A typological study of applicative uses of spatial markers: A pilot study

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Outline

1. Introduction
2. Sample & data collection
3. Analysis & results
4. Conclusion

1. Introduction

What are applicatives?

(1) San Lucas Quiaviní Zapotec (Zapotecan; Munro 2000: 285–286 cited in Zúñiga & Creissels 2024: 4)

a. *B-ìi'lly* *Gye'eihlly* *cëhnn* *Jwaany*.
   PFV-sing M. with J.

b. *B-ìi'lly-**nèe*** *Gye'eihlly* [*Jwaany*].
   PFV-sing-**APPL** M. J.
   'Mike sang with John.'

Base Construction = BC

Applicative Construction = AC

Applicatives: morphological verb markers that increase the valency of verbs (= the number of arguments), by allowing "the coding of a thematically peripheral argument or adjunct as a core-object argument" (Peterson 2007: 1).

Broader definition from Zúñiga & Creissels (2024: 4): introduced argument (applied phrase) need not be a core argument

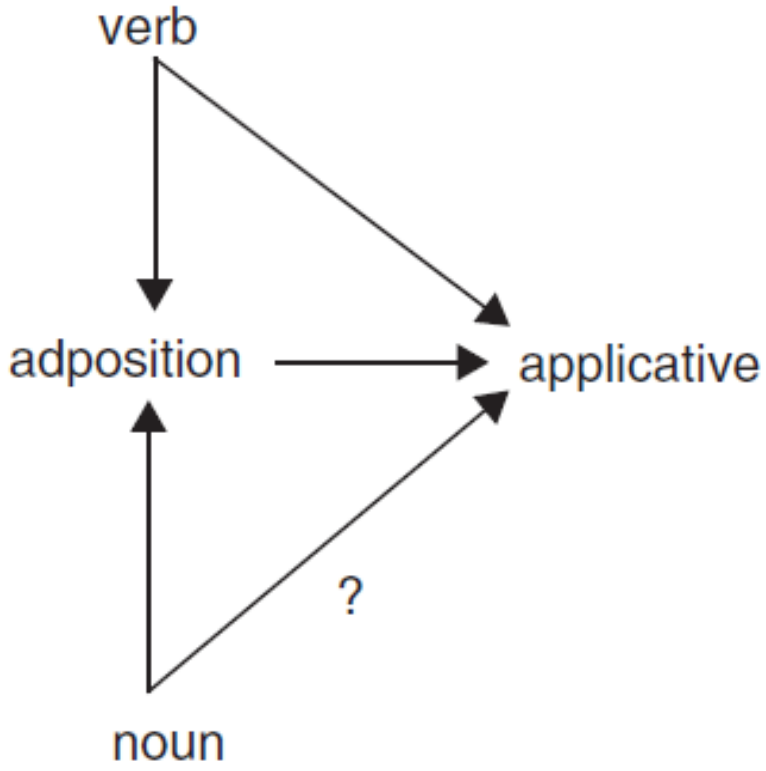
APPL —applicative; PFV — perfective

Old sources

Two independent (direct) sources for applicatives: **adpositions** and **verbs**

No evidence for direct relationship between **nouns** and applicatives (see also Rose 2019; Nordlinger 2019)

Figure 1. Diachronic sources (Peterson 2007:125)



New source

Spatial verb morphology in Harakmbut (isolate, SA) and Nilotic languages (Payne 2021)

Harakmbut (isolate, SA; Van linden 2022: 130, 142)

(2) spatial marker

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

‘Then, eh, they planted her **on the patio** for him [i.e. the jaguar]…’

(3) spatial applicative

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)

AM — associated motion; APPL — applicative; BEN — beneficiary; DEP — dependent verb form; DIST — distal; FILLER — filler; IND — indicative; LOC — locative; PL —plural; SG — singular; SPAT — spatial prefix

New source

Harakmbut (isolate, SA; Van linden 2022: 148)

(4) non-spatial applicative

men-pa	*an-**on**-ka-tuy,*	*tia*
which-manner	3PL.DUB-**SPAT:on**-do-REM.PST.INDIR.EVD	aunt

'How did they do it <u>to him</u>, auntie?'

