



Grammar from space:
The functional extension of spatial
verb morphology into applicative uses
in Harakmbut

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Introduction: Grammar from space

- How spatial elements become applicatives – *applica-what??*

(1)	<i>Ik zong over de straten van Londen.</i>	
	I sang about the streets of London	INTRANSITIVE + oblique (PP)
	‘I sang about the streets of London.’	
(2)	<i>Ik be-zong de straten van Londen.</i>	
	I APPL -sang the streets of London	TRANSITIVE
	‘I sang about the streets of London.’	

- **Applicatives**: morphological markers on the verb that **increase the valency** of verbs (= the number of arguments that a predicate, e.g. a verb, can take)
- Specifically, they “allow the coding of a thematically peripheral argument or adjunct as a core-object argument” (Peterson 2007: 1), so they introduce internal argument (‘applied phrase’) to the argument structure of the verb stem
- Applied phrase carries **non-Actor** semantic roles like Beneficiary, Instrument, Location, Comitative

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- Applied phrase carries **non-Actor** semantic roles like Beneficiary, Instrument, Location, Comitative
- Productive derivational process (with syntactic consequences) *kladden – bekladden*
- No consensus on their syntactic optionality (*be-* is optional in (1)-(2)) *varen – bevaren*

1. Introduction

Aims of the talk:

- Present existing research on diachrony of applicative markers
 - Previous studies have only pointed to independent lexemes as sources for applicatives
- Present a new source for applicatives: spatial verb morphology (bound morphemes), in a language that also has dedicated applicatives, viz. Harakmbut (unclassified/isolate, Peru) (Van linden 2022)
- If time allows: presentation of SPACEGRAM project

Outline

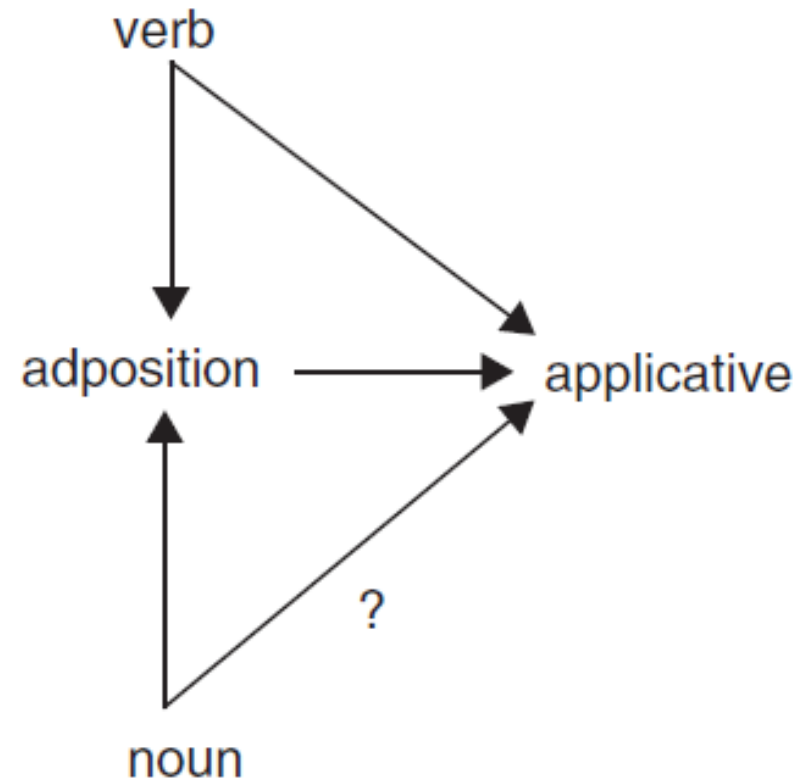
~~1. Introduction~~

2. Overview of sources of applicatives
3. Introduction to Harakmbut (finite verb forms)
4. Dedicated applicatives in Harakmbut
5. Spatial prefixes as applicatives in Harakmbut
6. Lexicalized uses
7. Conclusion

2. Overview of sources of applicatives

Where does the morphology that marks applicative constructions come from?

- Peterson (2007: 123) gives two direct sources: **adpositions** and **verbs**; **nouns** would not directly develop into applicative markers
- discourse motivations: applicative constructions emerge “when the applicative object is high in topicality, especially when it is so topical that it is dislocated to a position reserved for highly topical entities or subject to zero-anaphora” (Peterson 2007: 123)
→ topic continuity
- Figure from Peterson (2007: 125)



2.1 Adpositional sources

Craig and Hale (1988) on relational preverbs, a variety of applicative, in Rama (Chibchan, Nicaragua)

- relational preverbs (RPVs), e.g. *yu-* in (1b), are adpositional in origin
- “if the object of a postposition is given information, it may be subject to zero-anaphora, and its stranded postposition cliticizes to the verb, as in (1b), the second line of a text following (1a)” (Peterson 2007: 125)
- Eventually zero-anaphora became unnecessary as a prerequisite for use of most frequently cliticized RPVs → Peterson (2007: 126) invokes reanalysis (adpos → appl) for this last step

(1) Rama (Craig and Hale 1988: 322)

a. *nainguku kiskis nsu-kuaakar-i*,
so tongs WE-have-ASP

‘That’s why we have the tongs.’

OV-language

b. *suli-kaas* \emptyset *yu-**nsu-auk-kama*
animal-meat PV/WITH-WE-ROAST-SUB

‘for us to roast meat with it...’

stranded
humpback
whale



2.1 Adpositional sources

Conditions for **adposition stranding**, deemed necessary in adposition-to-applicative pathway by Peterson (2007: 126-127)

- zero-anaphora of NP-complement of adposition (see (1))
- Topicalization of NP-complement of adposition
- Extraction of NP-complement of adposition in relativization context (cf. *the man I talked to*), e.g. (2) from Bemba (Bantu, Zambia)

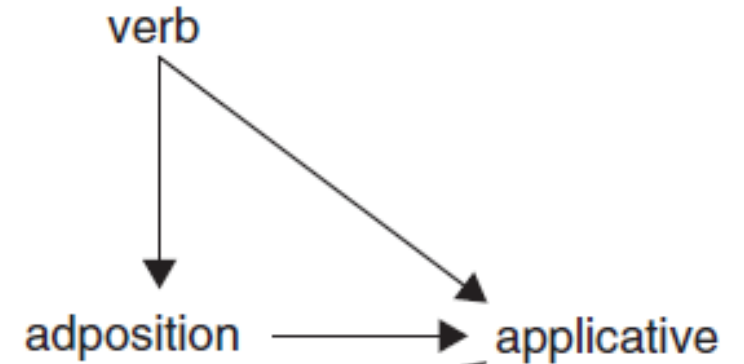
(2) *nàà-mweene ingaanda iyo umunaandi àà-keele-mo*
I-saw house that friend-MY HE-lived-IN
'I saw the house that my friend lived in.' (Givón 1975: 85)

VO-language

- Reanalysis of relative clause verb form as (alternative) main clause form → generalization to cases where applicative object is not subject to zero-anaphora (Peterson 2007: 126-127):

2.2 Verbal sources

- Serialized verbs > prepositions (Durie 1988)
- Serialized verbs > applicative affixes (Peterson 2007)



Rude (1991) on verbal origin of applicative morphology in Sahaptian-Klamath

(3) Nez Perce (Sahaptian-Klamath, USA) (Rude 1991: 186)

wálc páa-ny-a'n-ya ááyato-na
knife 3SUBJ.3OBJ-make-APP-PAST woman-OBJ
'He made the woman a knife.'

