-ãtõ-põ* *wa-yombu* *ndigŋ*
3SG.IND-arrive-AM:MOVE&DO-DEP NPF-daughter anger
*õ-n-**tãʔ**-nõ-põ-ẽ-tuy*
3SG.IND-SPAT:on-SPAT:force.against-vital.centre-CLF:round-be-REM.PST.INDIR.EVD
ken *o-wik-ato-po*
then 3SG.IND-cry-AM:MOVE&DO-DEP
'When her$_i$ daughter$_j$ arrived, she$_j$ got angry at her$_i$ [i.e. her$_j$ mother$_i$] and started crying.' (narrative)

In (29), the linear order of *n-taʔ-* precludes an analysis of *taʔ-* as the dedicated applicative *ta-* (ending occasionally in a glottal stop to demarcate a syllable boundary, see note 10), because spatial prefixes never occur before the dedicated applicatives in slot -3 (see Figure 1 in Section 2). In (29), we thus have a combination of two spatial prefixes which together introduce the participant against whom pain or anger is felt, but – as usual in third-person narratives – the

lexical applied phrase is omitted, as it is identifiable in the discourse. Semantically, the prefixes do not convey literal spatial meaning, but the spatial meaning contributed by *taʔ-* can be understood to apply metaphorically, with the force of anger being targeted against the mother. Together with *on-~n-*, *taʔ-* thus shows a valence-increasing non-spatial use in (29).[19]

The second candidate to be discussed is *wa-*, which according to Tripp (1995: 219) means "meet someone or find something, action directed at another person or object." However, I have only found examples where *wa-* signals that the event has a human Goal argument. Its syntactic optionality is illustrated in (30). When it combines with a motion verb, the semantic import of *wa-* is spatial, conveying goal-directed movement.

(30) (a) *Luis-en-mba-yo* *ih-wa-y*
Luis-GEN-place-LOC 1SG-go-1.IND
'I go to Luis's place' (elicitation)
(b) *Luis-ta* *ih-**wa**-wa-y*
Luis-ACC 1SG-SPAT:human.goal-go-1.IND
'I am going to visit Luis.' (elicitation)

At the same time, the pair in (30) illustrates the valence-increasing nature of *wa-*, which turns the intransitive verb root *wa* 'go' into the transitive stem 'visit'; the human applied phrase is marked for accusative case (*Luis-ta*) and functions as direct object. A similar use is exemplified in (31), where the 1SG applied Goal argument triggers a relational person prefix on the verb. The reported thought clause is underlined.

(31) *taka* *mẽ-**wã**-õrõk-ne* *õ-nõ-põ-ẽ-po* *wa-tiak-ya*
Taka 3SG>1/2SG-SPAT:human.goal-go.out-IND 3SG.IND-vital.centre-CLF:round-be-DEP NMZL-come-LOC
'"A Taka person will come out to me," he thought at the hideout.' (narrative)

While in (30) *wa-* is syntactically optional, in (31) it is obligatory. This is because in (30b) the introduced Goal argument is a fixed location, i.e. Luis' house, while in (31) the introduced Goal argument is a moving entity itself, i.e. a character in a story.

Finally, there are also cases where *wa-* attaches to the intransitive root *a* 'say' and seems to be used in a metaphorical sense, but more research is needed here.

5 Lexicalized uses

Whereas in the examples analysed so far the spatial prefixes could be neatly identified in morphologically complex verb forms, in some cases complex verb stems are no longer semantically transparent, and while one might still be able to identify distinct morphemes, the overall meaning of the verb stem is no longer compositional, or too little predictable to warrant morpheme breaks. Examples of such lexicalized uses of spatial prefixes and combinations thereof are given in (32) in Table 1 in the form of dictionary entries. The nominalizer *e(ʔ)-* is used in the citation form of verbs (cf. Van linden 2019: 457). The translations come from Tripp (1995), but the morphological analyses are mine. Abbreviations used in Tables 1 and 2 are: intr = intransitive; tr = transitive; cop-intr = copular-intransitive; ditr = ditransitive.