Diachronic pathway posited: single grammaticalization path, from spatial element to non-spatial applicative:

(2) 'plant her on patio' > (3) 'fall (onto) bike' > (4) 'do something to a person'

DUB—dubitative; INDIR.EVD—indirect evidential; PL—plural; REM.PST —remote past; SPAT—spatial; 3—third person

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

Research questions

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?*

2. Sample & data collection

Sampling

Pilot study: 75 languages
(ultimate goal: 240 languages)

Genus-Macroarea method (Miestamo 2005):

- languages unrelated at level of **genus**
- languages from 6 **macroareas** in proportion to their genealogical diversity

+ languages from most recent sources

Table 1. Macroareas based on Miestamo et al. (2016: 257)

macroarea	**n of genera**	**% of overall genealogical diversity**	**75**	**240**
Africa	74	14.2%	11	34
Eurasia	43	8.3%	6	20
Southeast Asia & Oceania	66	12.7%	10	30
Australia & New Guinea	140	26.9%	20	64
North America	92	17.7%	13	42
South America	106	20.3%	15	49
total	**521**	**100%**	**75**	**239**

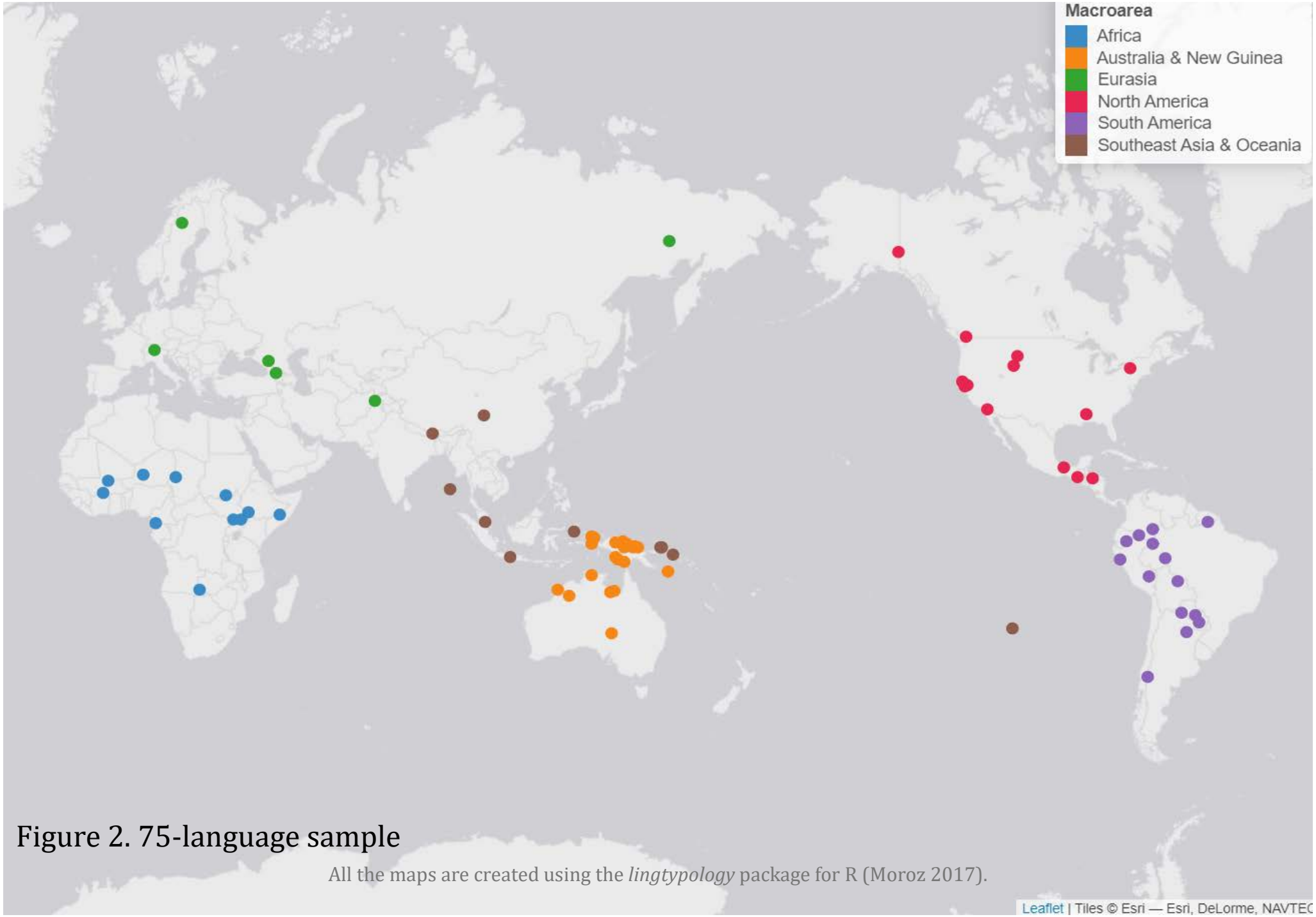


Figure 2. 75-language sample

All the maps are created using the *lingtypology* package for R (Moroz 2017).

Language reports

Language report template: basis for analysing grammatical descriptions

Aims in grammar-mining process:

- Inventory of both spatial and valency-affecting verb morphology
- Check for examples of relevant uses, if there are such:
    - Collect data about parameters of variation

What are relevant markers?

- Markers with applicative uses & valency-neutral spatial uses (synchronically)
- Markers of spatial origin (diachronically) with current applicative uses