- Benefactive applicative suffix *-a'n* in (3) is assumed to originate in lexical verb *'eni* 'give', which still exists in Nez Perce
- Nez Perce also still shows syntactic juxtaposition of verbs to indicate simultaneity of the events that they encode
- No diachronic evidence, but diachronic hypothesis on the basis of synchronic data

2.2 Verbal sources

- Serialized verbs > prepositions (Durie 1988)
- Serialized verbs > applicative affixes (Peterson 2007)

Other languages where **benefactive applicative suffix** grammaticalized from the verb 'give':

- Sahaptin (Sahaptian-Klamath, Oregon & Washington) (Rude 1991)
- Northern Iroquoian languages (Mithun 2001)
- Yimas (Lower Sepik, Papua New Guinea) (Foley 1991)
- Hakha Lai (Tibeto-Burman, Myanmar) (Peterson 2007)

(references in Peterson 2007)

2.2 Verbal sources

Also origin in dependent verb forms (different from verb serialization constructions):

- development of instrumental applicative *isht-* (5) from same-subject converbial form of verb *ishi* ‘get, take’ (4) in Chickasaw (Muskogean, USA) (Munro 1983):

(4) *tali'* *ish-li-t* *isso-li-tok*
rock take-1SG.ACT-CONV hit-1SG.ACT-PAST
‘Taking a rock, I hit him.’

(5) *tali'* *isht*-*isso-li-tok*
rock APPL.INSTR-hit-1SG.ACT-PAST
‘I hit him with a rock.’

No verbs with spatial
meaning as sources
of applicatives

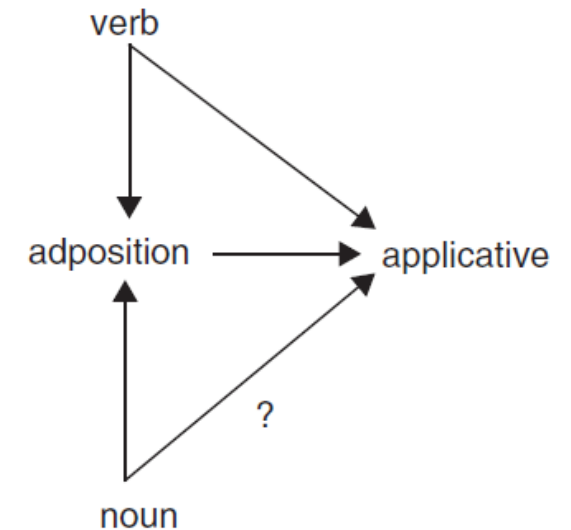
2.3 Noun sources

Peterson's (2007: 140–141) on **nouns** as a possible source for applicatives:

grammaticalization path from noun to applicative always needs an **intermediate stage** (nouns have to be integrated into verb before reanalysis as applicatives)

→ Absence of direct grammaticalization also supported by more recent studies

→ Intermediate stage: incorporation of element that has nominal source but differs formally and semantically from it + element does not associate to core argument, but to oblique (Rose 2019: 460):



N 'face'	→ lexical suffix (directional)	→ (goal) applicative	Halkomelen (Salish, USA)	Gerds and Hinkson (2004)
N 'hand'	→ incorporated body-part	→ applicative (for animate source or location)	Murrinhpatha (non-Pama-Nyungan, Australia)	Nordlinger (2019)
N +/- 20	→ incorporated body-part	→ applicative (locative preverb)	Adyghe and Kabardian (Circassian, Caucasus)	Arkadiev and Maisak (2018)
N 31	→ classifier on verbs (NI 4)	(→ applicative)	Mojeño Trinitario (Arawak, Bolivia)	Rose (2019)

2. Overview of sources of applicatives

Wrapping up:

- Two direct (adposition, verb) and one indirect source (noun): independent morphemes/lexemes
- Out of these, adpositions and nouns may have spatial meaning

New source of applicatives in spatial verb morphology in Harakmbut!

2. Overview of sources of applicatives

What happens to applicative constructions after they have arisen and later on, when they cease to be synchronic applicatives?

(Peterson 2007: 124)

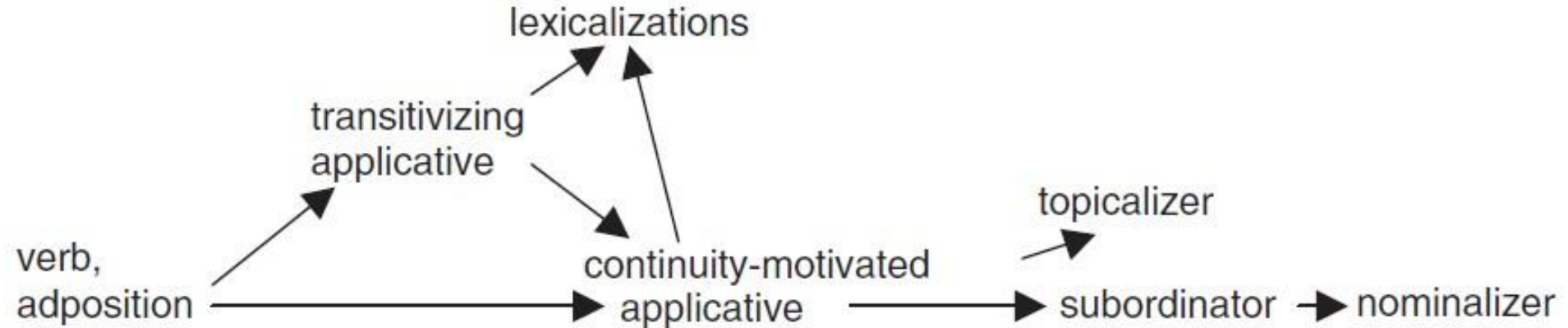


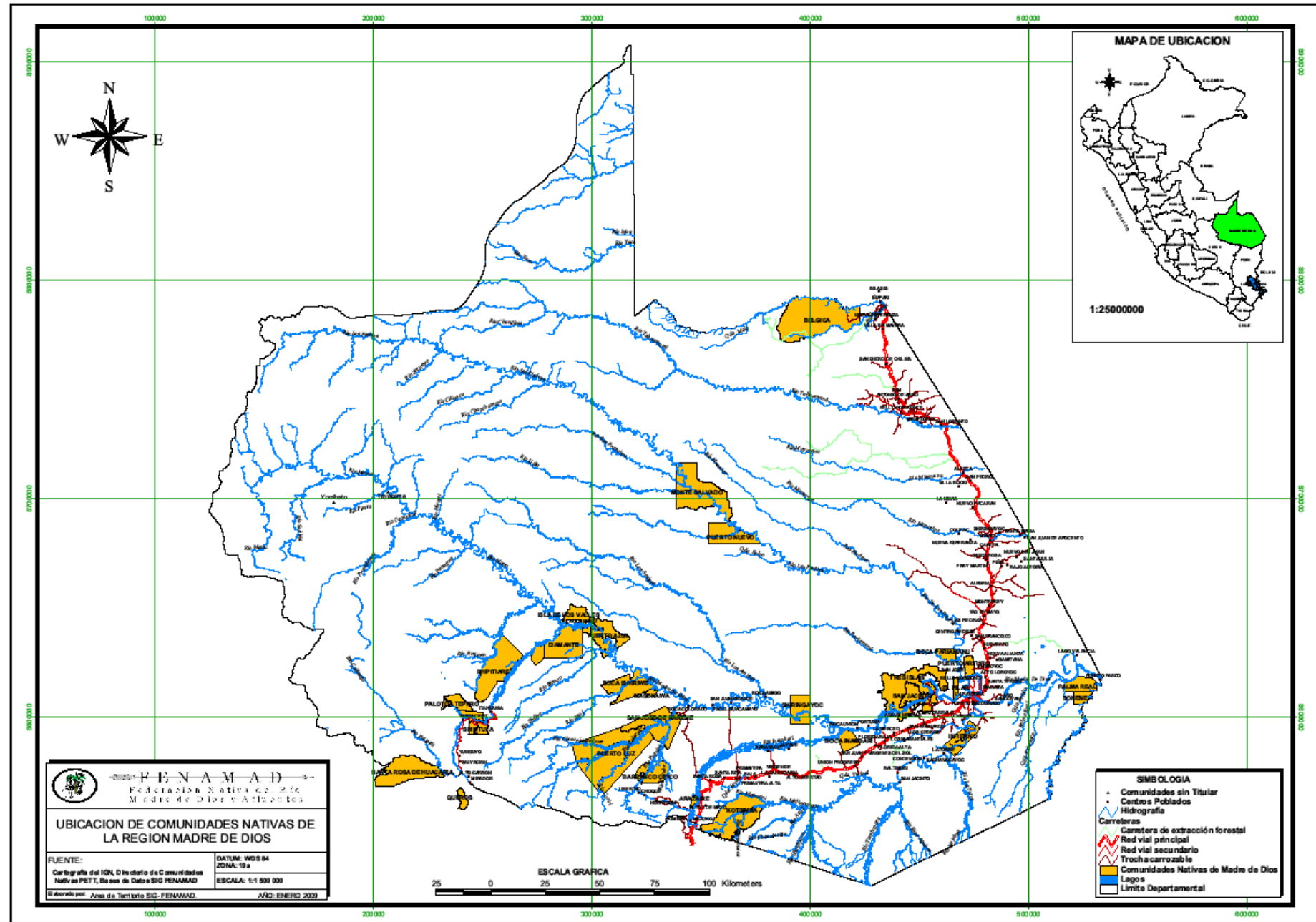
FIGURE 5.1 The evolution of applicative constructions