[19] An alternative analysis suggested by one of the editors is that the prefix *n-* has a valence-increasing non-spatial function, introducing a human metaphorical Goal argument like in (25) and (26), while *taʔ-* only adds strength to the action of feeling anger. However, the force in (29) is no physical force like in (28), but rather a metaphorical force. Hence, this alternative analysis suggests a fourth use not found for other spatial prefixes, viz. valence-neutral non-spatial uses, which is hard to fit in with the grammaticalization pathway I propose in Section 6.

Table 1. Lexicalized verb stems containing spatial prefixes

(32)	Verb root	Valence of root	Lexicalized verb stem	Morphological analysis	Meaning	Valence of stem
(a)	*a*	intr	*e-ma-**ti**-no-a* (Tripp 1995: 82b)	NMLZ-VPL-SPAT:up-vital.centre-say	'to sing'	intr
(b)	*ka*	tr	*e-ma-**ti-on**-ka*[20]	NMLZ-VPL-SPAT:up-SPAT:on-do	'to hunt'	tr
(c)	*ka*	tr	*eʔ-**ti**-ka* (Tripp 1995: 96a)	NMLZ-SPAT:up-do	'to kill (an insect)'	tr
(d)	*wedn*	intr	*eʔ-**ti**-wedn* (Tripp 1995: 95b)	NMLZ-SPAT:up-lie	'to be full (of a container object)'	intr
					'to brood (eggs)'	tr
(e)	*ẽ*	cop-intr	*eʔ-**ti-ok**-põ-ẽ* (Tripp 1995: 82b)	NMLZ-VPL-SPAT:up-SPAT:separation-CLF:round-be	'to annoy'	tr
(f)	*ẽ*	cop-intr	*e-**k**-ma-**ti-ok**-põ-ẽ* (Tripp 1995: 41b)	NMLZ-SPAT:separation-VPL-SPAT:up-SPAT:separation-CLF:round-be	'to commit adultery with so. else's wife'	tr

In (32a), (32b), (32c) and in the first meaning of (32d), the spatial prefixes do not affect the valence of the verb roots, which is identical to that of the stems. In the other examples, the prefixes do increase the valence of the roots. In relation to the semantic contribution of the prefixes, Tripp (1995: 219) also provides descriptions of combinations of spatial prefixes. The combination *ti-on-*, for instance, expresses "downward or inward movement", which contributes to the meaning of the stem in (32b) in a transparent way: hunting animals could be conceived of as getting or 'doing' them down. For the combination *ti-ok-*, Tripp (1995: 219) provides the paraphrase "join parts", which does not seem to be immediately relevant for the meaning of the stem in (32e). However, the meaning of (32f) can be partially related to that of (32e), with the spatial prefix *k-* locating the O-argument, viz. the victim of the adultery, at a physical distance of the A-argument, viz. the perpetrator, throughout the event.

In the set of examples in (33) in Table 2, the spatial prefixes are valence-increasing, and the meaning of the stems is overall more transparent than in the examples in (32). Hence, the examples in (33) could be called semi-lexicalized. For instance, Tripp's (1995: 219) paraphrase "join parts" works well for (33a), where the Agent brings together several pieces of clothing on their body.

[20] Tripp provides the form *e-ma-ti-oŋ-ka* for 'to hunt' (1995: 82b). I believe orthographic <ŋ> represents [ŋ], which is an allophonic variant of /n/ in front of velar /k/ here.