3. Analysis & results

RQ1

- 23% (n=17) languages of the sample
- min. 25 markers

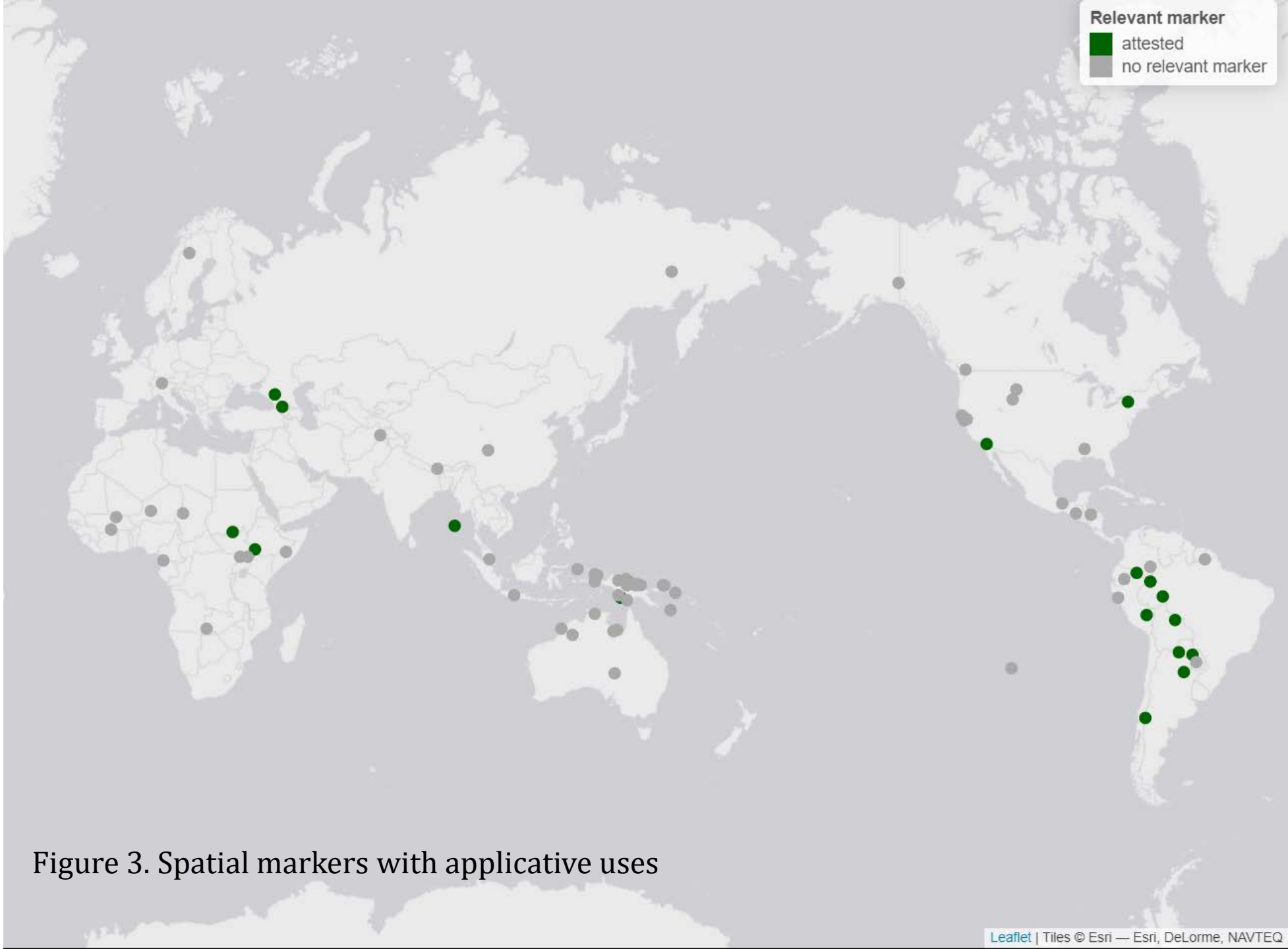


Figure 3. Spatial markers with applicative uses

Parameters of variation (RQ2)

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

General problem with (i): so far, no comprehensive typological studies of spatial verb morphology which provide an overview of all possible types of SMs (Plungian 2002: 3; Forker 2019: 92; Ross 2021: 32)

Bottom-up approach: data from grammars → language reports → typology of the parameters of variation

RQ2: (i) type of spatial marker

Classification in this study based on two parameters:

1. Type of spatial meaning coded (Guillaume & Koch 2021: 3; Ross 2021: 35; Ganenkov 2009: 127; Kibrik 1970)

- Direction (e.g. VENTIVE *go* → *come*)
- Localization (e.g. SUPER *sleep on X*)
- Associated Motion (e.g. SUBSEQUENT VENTIVE *sleep and then come*)

2. Semantic type of verb with which SM is attested

- Motion verb (e.g. *walk*)
- Non-motion verb (e.g. *sleep*)

RQ2: (i) type of spatial marker