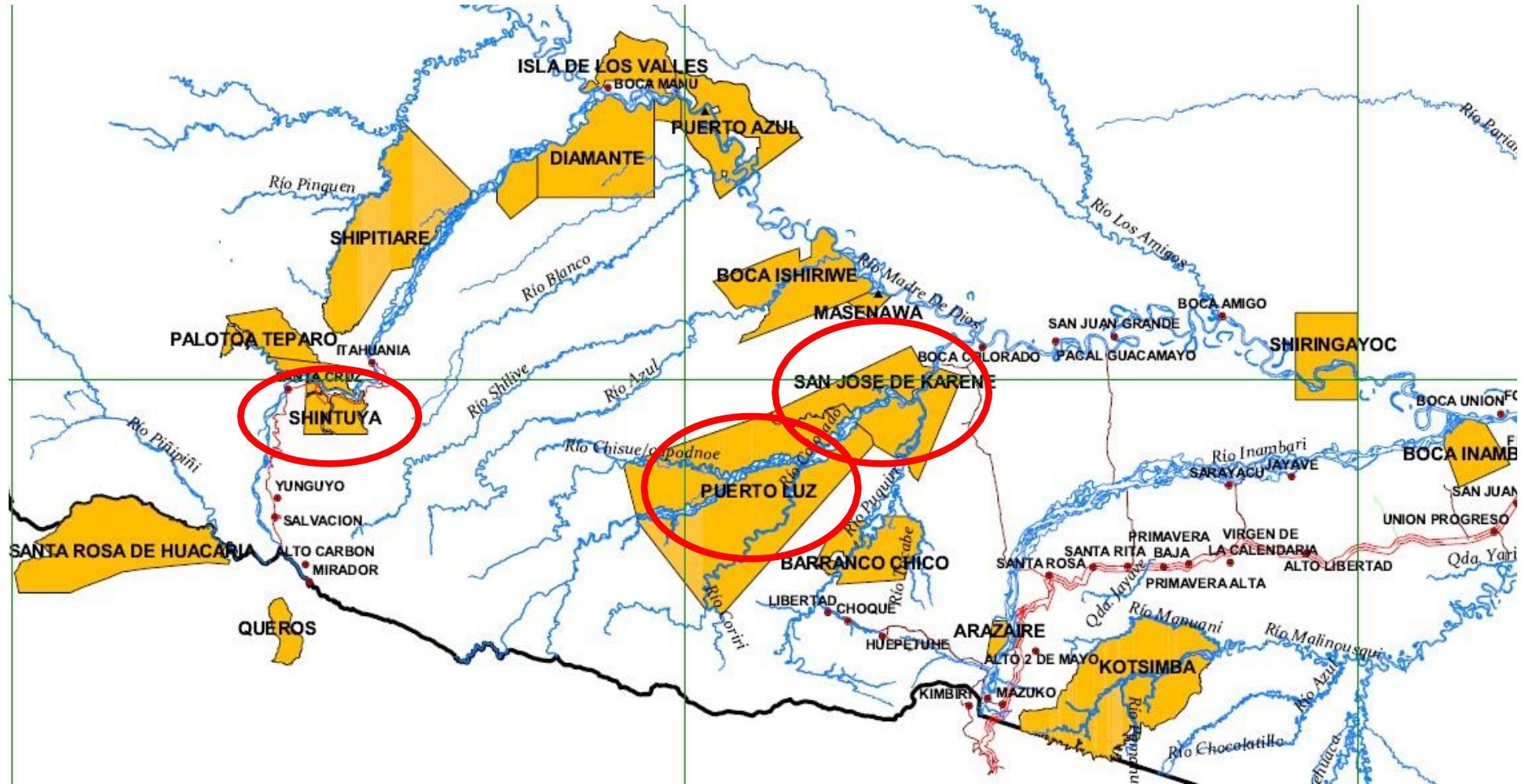
3. Introduction to Harakmbut (finite verb forms)

- Harakmbut is a language from the Peruvian Amazon, Madre de Dios and Cusco
- Genetic affiliation:
 - **isolate/unclassified** language (cf. Wise 1999: 307; WALS)
 - Adelaar (2000, 2007): genetically related to the Brazilian **Katukina** family
- Areality:
 - Some grammatical features are shared with languages from **Guaporé-Mamoré** linguistic area (Crevels & van der Voort 2008)



- Harakmbut live in 'native communities': patches of land entitled to them by the government
- subtropical climate
- around tributaries of the Madre de Dios River, which eventually flows into the Amazon River;





- About 1000 speakers left; distinct dialects
- Previous linguistic work: focus on Arakmbut/Amarakaeri dialect (Hart 1963; Helberg 1984, 1990; Tripp 1976ab, 1995)
- Fieldwork in Puerto Luz, San Jose de Karene and Shintuya → Arakmbut/Amarakaeri variety



Communal fishing activity in the Harakmbut
native community of San José del Karene,
Madre de Dios, Peru, 2011

3. Introduction to Harakmbut (finite verb forms)

- Harakmbut verbs: copular, intransitive, transitive and ditransitive roots → require valency-changing morphology to change transitivity
- Also set of labile verb roots (e.g. denoting breaking events): can occur in syntactically transitive and intransitive constructions without dedicated valency-changing morphology depending on their (non-)volitional event semantics (see Van linden 2020: 16-17)
- Valency-changing morphology is found in several slots in the morphological template of finite verbs

3. Introduction to Harakmbut (finite verb forms)

- **Valency-changing morphology** is found in several slots in the morphological template of finite verbs (Van linden 2022; 2023)

Figure 1. The prefix string of Harakmbut finite verb forms

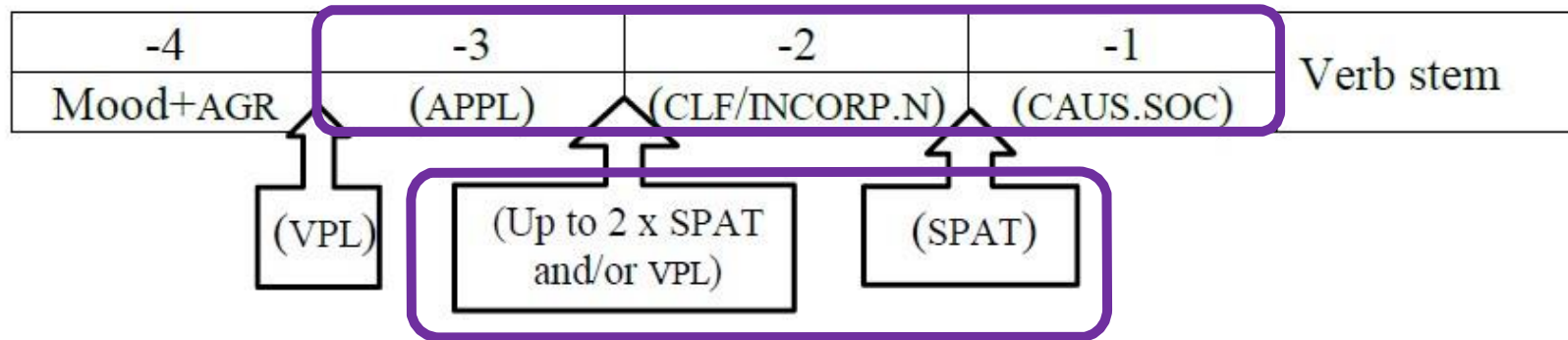


Figure 2. The suffix string of Harakmbut finite verb forms (cf. Tripp 1976)

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

3. Introduction to Harakmbut (finite verb forms)

- Figure 1 : verbal plural marker (VPL) and a set of **adverbial/spatial prefixes** are positionally flexible, entertaining scopal relations with fixed-position prefixes (cf. Van linden Forthc.)