Table 2. Semi-lexicalized verb stems containing spatial prefixes

(33)	Verb root	Valence of root	Semi-lexicalized verb stem	Morphological analysis	Meaning	Valence of stem
(a)	*ot*	intr	*e-**ti**-**ok**-ot* (Tripp 1995: 87b)	NMLZ-SPAT:up-SPAT:separation-get.dressed	'to put on clothes on top of other clothes'	tr
(b)	*a-pak*	intr	*e-**ti**-a-pak* (Tripp 1995: 33b)	NMLZ-SPAT:up-say-VBZ	'to narrate; to tell'	tr
(c)	*a-pak*	intr	*e-ma-**n**-mba-**ti**-a-pak* (Tripp 1995: 80a)	NMLZ-VPL-SPAT:on-VPL-SPAT:up-say-VBZ	'to tell tidings to everyone; to inform'	ditr

Compare (33b) to (33c) for scope relations of the spatial prefixes with the verbal plural marker. Example (33c) shows that spatial prefixes can be scoped over by verbal plural markers separately; it involves the telling of a plurality of tidings or stories (*mba-ti-*) to a plurality of addressees (*ma-n-*). As is the case with dedicated applicatives (see Van linden 2022: 464), the verbal plural marker takes the immediately following element in its scope. Given this interaction with the verbal plural marker, and the fairly transparent semantic contribution of the spatial prefixes, (33c) is only semi-lexicalized in comparison with, for instance, (32a). All in all, the examples given in this section indicate that spatial prefixes are important building blocks of Harakmbut verb lexemes. Their proneness to lexicalization further corroborates their affinity to derivational morphology.

6 Conclusions and diachronic implications

This paper has focused on valence-increasing morphology that introduces a non-Actor argument into the clause in Harakmbut, more specifically in the Arakmbut/Amarakaeri variety. While the language boasts two formally and functionally distinct applicative morphemes which share the same slot in the morphological template of the verb, the benefactive applicative *niŋ-* and the semantically underspecified applicative *ta-*, there is also a set of spatial prefixes which can also serve an applicative function, and may – in the context of the present volume – be better analysed as (potentially spatial) applicatives which also have non-syntactic functions. Unlike the dedicated applicative markers, the spatial prefixes are positionally flexible, and may simultaneously occur in distinct slots on a single verb form. In this preliminary account, I focused on *ti-* 'location high up', *on-~n-* 'in', '(in)to' or 'on', and *ok-~k-* 'separation'. In their non-syntactic valence-neutral function, observed on both intransitive and transitive verb roots, these spatial prefixes contribute spatial information to the event depicted in the clause by characterizing the S or O argument in terms of location or spatial configuration. In their syntactic or valence-increasing function, observed on both intransitive and transitive verb roots, they introduce a Location argument into the clause, and specify the location of the underived S or O argument with respect to this applied phrase. Two of these prefixes also developed purely valence-increasing applicative-like uses without any additional spatial specification. In such cases, they only introduce human non-Actor arguments, such as Maleficiaries, Beneficiaries and human Goals. Building on Tripp (1995: 218-219), this paper also presented preliminary evidence in favour of the spatial prefix status of two additional prefixes, *taʔ-* for force against an object, rear position, or downward movement and *wa-* for human goals.

In keeping with Hopper's (1991) idea of layering, the present-day syntactic and semantic behaviour of the spatial prefixes suggests a diachronic scenario in which the three uses

discussed in Sections 4.1 to 4.3 can be regarded as distinct stages on a single grammaticalization path, from spatial element to non-spatial applicative. That is, the prefixes are assumed to have undergone a gradual change from a lexical to a grammatical element (cf. Hopper & Traugott 1993). In the first stage, the spatial prefixes are lexical derivational morphemes, which add information about the (internal or external) spatial configuration of a participant involved in the event denoted by the verb root (S or O), without changing its valence, e.g. from 'to cut' to 'to cut into pieces'. This use is similar to that of verbal classifiers characterizing S or O arguments in terms of shape or substance (see Rose & Van linden 2022). In the second stage, they acquire the grammatical function of introducing a Location argument into the clause while still retaining their spatial semantics: they locate the underived S or O with respect to the Location applied phrases. At this stage, their spatial meaning no longer involves the internal spatial configuration of a participant; it is restricted to external spatial configuration. Speakers arguably developed this second use to meet the communicative need to locate topical participants with respect to each other, i.e. to expand the spatial resources of the language. In the last stage, the prefixes only retain their grammatical, applicative-like function. While for some verb roots, we can see metaphorical extension at work, for others we see a complete loss of spatial meaning. At the same time, we can note a specialization for introducing human non-Actor arguments. Table 3 recapitulates the findings for the spatial prefixes investigated, which allows us to place them at different stages on the grammaticalization cline.