Classification used in the study:

Dedicated SMs:
- *Locational* (LOC): adds Localization to non-motion verb
- *Directional* (DIR): specifies/adds Direction to motion verb
- *Associated Motion* (AM): adds (directed) Motion to non-motion verb

Mixed SMs:
- *DIR/LOC*: adds Direction or Localization depending on lexical semantics of verb
- *DIR/AM*: adds Direction or (directed) Motion depending on lexical semantics of verb
- *AM/LOC*: adds (directed) Motion or Localization depending on lexical semantics of verb

RQ2: (i) type of spatial marker

(5) Abaza (Northwest Caucasian, E) (Arkadiev 2021: 40), (O'Herin 2002: 64)

a. non-motion verb: localization SUPER (contactless)
a-č'ḳʷən *a-ʒəχ'* *d-a-**qa**-ĉ-ṭ*
DEF-youth DEF-spring 3SG.H.ABS-3SG.N.IO-**LOC**-sleep(AOR)-DECL
'The guy fell asleep **over the spring of water**.'

b. motion verb: direction upwards
a-mara (*j*-)*ʃa-**qa**-l-əj-d*
DEF-sun (3SG.N.ABS-)CISL-**LOC**-go.in-PRS-DECL
'The sun **rises**'.

Based on (5), Abaza spatial prefix ***qa*** is taken to belong to DIR/LOC type.