Figure 1. The prefix string of Harakmbut finite verb forms

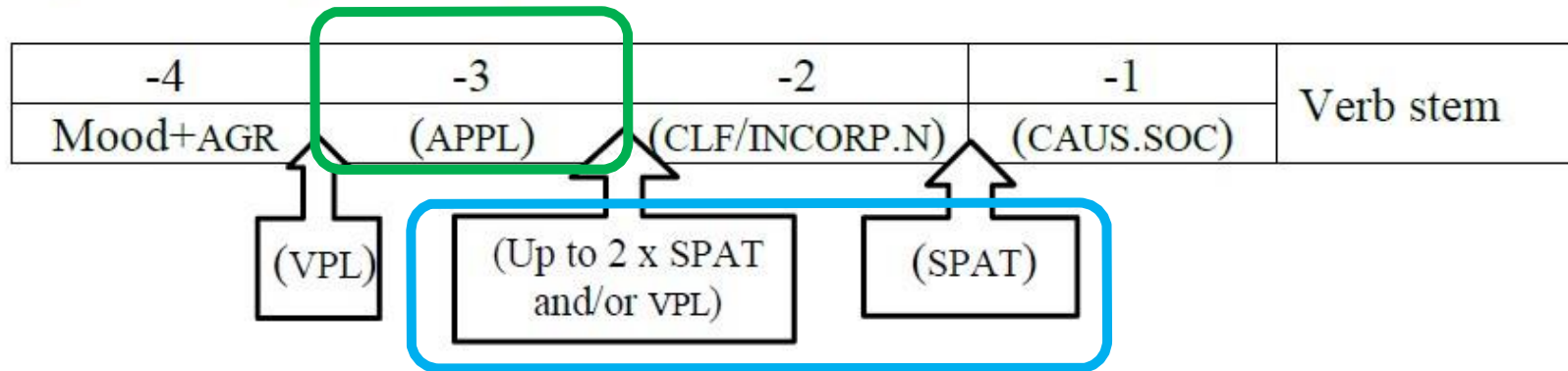


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4. Dedicated applicatives

4.1 Benefactive *nin-*

(1a) *Yesica o-ma-mbasa yudnta Fermin-tewapa*
Yesica 3SG.IND-VPL-wash clothes Fermin-BEN
'Yesica washes clothes for Fermin.'

(1b) *Yesica o-nin-ma-mbasa yudnta Fermin-ta*
Yesica 3SG.IND-BEN-VPL-wash clothes Fermin-ACC
'Yesica washes Fermin clothes.'

(2a) *Yoma o-ka wenpu ndo-tewapa*
Yoma 3SG.IND-make string.bag 1SG-BEN
'Yoma makes a string bag for me.'

(2b) *Yoma me-nin-ka-ne wenpu*
Yoma 3SG>1/2SG-BEN-make-IND string.bag
'Yoma makes me a string bag.'

Base clauses in (a):
monotransitive verbs

ACs in (b)-clauses:
P-applicatives (Zúñiga &
Creissels 2024)

Hierarchical indexation resulting in a scenario-based split (without direction marking)

(1b): non-local scenario (3>3) → O-participant is not indexed → no change of person prefix

(2b): mixed scenario (3>1) → SAP O-participant is indexed → relational person prefix indexing A>O

4. Dedicated applicatives

4.1 Benefactive *nij-*

(3a) *Pablo o-matinoa Maribel-tewapa*
Pablo 3SG.IND-sing Maribel-BEN
'Pablo is singing for Maribel (to cure her).'

(3b) *Pablo o-nij-matinoa Maribel-ta*
Yesica 3SG.IND-BEN-sing Maribel-ACC
'Pablo is singing for Maribel (to cure her).'

(4a) ?

(4b) *yok-ndik ã-nĩj-ẽ-nẽ tanʔan*
give-POT 1<>2SG-BEN-be-IND flower

'you should give him flowers on my behalf' → 'substitutive' applicative

Why is BEN *nij-* a **canonical** applicative? (e.g. Peterson 2007)

- ✓ verbal derivational process with syntactic consequences
- ✓ BEN introduces internal argument to the argument structure of the underived verb root/stem
- ✓ "peripheral" semantic role: **Beneficiary** (or substitutive)
- ✓ OPTIONAL

in (3a): intransitive verb

In (4b): ditransitive verb

Hierarchical indexation resulting in a scenario-based split (without direction marking)

(3b): non-local scenario (3>3) → O-participant is not indexed → no change of person prefix

(4b): local scenario (2>1) → SAP O-participant is indexed → relational person prefix indexing A<>O

4. Dedicated applicatives

4.1 Benefactive *nin-*

D-applicative: AppP is a dative/indirect object (Zúñiga & Creissels 2024)

- BUT:

benefactive applicative can still **co-occur** with the oblique constituent that should have been promoted to object position, cf. (5)

- (5a) *Jonas-tewapa o-ka wa-wedn gringo-a*
Jonas-BEN 3SG.IND-make NMZR-lie foreigner-NOM
'The foreigner makes a bed for jonas.'
- (5b) *Jonas-tewapa o-nin-ka wa-wedn gringo-a*
Jonas-BEN 3SG.IND-BEN-make NMZR-lie foreigner-NOM
'The foreigner makes Jonas a bed.' (Van linden 2019: 457, ex. (1))

- Examples drawn from elicitation → (discourse) motivation for co-occurrence is question for further research

4. Dedicated applicatives

4.2 General applicative *ta-*

(6a) *mboerek* *oʔ-wadn* *wettone-ere*
man 3SG.IND-sit woman-COM
'The man is sitting with his wife.'

(6b) *mboerek* *o-ta-wadn* *wettone-ta*
man 3SG.IND-**APPL**-sit woman-ACC
'The man is sitting with his wife.'

(7a) *Luis* *oʔ-wadn* *kusina-yo* *ndo-ere*
Luis 3SG.IND-sit kitchen-LOC 1SG-COM
'Luis is sitting in the kitchen with me.'

(7b) *Luis* *mbe-ta-wadn-ne* *kusina-yo*
Luis 3SG>1/2SG-**APPL**-sit-IND kitchen-LOC
'Luis is sitting in the kitchen with me.'

Why is *ta-* a **canonical** applicative?
(e.g. Peterson 2007)

- ✓ verbal derivational process with syntactic consequences
- ✓ APPL introduces internal argument to the argument structure of the underived verb root/stem
- ✓ “peripheral” semantic role: **Comitative** in (6)-(7), but also other
- ✓ OPTIONAL

Base clauses in (a):
intransitive verb

ACs in (b)-clauses:
P-applicatives (Zúñiga & Creissels 2024)

Hierarchical indexation resulting in a scenario-based split (without direction marking)

(6b): non-local scenario (3>3) → O-participant is not indexed → no change of person prefix

(7b): mixed scenario (3>1) → SAP O-participant is indexed → relational person prefix indexing A>O

4. Dedicated applicatives

4.2 General applicative *ta-*

- (8) *o-ta-mba-to-tiak-me-ne* *e-mamboya*
1<>2SG-**APPL**-CFL:two-dimensional-CAUS.SOC-come-REC.PST-IND NMLZ-photograph
'I brought your photograph.' (Lit. 'I brought a photograph on you.')
- (9) *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))

- ✓ verbal derivational process with syntactic consequences
- ✓ APPL introduces internal argument to the argument structure of the underived verb root/stem
- ✓ “peripheral” semantic role → (8): (prospective) Possessor; (9): Maleficiary (& involuntary Agent)
- ❖ **OPTIONAL? Obligatory for non-Comitative applied phrases (8)-(9), which have no clear non-applicative counterparts**