Table 3. The present-day uses of the five spatial prefixes

Syntax	valence-neutral	valence-increasing	
Semantics	spatial		non-spatial
ok-~k-	✓	✓	✗
ti-	✓	✓	✓
on-~n-	✓	✓	✓
taʔ-	✓	✓	(✓)
wa-	✗	✓	(✓)

From the five prefixes included in Table 3, *ok-~k-* shows the least degree of grammaticalization, as it has not been observed with non-spatial meaning so far. The prefixes *ti-* and *on-~n-* have gone further down the path, as they do show non-spatial meaning in some contexts. For the prefixes *taʔ-* and *wa-*, there are indications that they have reached this last stage as well, but I put the tick symbols for this use between brackets, awaiting further evidence.

The first two stages of the grammaticalization path described here are prone to lexicalization. As discussed in Section 5, the Harakmbut lexicon comprises a number of complex verb stems featuring spatial prefixes that are no longer semantically transparent. Occasional idiosyncratic meanings are found in both valence-neutral and valence-increasing spatial uses of the prefixes. These effects of lexicalization further testify to the affinity of the spatial prefixes with derivational morphology.

Finally, the diachrony of the spatial prefixes raises a number of questions. A first set relates to the diachronic origin of the Harakmbut spatial prefixes. Do these ultimately derive from independent elements, and if so, from which word class? And can we accumulate evidence for positing spatial verb morphology as a new source for applicative markers, besides well-attested sources like verbs, adpositions and nouns (Peterson 2007; Rose 2019)? In this respect, the data on Nilotic valence-increasing directionals (Payne, this volume) and associated motion markers (Bond & Reid 2021) add to the Harakmbut scenario proposed here. A second set of questions pertain to the role of the expression of space in these recently discovered grammaticalization

pathways. What makes the domain of space prone to being used for valence-increasing derivation? And if applicative markers can develop from verb morphology, what other semantic domains could they come from, apart from the spatial domain? These questions will have to await further study.

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Abbreviations

1	1st person	ACC	accusative
2	2nd person	AGR	agreement
3	3rd person	AM	associated motion
>	'acts on'	AN	animate
A	transitive subject	APPL	applicative

APPR	apprehensive
ASP	aspect
AVRT	avertive
BEN	beneficiary/benefactive
BEN.APPL	benefactive applicative
CAUS.SOC	sociative causative
CLF	classifier
COM	comitative
COND	conditional
DEP	dependent verb form
DIST	distal
DUB	dubitative
EPC	epenthetic consonant
EVID	evidential
F	feminine
FILLER	filler, word search
FOC	focus
GEN	genitive
IMP	imperative
INCORP.N	incorporated noun
IND	indicative
INDET	indeterminate
INDIR.EVD	indirect evidential
ITER	iterative
LOC	locative
M	masculine
MIN	minimizer
MOD	modality marker
NEG	negation
NMLZ	nominalizer
NOM	nominative
NPF	noun prefix
NVOL	non-volitional
O	transitive object
PFV	perfective
PL	plural
PROX	proximal
QUOT	quotative
REAL.I	realis, i-class verb
REAS	reason
REC.PST	recent past
REL	relativizer
REM.PST	remote past
REP.EVD	reported evidential
S	intransitive subject
SEP	separative
SG	singular
SPAT	spatial prefix
TRNS	transitivizer
VBZ	verbalizer
VPL	verbal plural