AOR — aorist; ABS — absolutive; CISL — cislocative; DECL — declarative; DEF — definite; H — human; IO — indirect object; LOC — locative; N — non-human; PRS — present; SG — singular; 3 — third person

Results RQ2: (i) type of spatial marker

Table 2. Attested types of SM with applicative uses

	AM	DIR/AM	DIR	DIR/LOC	total
attested types of SMs	16% (4)	16% (4)	28% (7)	40% (10)	25
	Direction(+Motion)			Localization	

- DIR/LOC → SUPER (n=7) or IN (n=3)
- AM, DIR/AM, DIR → no preferences

RQ2: (ii) syntactic effect of applicative

1. **Syntactic Status of the applied phrase** (AppP) **in the AC**:
   - *P-applicative* — AppP = direct object
   - *D-applicative* — AppP = dative/indirect object
   - *X-applicativ*e — AppP = oblique

2. **Status of the semantic equivalent** (BaseP) **of the AppP in the BC**:
   - *Optional* applicative — BaseP present in the BC
   - *Obligatory* applicative — BaseP obligatorily absent from the BC

3. **Sensitivity to syntactic valency** (relevant for P-applicatives):
   - *Transitivizing* applicative — increases number of core syntactic arguments in BC
   - *Redirecting* applicative —introduction of AppP + demotion of non-Actor argument (up to omission)

RQ2: (ii) syntactic effect of applicative

Georgian (Kartvelian, E; Hewitt 1995: 184)

(6) locative optional D-applicative (transitivizing)

a. *k'ac-ma* *k'onvert'-ze* *misamart-I* *da-(Ø-)c'er-a*
man-ERG envelope-on address-NOM PREV-(it-)write-he(AOR)

b. *k'ac-ma* [*k'onvert'-s*] *misamart-I* *da-(Ø-Ø-)**a**-c'er-a*
man-ERG envelope-DAT address-NOM PREV-(it-it-)**APPL**-write-he(AOR)
'The man wrote the address <u>on the envelope.</u>'

BC

AC

Murui (Witotoan, SA; Wojtylak 2020: 344)

(7) source obligatory X-applicative (transitivizing)

[*Alexis* *jo-fo-mona*] *Fransiska=di-no-moloc* *gui-**zaɨbi**-t-epred*
Alexis house-CLF-ABL Francisca=at-CLF-LOC eat-**VENTV**-LK-3
'<u>From the house of Alexis</u> (she) came to eat at Francisca's.'

Simplified: ABL — ablative; AOR — aorist; APPL — applicative; CLF — classifier; DAT — dative; ERG — ergative; LK — linker; NOM — nominative; PREV — preverb; VENTV — ventive; 3 — third person

RQ2: (ii) syntactic effect of applicative

Agar Dinka (Nilotic, not in the sample; Andersen 1992-1994: 10 cited in Payne 2021: 719)

(8) P-applicative (redirecting)

a. *d̲ɔ̈ɔ̈k* *à-bòk* *dít*
boy DECL-throw bird
'The boy is throwing at the bird.' (BC)

b. *d̲ɔ̈ɔ̈k* *à-**bóok*** [*doòot*]
boy DECL-throw:**ITV** stone
'The boy is throwing a stone thither.' (AC)

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

DECL —declarative; ITV —itive

Results RQ2: (ii) syntactic effect of applicative

Table 3. Syntactic effect of SM with applicative uses

	Obligatory	Optional	Total
P-applicative	60% (15)	16% (4)	76% (19)
D-applicative	0	12% (3)	12% (3)
X-applicative	12% (3)	0	12% (3)
total	72% (18)	28% (7)	100% (25)

Not attested in the pilot sample:

- Obligatory D-applicative
- Optional X-applicative: also not attested cross-linguistically (Zúñiga & Creissels 2024: 21)
- Redirecting applicative

RQ2: (iii) semantic role of AppP

Functions of applicative markers:

- Adding a "spatial" applied phrase
- Adding a "non-spatial" applied phrase

Table 4. Attested semantic roles of AppP

role type	semantic role	example
Spatial	Source	'walk from X'
	Goal	'walk to X'
	Location	'walk in X'
Non-spatial	Recipient	'send to X'
	Beneficiary	'fish for X'
	Maleficiary	'cast a spell on X'
	Instrument	'walk using X'
	Comitative	'walk with X'
	Experiencer	'Smth happened to X'
	Reason	'kill because of X'
	Stimulus	'dream of X'
	Subject matter	'lie about X'
	Standard of comparison	'be taller than X'

RQ2: (iii) semantic role of AppP: spatial

Murui (Witotoan, SA; Wojtylak 2020: 532, 375, 434, 344)

(9) ventive/reversive directional

bi-e	*nokae*	*da-ma*	*faɨri-yaɨ-kai-d-epredjoraida*	*ie*	*dane*	*abɨdo*
this.CTS-CLF	canoe	one-CLF	float-?-INCP-LK-3	lake	CONN	once	again

*rii-**zaɨbi**-d-epred*

arrive-**VENTV**-LK-3

'This canoe floated away (lit. alone) at the lake, and, once again, it **came back**.'