Figure 1. The prefix string of Harakmbut finite verb forms

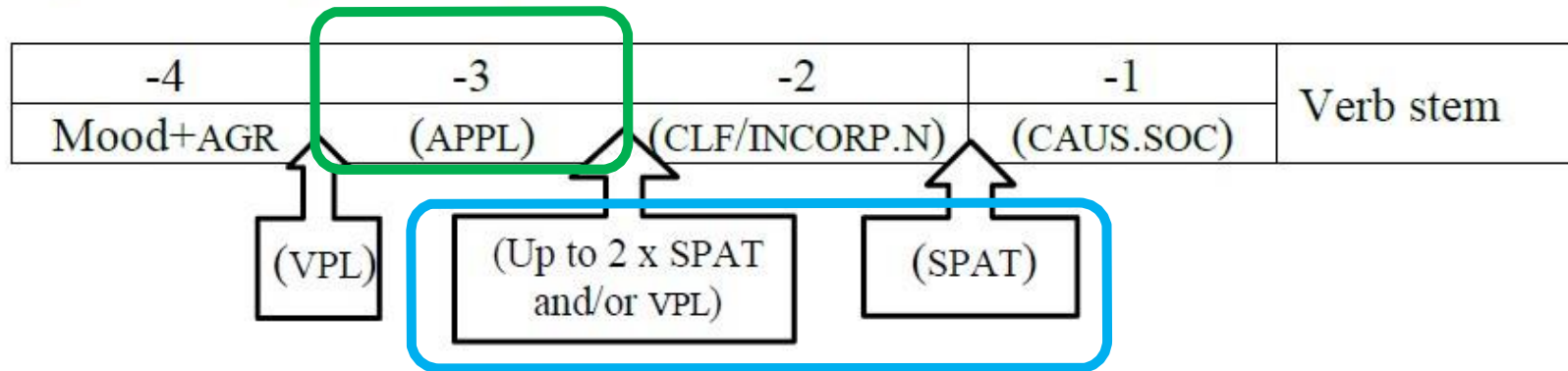


Figure 2. The suffix string of Harakmbut finite verb forms (cf. Tripp 1976)

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

5. Spatial prefixes as applicatives

Spatial prefixes:

- can be inserted in-between different fixed-position prefixes/incorporated nouns
- specify locative or directional circumstances of (participants in) the event denoted by the verb
- are valency-neutral or valency-increasing → have applicative functions, but are not dedicated applicatives
- have become fossilized in certain cases

Three items:

- *ti-* : location high up ($ti_C \rightarrow [tʃi]$; $ti_V \rightarrow [tʃ]$)
- *on-~n-* : spatial relation of 'in', 'to' (Tripp 1976: 8) or 'on'
- *ok-~k-* : spatial relation of 'separation' (Tripp 1995: 219)

5. Spatial prefixes as applicatives

5.1 Valency-neutral spatial uses

monotransitive verb stems

(10a) *ken on-pok mboerek-ta*
then 3PL.IND-pass man-ACC
'Then they pass the man.'

(10b) *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)

(11a) *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)

(11b) *Lupe o-k-tegŋ-me mbiʔigŋ*
Lupe 3SG.IND-**SPAT:separation**-cut-REC.PST fish
'Lupe cut the fish into pieces.'

- intransitive, transitive and labile verb stems
- SPAT does not introduce applied phrase → non-syntactic function
- SPAT specifies location/spatial configuration of O-participant of transitive verbs, or S-argument of intransitive verbs (absolutive patterning just like CLF)

5. Spatial prefixes as applicatives

5.1 Valency-neutral spatial uses



o-ket-on



o-k-ket-on

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

(12) intransitively used labile root 'break': prefix *ok-~k-* specifies the **internal spatial configuration** of S (12) and of O (11b)

→ 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

5. Spatial prefixes as applicatives

5.2 Valency-increasing spatial uses

Examples with intransitive verb stem *-kot* ('fall') → spatial prefixes locate 'original' S viz-à-viz applied phrase (seem obligatory!)

- (13) *o-wedn-ato* *ãñĩ* *bisikleta* *o-n-kot* Goal
 3SG-lie-MOVE&DO FILLER bicycle 3SG.IND-**SPAT:on**-fall
 'He falls (literally: 'moves and lies down'), eh, he falls onto his bike.' (Pear story)
- (14) *o-k-mba-kot-onka-me-te* *yave* *An-ta* Source
 3SG.IND-**SPAT:separation**-VPL-fall-suddenly-REC.PST-NFIRSTH key An-ACC
 'An's keys fell all of a sudden.' (Lit.: 'The keys suddenly fell away from An.')
- (15) *Pomelo-a* *o-ku-ti-kot-ay* *Joeri-ta* Goal
 grapefruit-NOM 3SG.IND-head-**SPAT:up**-fall-AVRT Joeri-ACC
 'A grapefruit almost fell on Joeri's head.'
 [also noun incorporation Type II: possessor is advanced to object status, which position is vacated by the incorporated body part *ku-* (cf. Mithun 1984: 857–858)]

5. Spatial prefixes as applicatives

5.2 Valency-increasing spatial uses

Example with transitive verb stem → spatial prefixes locate ‘original’/underived O viz-à-viz
applied phrase → spatial prefix seems obligatory

(16)	<i>i-k-totok-me-y</i>	<i>eʔ-pidn</i>	<u><i>abueta-ta</i></u>	Source
	1SG- SPAT:separation -pull-REC.PST-1.IND	NPF-thorn	grandmother-ACC	
	‘I pulled a thorn out of grandmother(’s knee).’			

→Applicative function found on both intransitive and transitive roots

→Prefixes introduce a Location argument into the clause

→location/spatial configuration targets the underived S-argument of intransitive roots (= A-argument in the applicative structures) and the underived O-argument of transitive roots

5. Spatial prefixes as applicatives

5.3 Valency-increasing non-spatial uses

- **Semantic weakening** from spatial semantics to ‘involvement’ in the event: spatial meaning metaphorically extended or gone lost at the expense of the lexical semantics of the host verb
- attested for only two prefixes: *on-~n-* and *ti-*
- Animacy restriction: introduce **human** non-Actor arguments to the clause

(17a) *Kate* *i-ka-me-∅* *sik-yo?*
what 2SG-do-REC.PST-DUB dark-LOC
‘What did you do in the evening?’

(17b) *Kate* *i-n-ka-me-∅* *abueta-ta* *sik-yo?*
what 2SG-**SPAT:on**-do-REC.PST-DUB grandmother-ACC dark-LOC
‘What did you do to grandmother in the evening?’

(context: I removed a thorn from grandmother’s knee that night with my tweezers, cf. (16))

‘DO STH’ → ‘DO STH TO A PERSON’

5. Spatial prefixes as applicatives

5.3 Valency-increasing non-spatial uses

Spatial prefixes: **semantic weakening** from spatial semantics to ‘involvement’ in the event

(18a) *mboerek* *oʔ-a-me* [*o-arak-apo-ne* *ndumba-yo*]
man 3SG.IND-say-REC.PST [1<>2SG-kill-FUT-IND forest-LOC]
‘The man said: “I am going to kill you (SG) in the forest.”’

(18b) *mboerek* *me-n-a-me-ne*
man 3SG>1/2SG-**SPAT:on**-say-REC.PST-IND
[mbe-arak-apo-ne-a *ndumba-yo]*
3SG>1/2SG-kill-FUT-IND-QUOT forest-LOC
‘The man told me he was going to kill me in the forest’

(18a): reporting clause of direct speech/ ‘SAY’ → intransitive

(18b): reporting clause of indirect speech / ‘SAY TO SOMEBODY’ → transitive

5. Spatial prefixes as applicatives

5.3 Valency-increasing non-spatial uses

- (17)-(18): **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.

→ concept of Goal is extended from the concrete spatial domain to the abstract domain of human cognition and interaction (cf. Givón 2009: 89)

5. Spatial prefixes as applicatives

5.3 Valency-increasing uses

Spatial prefixes: **semantic weakening** from spatial semantics to ‘involvement’ in the event
→ abstract valency-increasing use seems to have become syntactically optional!

(19a) *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.’

(19b) *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.’