(10=7) source obligatory X-applicative/prior subject ventive AM (motion-cum-purpose)

[*Alexis*	*jo-fo-mona*]	*Fransiska=dɨ-no-moloc*	*gui-**zaɨbi**-t-epred*
Alexis	house-CLF-ABL	Francisca=at-CLF-LOC	eat-**VENTV**-LK-3

'<u>From the house of Alexis</u> (she) came to eat at Francisca's.'

Simplified: ABL — ablative; CLF — classifier; CONN — connective; CTS — close to speaker; INCP — inceptive; LK — linker; LOC — locative; VENTV — ventive; 3 — third person

RQ2: (iii) semantic role of AppP: refuting hypothesis

Tikuna (Tikuna, SA; Bertet 2020 : 218, 583)

(11) SUPER(/DIST) locational

yẻ-má *níì=ĩ̀* *rù̀* *yĕ'-àkù̀=ã'a*
DIST-ANAPH 3M=be and DIST.PLOC-approx=QUOT
*tà=chó-**pétɨ̄**-'ɨ́* *ĩ̀'pémá-gù=ã'a…*
3.SBJ=be.there.pl-**across**-SUB edge.of.the.jungle-PLOC=QUOT
'So, they would spend their time **over there,** at the edge of the jungle…'

(12) experiencer obligatory P-applicative

[*mārɨ̄ mù-'è* *yá=dùɨ̄-'è-'ɨ̄*] *ná=ɨ́-**pétù̀*** *i=ñå-à* *caso*
PRF be.several-REL LK=be.a.human-REL-ACC 3M=be.there.sg-**across** LK=PROX-EXO case
'[...] this thing has happened to several people.'

Simplified: ACC — accusative; ANAPH — anaphoric; DIST — distal; EXO — exophoric; LK — linker; M — masculine; PLOC — punctual locative; PROX — proximal; PRF — perfect; QUOT — quotative; REL — relativizer; SBJ — subject; SUB — subordinator; 3 — third person