Stimulus

→ Comes close to a canonical applicative

6. Lexicalized uses

- in some cases complex verb stems are no longer semantically transparent → lexicalization effects, which corroborate their affinity to derivational morphology
- Possible to identify distinct morphemes, but overall meaning of verb stem is no longer compositional, or too little predictable to warrant morpheme breaks
- In (a), (b), (c) and in the first meaning of (d), the spatial prefixes do not affect the valency of the verb roots
- In (e)-(f) + 2nd meaning of (d): the prefixes do increase the valency of the roots

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

7. Conclusion

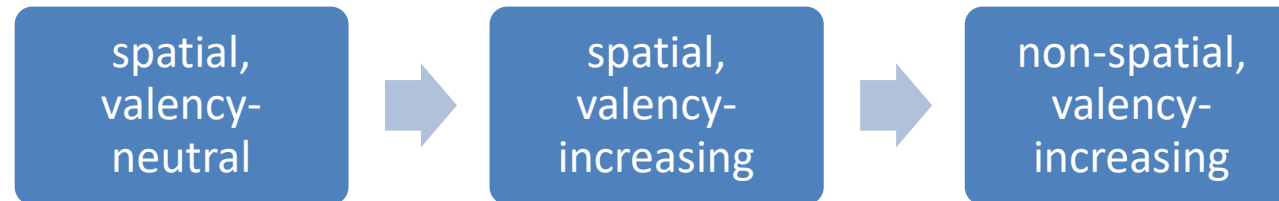
- Harakmbut has canonical applicatives: benefactive *nij-* and general applicative *ta-*
- In addition: set of spatial prefixes → can be ranged on a grammaticalization cline:

Syntax	valency-neutral		valency-increasing	
Semantics	spatial		non-spatial	
<i>ok-~k-</i>	✓		✓	✗
<i>ti-</i>	✓		✓	✓
<i>on-~n-</i>	✓		✓	✓
<i>taʔ-</i>	✓		✓	(✓)
<i>wa-</i>	✓		✓	(✓)

- **Valency-neutral uses:** SPAT specify location/spatial configuration of S/O-participant (resultant state or ‘stable’ throughout event)
- **Valency-increasing uses – spatial** (motion, caused motion verbs): SPAT introduce Location argument into the clause, and specify the location of the underived S or O argument (*Figure*) with respect to this applied phrase (*Ground*)
- **Valency-increasing uses – abstract** (non-motion verbs): SPAT introduce applied phrase, typically human → single grammaticalization path, from spatial element to non-spatial applicative

7. Conclusion

- **Valency-neutral uses**: SPAT specify location/spatial configuration of S/O-participant (resultant state or 'stable' throughout event)
- **Valency-increasing uses – spatial** (motion, caused motion verbs): SPAT introduce Location argument into the clause, and specify the location of the underived S or O argument (*Figure*) with respect to this applied phrase (*Ground*)
- **Valency-increasing uses – abstract** (non-motion verbs): SPAT introduce applied phrase, typically human



single grammaticalization path, from spatial element to non-spatial applicative

7. Conclusion – Call for input

- Grammar from space project (collaborative research project, funded by ULiège research council):
- We are interested in how elements with spatial meaning develop into applicative markers
- Relevant phenomena include:
 - spatial prefixes like in Harakmbut
 - Associated Motion markers and Directionals, e.g. in Nilotic (Payne 2021)
 - preverbs that grammaticalized out of incorporated spatial nouns, e.g. in Abaza (Northwest Caucasian, Russian republics of Karachay-Cherkessia; Arkadiev 2021).

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List of publications (postprints in slides in open access):

<https://orbi.uliege.be/ph-search?locale=en&uid=u226091&filter=ft-oa>

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Introduction

WP1

WP2

WP3

WP4

WP5

SPACEGRAM

Partners ULiège: Lieselotte Brems, Isa Hendrikx, Julien Perrez

Members of the consortium: Riccardo Giomi (Amsterdam), Dana Louagie (ULiège), Dirk Pijpops (U Antwerpen)

PhD students: Timofey Mukhin, Ann-Sophie Vrielynck

Introduction



o-ket-on



o-k-ket-on

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How spatial elements become applicatives

- Sources with spatial semantics from existing literature: adpositions and nouns
- But also new source of applicatives: spatial verb morphology in Harakmbut

(4) Harakmbut (unclassified, Peru)

*o-k-**mba**-kot-onka-me-te*

3SG.IND-**SPAT:separation**-VPL-fall-suddenly-REC.PST-INDIR.EVD

yave

key

An-ta

An-ACC

‘The keys suddenly got lost to An.’ (Lit. ‘The keys suddenly away.from-fell An.’)

(Van linden 2022: 143)

Valency-increasing use



Valency-neutral use

(5) Harakmbut (unclassified, Peru)

o-k-ket-on

3SG.IND-**SPAT:separation**-break-PFV.NVOL

pĩã

arrow

‘The arrow broke into pieces.’ (elicitation) (Van linden 2022: 141)

Introduction

How spatial elements become applicatives

- Aims: investigate how elements with spatial meaning develop into applicatives from a typological and Germanic perspective, with extensions into applied research, viz. translation studies

Typology: synchronic data; diachronic hypotheses

- WP1: Typological study of 240 languages
- WP2: focused study of Harakmbut

Germanic languages: diachronic data to investigate well-established adposition-to-applicative pathway and role of adposition stranding

- WP3: Dutch
- WP4: English

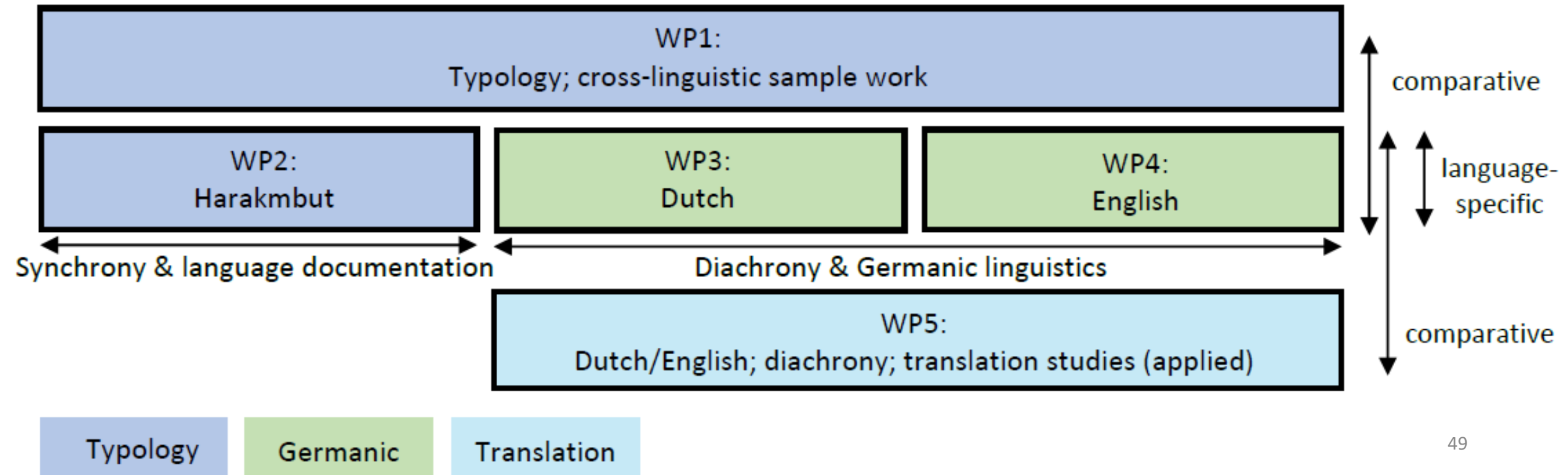
Translation studies:

- WP5: contrastive linguistics & translation studies Dutch & English, synchronic & diachronic data

Introduction & Outline

How spatial elements become applicatives

- Aims: investigate how elements with spatial meaning develop into applicatives from a typological and Germanic perspective, with extensions into applied research, viz. translation studies
- Architecture of the project:



WP1: Typological study of applicative uses of spatial markers

Tim Mukhin, supervised by An Van linden & Dana Louagie, and Riccardo Giomi in supervisory committee

Research questions:

RQ1. How widespread is the applicative use of spatial markers in the world's languages? Any areal/genetic patterns?