Results RQ2: (iii) semantic role of AppP

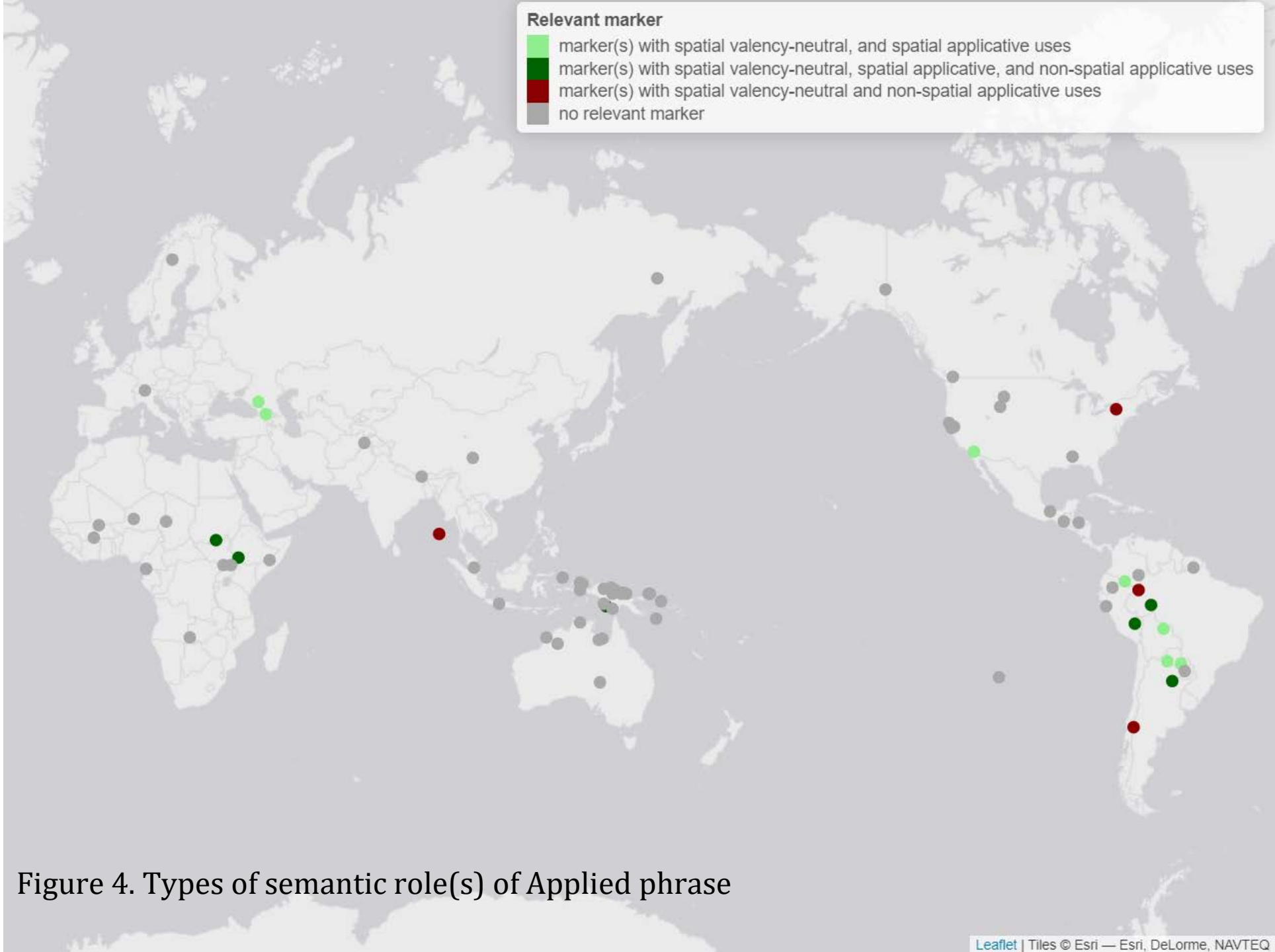


Figure 4. Types of semantic role(s) of Applied phrase

Results RQ2: type of spatial marker & semantic role

Skewed distribution of non-spatial semantic roles over types of SMs:

- **Beneficiary,** Standard of Comparison, Subject Matter: only attested with AM, DIR or DIR/AM markers, so never with Localization markers
- **Maleficiary**, Reason, Comitative, Experiencer: only attested with Localization markers (DIR/LOC)
- Recipient, Stimulus, Instrument: no bias

Table 5. Non-spatial roles of AppP per SM type (SM might add ≥ 1 semantic role)

	BEN	SOC	SUBJM	REC	STIM	INST	EXP	COM	REAS	MAL
No Localization (n=10)	**2**	2	1	2	2	1				
Localization (n=15)				1	2	1	1	2	4	**4**

4. Conclusion

RQ1

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

Relevant markers:

- 23% languages of the sample (17 out of 75 languages), min. 25 markers
- Attested in all macroareas
- >50% (n=14) of the cases in South America

RQ2

RQ2: *What are the characteristics of spatial markers with applicative uses or applicative markers of spatial origin?*

(i) type of spatial marker

- If a relevant SM encodes Localization it is either SUPER or IN; no other (topological or deictic) Localizations
- Most frequent type of relevant SM is DIR/LOC (40%: n=10)

(ii) syntactic effect of applicative

- Correlations: X-applicatives are obligatory (n=3); D-applicatives are optional (n=3); P-applicatives are more often obligatory (n=15) than optional (n=4)

(iii) semantic role of AppP

- Skewed distribution of non-spatial semantic roles over types of SMs:
  - Group 1 (Localization): **Beneficiary,** Standard of Comparison, Subject Matter
  - Group 2 (no Localization): **Maleficiary**, Reason, Comitative, Experiencer
  - Group 3 (no bias): Recipient, Stimulus, Instrument

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