RQ2: What are the characteristics of spatial markers with applicative uses or applicative markers of spatial origin? Some parameters of variation:

- (i) functional type of spatial markers (SMs)
- (ii) syntactic effect of the applicative marker
- (iii) semantic role of the applied phrase.

RQ3: What do our findings tell us about the correlations established in the literature? E.g. Peterson's hierarchy (2007: 229) of the semantic roles of applied phrases:

BEN < INST, COM < LOC, CIRCUM

RQ4: What are the diachronic implications of our findings?

WP1: Typological study of applicative uses of spatial markers

What kind of spatial markers are we looking at?

- Associated motion markers

(6) Wolof (Atlantic, Senegal; Voisin 2013: 142, cited in Guillaume & Koch 2021: 6)

Waa-dëkk *bépp* *a* *wall-si* *woon.*

village_inhabitant all EMPH.S rescue-**come&do** PST

‘The whole village came to rescue.’

- Directionals

(7) Päri (Andersen 1988: 87-88)

yàath *á-ɲud`-ì* *ùbúrr-ì*

tree CPL-cut:VEN-SUF Ubur-ERG

‘Ubur cut the tree (this way).’

- Preverbs that grammaticalized out of incorporated spatial nouns

WP1: Typological study of applicative uses of spatial markers

Our study includes:

- Valency-increasing uses

see Harakmbut examples

- Valency-rearranging uses

(8) Agar Dinka (Nilotic, S. Sudan; Andersen 1992-1994: 10; cit. in Payne 2021: 719)

a. *d̥ɔk* *à-bòk* *dít*
boy D-throw bird

‘The boy is throwing at the bird.’

b. *d̥ɔk* *à-bóok* *dòòot*
boy D-throw:ITV stone

‘The boy is throwing a stone thither.’

direct object = Goal in BC (8a) → direct object = Theme in AC (8b)

D – declarative; ITV – itive

WP1: Typological study of applicative uses of spatial markers

Our study includes:

- Direct applicatives
- Non-direct applicatives (applied phrases = OBL; here: allative)

(9) Bystraja Even (Tungusic, Russia; Pakendorf & Stoyanova 2021: 857)

<i>nan</i>	<i>ga-sči-na-ri-n</i>	<i><u>akan-taki-n</u></i>	<i>asatkam</i>
and	take-CONAT- AM -PST-3SG	father- ALL -POSS.3SG	girl.ACC

‘And he went to her father to ask for (lit. take) the girl (in marriage).’

WP1: Typological study of applicative uses of spatial markers

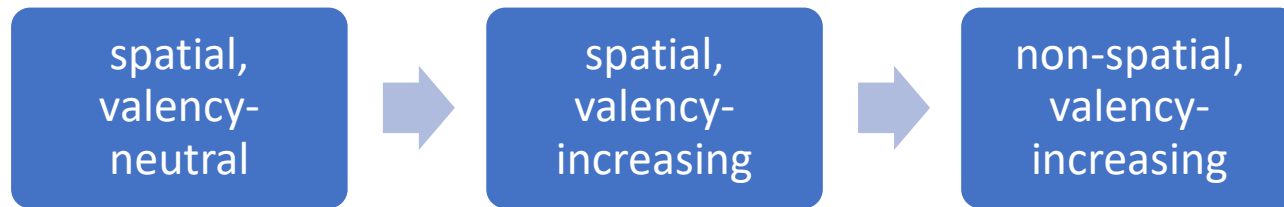
Methods:

- Typological study
- Sample of 240 languages
- Grammar mining; drawing up database; analysis

WP2: Distribution and inventory of spatial prefixes in Harakmbut

An Van linden

- Van linden (2022) describes three uses of three spatial prefixes in Harakmbut (unclassified, Peru) and arranges them on a grammaticalization cline



‘arrow broke into pieces’ > ‘keys fell away from An’ > ‘How did they do it to him, auntie?’

- **Methods:** analysis of Harakmbut narratives and conversations collected in the field

WP2: Distribution and inventory of spatial prefixes in Harakmbut

- **Research questions:**

RQ1. Which factors determine the distribution of spatial prefixes, in their three distinct uses?

- a) Is the discourse status of applied phrases different from that of arguments targeted by valency-neutral uses?
- b) Which semantic roles do the applied phrases have (types of Location & non-Location)?
- c) Does the discourse status of applied phrases correlate with prosodic features?

RQ2. Can any additional spatial prefixes with applicative uses be identified?

WP3: Diachrony of verb-particle constructions in Dutch

Ann-Sophie Vrielynck, supervised by Julien Perrez & Dirk Pijpops

Particles/prefixes in verbs (e.g. *door*) derive from spatial postpositions & increase valency of stem:

Separable complex verbs (SCV):

(11) *een jonge nieuwkomer die reeds Basiskennis Nederlands heeft **doorgelopen**.*

'A young newcomer who has already through_walked Basics of Dutch.'

(12) *De poort **loop je door**, en dan kom je in een donkere ruimte.*

'You through_walk the gate, and then you enter a dark room'

Inseparable complex verbs (ICV):

(13) *De 50.000ste buitenlander die met succes het inburgeringstraject heeft **doorlopen**.*

'The 50,000nd foreigner who has succesfully through_walked the naturalization course.'

(14) *Hij **doorliep** de jeugdangangen van de Meteors*

'He through_walked the youth ranks of the Meteors.'

WP3: Diachrony of verb-particle constructions in Dutch

Seperable and inseperable complex verb formation seem highly productive, e.g. *pimpen* 'to pimp', first introduced to Dutch in 2004 (MTV *Pimp my Ride*):

(15) *We willen het design nog ff **aanpimpen*** (SCP/ICV, 2011)

'We just want to quickly **to_pimp** the design.'

(16) *En ik heb hem net **afgepimpt** en nu is hij nog chiller* (SCP, 2012)

'And I have just **off_pimped** him and now he is even chiller.'

(17) *Niels moet eigenlijk zijn blog **doorpimpen*** (SCP/ICV, 2009)

'Niels actually ought to **through_pimp** his blog'

(18) *Ga die **overpimpte** dopingwedstrijd geen 3 weken mn TL laten verpleuren* (ICV, 2015)

'I'm not going to let that **over_pimped** drug_contest mess up my TL for three weeks.'

(19) *Tiny wordt 'n **overgepimpte** selfgepromote tv journalist* (SCV, 2016)

'Tiny becomes an **over_pimped** selfpromoted TV-journalist.'

WP3: Diachrony of verb-particle constructions in Dutch

Postpositions:

(19) **De hele stad door** moesten we, straat in, straat uit, tot we ons tussen de velden bevonden.

‘through the entire city, we had to go, street in, street out, until we found ourselves in the fields.’

(20) *Hoewel ik in Heidelberg alle straten door ben gelopen.*

‘although I have walked through all streets in Heidelberg’

- Postpositions & separable complex verbs (SCV): infamously large grey zone (Beliën 2016, 2021), lots of bridging contexts
- Separable & inseparable complex verbs (ICV) : for infinitives without *te* ‘to’ and finite verbs in verb-final position, the only formal difference lies in stress
 - Supposed grammaticalization/lexicalization pathway: postposition + verb → SCV → ICV

WP3: Diachrony of verb-particle constructions in Dutch

Research questions:

RQ1. Did Dutch complex verbs develop from postposition constructions over separable into inseparable complex verbs?

- (a) Did complex verbs with a resultative meaning (e.g. *uitschakelen* 'turn off', lit. 'out_turn') develop differently from those with a non-resultative one (e.g. *overlezen* 'read through', lit. 'over_read')(cf. Blom 2004)?
- (b) Did complex verbs develop without adposition stranding? (cf. Peterson 2007)

RQ2. Can we uncover systematic concomitant semantic and syntactic changes?

- (a) Is semantic change requisite for a change from postposition to SCV and SCV to ICV (cf. *overpimpen*)?
- (b) Do the semantic changes of ICV's typically involve increased conceptual transitivity and/or loss of semantic compositionality?
- (c) Do we find changes in auxiliary selection for the perfect tenses in the historical data? Dutch postposition constructions express a change of state and hence select *zijn* 'be' while transitive predicates take *hebben* 'have'.

WP3: Diachrony of verb-particle constructions in Dutch

Methods: historical corpus research

→ Working in two directions:

- From Present-day back in time: tracing formal and semantic development of +- 20 SCV and ICV
- From Middle to Present-day Dutch: case-studies of +- 5 postpositions

→ Using two types of corpora:

- monolingual Dutch historical corpora
 - EDGeS-corpus of Bible translations (Bouma et al. 2020)
-
- Qualitative & quantitative analysis
 - Currently: pilot study on *onderwerpen* 'subjagate', lit. 'under_throw', *ondergaan* 'undergo' lit. 'under_go', *onderdrukken* 'oppres', lit. 'under_press'

WP4: Diachrony of verb-particle constructions in English

An Van linden & Lieselotte Brems

- investigate well-established adposition-to-applicative pathway based on historical data, adopting a new, valency-centred approach to verb-particle constructions ('**phrasal verbs**') in English
- Focus on particles with spatial meaning, including prepositions (*off, down*) & adverbs (*away, out*)
- Unlike in Dutch, particles follow the verb rather than precede it; verb moved to pre-particle position in Middle English (Thim 2012); no adposition stranding!
- Cappelle (2007) points to valency-increasing effect of particles on verbs: effects differ with respect to whether the entire VPC is spatial in meaning and whether the VPC has an inherent endpoint (telic vs. atelic)

Is transitivity affected in telic VPC in atelic VPC ...
... with spatial use of particle?	Yes , e.g. <i>bark the postman *(away)</i>	Usually not, e.g. <i>push the cart (along)</i>
... with non-spatial use of particle?	Usually not, e.g. <i>type the text (over)</i>	No , e.g. <i>hum (*a song) along</i>

WP4: Diachrony of verb-particle constructions in English

- Reanalysis in preposition stranding scenario à la Peterson (2007: 126-129) is highly unlikely:
 - (21) *She **ran** [off the road].* (Cappelle 2004: 32)
 - (22) *She [**ran off**] another copy // She ran them off.* ('produced one on a machine') (Cappelle 2004: 32)
- Alternative: development from intransitive V-PRT combination (23) to transitive one (24)? Role of labile verbs?
 - (23) *they were forced to **run off** to sea for their owne safeguard.* ('flee') (OED, 1628)
 - (24) *[I] did..on a new text..**runne of** halfe a sermon at leisure hours.* ('write rapidly') (OED, 1683)
- Thim (2012: 7) noted that the majority of English verb-particle constructions contain mono-syllabic verbs of Germanic descent, while there seem to be restrictions on the use of borrowed and/or polysyllabic verbs

WP4: Diachrony of verb-particle constructions in English

Research questions:

RQ1. Did transitive English VPCs develop from preposition constructions?

- (a) Role of telicizing effect and semantic contribution of the particle on the VPC?
- (b) Historical evidence for verb-particle order contexts as the locus of change? Role of adposition stranding?

RQ2. If reanalysis can be upheld, can we uncover concomitant semantic changes?

RQ3. If reanalysis is to be ruled out, did lability of verbs play a role?

- (a) Evidence of lability of simplex verb before lability of VPCs (for same lexical verb)?
- (b) Or do transitive VPCs diachronically precede intransitive VPCs (for same lexical verb)?

Methods:

→ Working in two directions:

- From PDE back in time: case-studies of individual VPCs
- From Old to Present-day English: case-studies of individual spatial markers

→ Using two types of corpora: monolingual English historical corpora & EDGeS-corpus of Bible translations

WP5: Complex verbs in Dutch and English: diachronic translation studies & contrastive approach

Isa Hendrikx & researchers WP3-WP4

- This transversal work package bridges WP3 and WP4, and takes a comparative perspective just like WP1
- Its overarching objective is to provide a contrastive analysis of Dutch and English complex verbs, synchronically and diachronically, by means of two translation studies
- WP5 is expected to have a theoretical as well as an applied impact:
 - Theoretical: better understanding of contrastive morphology and complex-word formation (under-investigated topics in corpus-based translation studies (Lefer 2011))
 - Applied: improving translator education

WP5: Complex verbs in Dutch and English: diachronic translation studies & contrastive approach

Research questions:

RQ1. How are complex verbs treated in literary translations from English to Dutch and vice versa?

- a) How do translators tend to translate complex verbs? By (i) separable verbs, (ii) inseparable verbs, (iii) simplex verbs, (iv) paraphrases or (v) complete omission?
- b) Are the observed tendencies similar in both translation directions?

RQ2. Do complex verbs develop in English and Dutch in a parallel way (apart from different position of spatial particle)?

Hypotheses for RQ1: we expect to find complete omission only rarely:

- Expectation supported by research on priming (Defrancq & Rawoens 2016: 375)
- Phrasal verbs are less numerous in English translations if the source language is a Romance language than if the source language is a Germanic one (Cappelle & Loock (2017)
- Even experienced translators tend to translate literally (Tirkkonen-Condit 2002)
→ they will thus translate a complex verb into a complex verb

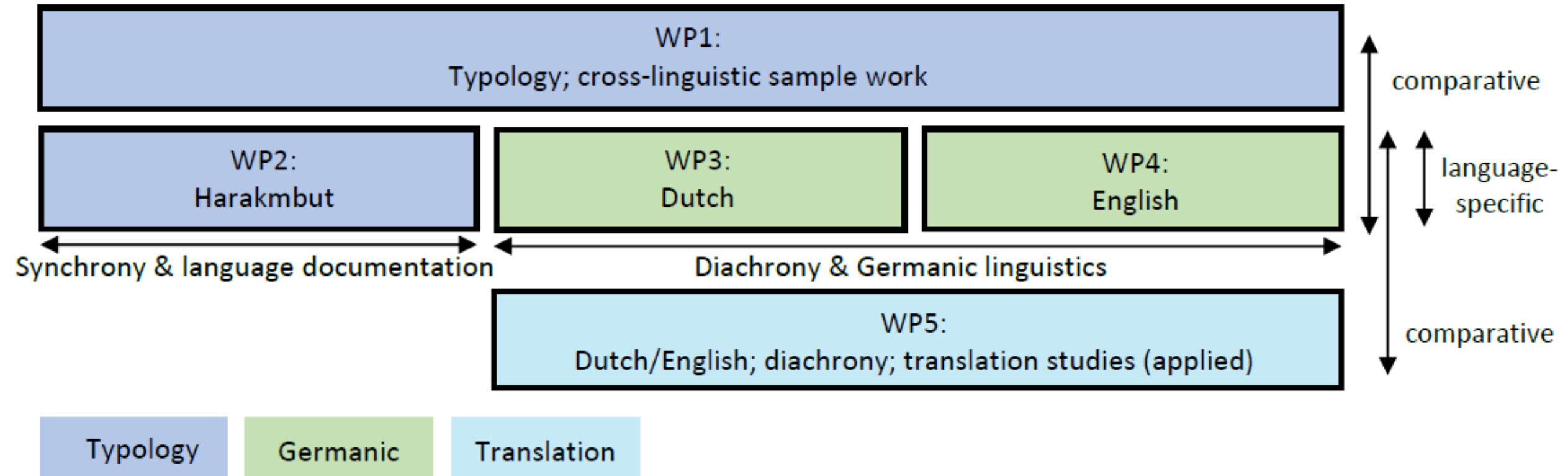
WP5: Complex verbs in Dutch and English: diachronic translation studies & contrastive approach

Methods:

- For RQ1: Dutch Parallel Corpus (Macken, De Clercq & Paulussen 2011), including translations Dutch > English and English > Dutch
- For RQ2:
 - Building on results of WP3 and WP4 → second half of project
 - Diachronic corpus study of 20 lexical items in EDGeS-corpus of Bible translations (Bouma et al. 2020)

Recap

Grammar from space – How spatial elements become applicatives



Call for input: SPACEGRAM

Grammar from space project

- We are interested in how elements with spatial meaning develop into applicative markers
- Relevant phenomena include:
 - spatial prefixes like in Harakmbut
 - Associated Motion markers and Directionals, e.g. in Nilotic (Payne 2021)
 - preverbs that grammaticalized out of incorporated spatial nouns, e.g. in Abaza (Northwest Caucasian, Russian republics of Karachay-Cherkessia; Arkadiev 2021).

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